# The Corporation of the City of Kawartha Lakes

# Amended Agenda

# Committee of the Whole Meeting

**COW2025-08**
**Tuesday, October 7, 2025**
**Open Session Commencing at 1:00 p.m.**
**Council Chambers**
**City Hall**
**26 Francis Street, Lindsay, Ontario K9V 5R8**

**Members:**

Mayor Doug Elmslie
Deputy Mayor Charlie McDonald
Councillor Ron Ashmore
Councillor Mark Doble
Councillor Dan Joyce
Councillor Mike Perry
Councillor Tracy Richardson
Councillor Pat Warren
Councillor Emmett Yeo

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**To speak to an Item on this Agenda you must submit a completed Deputation Request Form by Friday, October 3, 2025 at 12:00 p.m.**
**Accessible formats and communication supports are available upon request. The City of Kawartha Lakes is committed to accessibility for persons with disabilities. Please contact AgendaItems@kawarthalakes.ca if you have an accessible accommodation request.**

Pages

1. Call to Order

2. Adoption of Agenda

3. Disclosure of Pecuniary Interest

4. Presentations

4.1 COW2025-08.4.1

**Presentation of the Bee a Hero and Environmental Hero Awards**
Jenna Stephens, Planning Officer - Environmental Policy

**That** the presentation by Jenna Stephens, Planning Officer - Environmental Planning, **regarding the 2024 Bee a Hero and Environmental Hero Awards**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

5. Deputations

5.1 COW2025-08.5.1 8 - 11

**Concerns Relating to Student/Boarding Houses**
Emma Ekin

**That** the deputation of Emma Ekin, **regarding Concerns Relating to Student/Boarding Houses**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

6. Correspondence

6.1 COW2025-08.6.1 12 - 36

**2024 Detachment Board Annual Report**
Inspector Robert Flindall, Detachment Commander, City of Kawartha Lakes O.P.P. Detachment

**That** the correspondence from Inspector Robert Flindall, Detachment Commander for the City of Kawartha Lakes O.P.P. Detachment, **regarding the 2024 Detachment Board Annual Report**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

## 7. Presentations

7.1 COW2025-08.7.1

**Parks and Recreation Draft Strategic Plan Presentation**
Jenn Johnson, Director of Community Services

**That** the presentation by Jenn Johnson, Director of Community Services, **regarding the Draft Strategic Plan for Parks and Recreation**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

*7.1.1 Report PR2025-009 *37 - 378*

**Parks and Recreation Strategic Plan - Draft**
Jenn Johnson, Director of Community Services

**That** Report PR2025-009, **Parks and Recreation Strategic Plan - Draft**, be received;

**That** the final recommended Parks and Recreation Strategic Plan be brought forward to Council for approval at the Regular Council Meeting of November 18, 2025; and

**That** these recommendations be brought forward to Council at the next regular Council Meeting.

7.2 COW2025-08.7.2

**Angeline Street North Municipal Class Environmental Assessment (EA) Completion Presentation**
Corby Purdy, Manager, Infrastructure Design and Construction
Alex Wilkinson, Consultant Project Manager, Ainley Group
Scott Reynolds, Manager of Environmental Planning, Ainley Group

**That** the presentation by Corby Purdy, Manager of Infrastructure Design and Construction, Alex Wilkinson, of Ainley Group and Scott Reynolds, of Ainley Group, **regarding the Angeline Street North Municipal Class Environmental Assessment (EA) Completion**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

7.2.1 Report ENG2025-020 379 - 1108

**Angeline Street North Municipal Class Environment Assessment (EA) Completion**
Corby Purdy, Manager Infrastructure, Design and Construction

**That** Report ENG2025-020, **Angeline Street North Municipal Class Environment Assessment (EA) Completion**, be received;

**That** the preferred solution of widening Angeline Street North from Kent Street to Colborne Street from a 3 lane cross section including a centre two way left turn lane, to a 5 lane cross section including a centre two way left turn lane be supported;

**That** the preferred solution 2B of expanding Angeline Street and Kent Street intersection be supported; and

**That** the preferred solution 3 of expanding Angeline Street and Colborne Street intersection be supported; and

**That** Staff be directed to file the endorsed project file report for the legislated 30 day comment period; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

## 8. Consent Matters

**That** all of the proposed recommendations shown in Section 8.1 of the Agenda be approved by the Committee of the Whole in the order that they appear on the Agenda, sequentially numbered and forwarded to Council for consideration at the next Regular Council Meeting.

8.1 Reports

8.1.1 CLK2025-007 1109 - 1115

**Application to Rename Pinewood Park, Pontypool**
Jenn Johnson, Director of Community Services
Joel Watts, Deputy Clerk

**That** Report CLK2025-007, **Application to Rename Pinewood Park, Pontypool**, be received;

**That** the application be approved to proceed with appropriate public consultation process with the affected stakeholders;

**That** the results of the public consultation be brought forward to Committee of the Whole and Council by the end of Q4, 2025; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

8.1.2 ED2025-024 1116 - 1131

**Fenelon Falls Downtown Action Plan Report**
Carlie Arbour, Economic Development Officer

**That** Report ED2025-024, **Discover Downtown Fenelon Falls Action Plan, Report Back on Municipal Actions**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

8.1.3 ENG2025-027 1132 - 1139

**Council Policy CP2021-004 Right of Way Widths Policy Update**
Kirk Timms, Manager of Development Engineering

**That** Report ENG2025-027, **CP2021-004 Right of Way Widths Policy Update**, be received;

**That** the Right of Way Widths Policy, attached as Appendix A to Report ENG2025-027, be adopted and numbered for inclusion in the City's Policy Manual, replacing all predecessor versions; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

8.1.4 WM2025-007 1140 - 1149

**Source Separated Organics Update and Considerations**
Heather Dzurko, Manager, Waste Management

**That** Report WM2025-007, **Source Separated Organics Update and Considerations**, be received;

**That**; the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, to reduce the limit of food and organic materials permitted in garbage to 0%, where there is a source separated food and organic material collection service available; and

**That** the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, to reduce the weekly bag limit to one untagged clear bag of waste per unit, where there is a source separated food and organic material collection service available; and

**That** staff pursue the option to provide curbside collection of food and organic waste once a week on the same collection day as garbage collection, including the consolidation of organics at the Lindsay Ops Landfill, starting June 15, 2026; and

**That** the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, so that organics collection days are scheduled on the same day as garbage collection; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

8.2 Items Extracted from Consent

## 9. New or Other Business

9.1 COW2025-08.9.1 1150 - 1151

**Memorandum Regarding Minimum Maintenance Standards**
Councillor Ashmore

**That** the Memorandum from Councillor Ashmore, **regarding Minimum Maintenance Standards**, be received;

**That** Staff be requested to report back to Council, by the end of Q1, 2026, on increasing standards for all road services, including any staff increases, costs, and new equipment required to achieve a higher standard for each service; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

## 10. Adjournment

# Request to Speak before Council

Request to Make a Deputation/Presentation to Council/Committee
City of Kawartha Lakes
City Clerk's Office
26 Francis Street, PO Box 9000
Lindsay, ON  K9V 5R8
705-324-9411

**Name:** *

Emma Ekin

**Address:** *

[redacted]

**City/Town/Village:**

[redacted]

**Province:** *

[redacted]

**Postal Code:**

[redacted]

**Telephone:** *

[redacted]

**Email:** *

[redacted]

There can be a maximum of two speakers for each deputation. Please list the name(s) of the individual(s) who will be speaking. The names that are listed here will be included on the Council Meeting Agenda.

**Deputant One:**

Emma Ekin

**Deputant Two:**

First Name, Last Name

**Please provide details of the matter to which you wish to speak:** *

Good Day. I have been a resident of Lindsay since Oct 2021. My husband and I have a long history of owning property in the Kawartha Lakes Region and decided to retire to "The Ravines of Lindsay" and purchased a new build from Bromont. In the almost 4 years that we have lived here, we have seen some issues that are causing us concern related to the safety and security of the residents of the 147 homes in this subdivision. I, along with other residents, have identified 5, what we believe to be "Boarding/Student Houses" [redacted] We have observed several younger individuals coming and going, several cars parked in the driveways, young men driving round people back and forth to school/work, and several young men driving above the speed limit. The properties are often unkept. [redacted] struggled significantly with understanding garbage and recycling procedures, despite neighbours and the collection services trying educate them. Ultimately the garbage/recycling collection services refused to pick up at these homes. Garbage was left at the curb and then stored in their garages. This led to rats going in and out of these garages. [redacted] The owner finally picked up the garbage, but it took several weeks. Their parents were quite alarmed and continue to be concerned. [redacted] My husband and I attended an Open House several weeks ago and confirmed that there are 8 washrooms. Were these added with permits? The inside of the house was clearly converted from a 4 bedroom to a 9 bedroom home. Was this done with permits? I have it on credible authority that there were up to 5 students in each bedroom. A conservative estimate would be 2 students per bedroom. That would add up to at least 18 students. This is supported by the fact that there are 8 washrooms. [redacted] My husband and I have personally observed many students coming and going. Some of our neighbours are becoming quite concerned and disenfranchised with Lindsay and are seriously considering moving away from the The Kawartha Lakes Region. We are all genuinely concerned about the safety and security of the both the people living in these houses as well as the other residents. I first raised this concern in Jun 2024 [redacted] and again in August 2025 [redacted] I referred to By-Law in both instances and then Planning. I was basically told that nothing could be done.

Please attach any additional supporting documents you wish to provide and submit with this completed form.

**Have you discussed this matter with City Staff?**

- (•) Yes
- ( ) No

**If yes, Which department and staff member(s) have you spoken to?**

**What action are you hoping will result from your presentation/deputation?** *

I am hoping that council will take these concerns very seriously. There need to be regulations that safeguard all the members of the community. There needs to be oversight that will regularly check in to ensure that these regulations are being respected and followed. And, take appropriate action when the laws are not followed. If not, I fear that people will start to leave. I don't believe that this is the vision of the Council of the City of Kawartha Lakes.

**How would you like to complete your deputation?** *

In Person in Council Chambers

By signing this form you are acknowledging that all of the information you are providing on this form is true, and giving the City permission to collect your personal information for the principal purpose of a request to make a deputation to Committee or Council as outlined below.

**Signature:**

Emma Ekin

**Date:**

8/28/2025

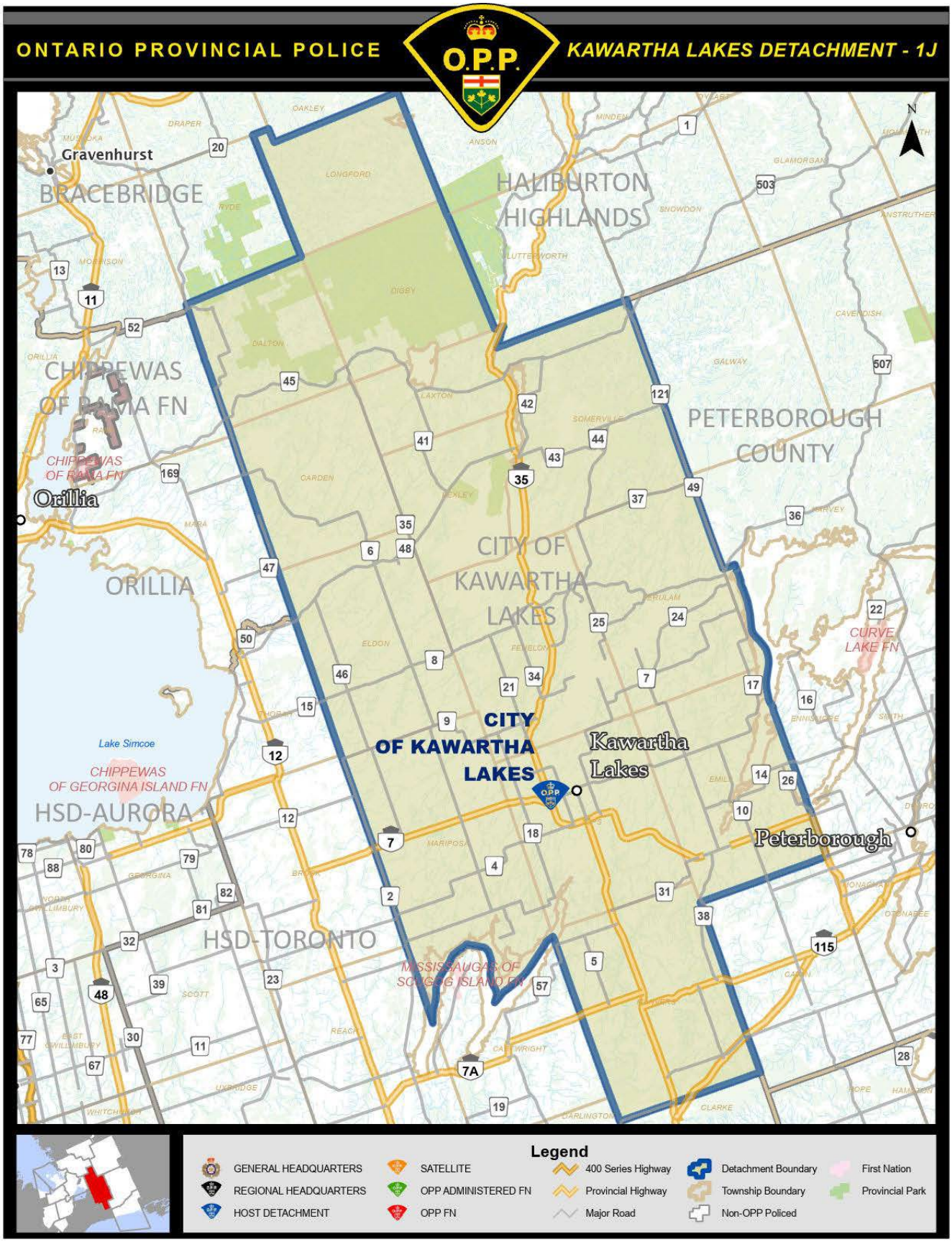
The personal information is being collected by the City of Kawartha Lakes for the principal purpose of a request to make a deputation to Committee or Council pursuant to the City's procedural by-law. This information, including all attachments submitted may be circulated to members of Council, staff, the general public and posted on the City website. Questions about the collection of this information should be directed to the City Clerk or Deputy Clerk at clerks@kawarthalakes.ca.

**Do you agree to the publication of your contact information (including your address, telephone number and email) on the City's website as part of a meeting agenda?** *

Please complete this form and return to the City Clerk's Office by submitting it online or:
Fax: 705-324-8110 Email: agendaitems@kawarthalakes.ca

# CITY OF KAWARTHA LAKES DETACHMENT

## 2024 DETACHMENT BOARD ANNUAL REPORT


ONTARIO PROVINCIAL POLICE
O.P.P.
KAWARTHA LAKES DETACHMENT - 1J
N
Gravenhurst
BRACEBRIDGE
HALIBURTON HIGHLANDS
CHIPPEWAS OF RAMA FN
Orillia
ORILLIA
PETERBOROUGH COUNTY
CITY OF KAWARTHA LAKES
CURVE LAKE FN
Lake Simcoe
CHIPPEWAS OF GEORGINA ISLAND FN
HSD-AURORA
HSD-TORONTO
MISSISSAUGAS OF SCUGOG ISLAND FN
CITY OF KAWARTHA LAKES
Kawartha Lakes
Peterborough
Legend
GENERAL HEADQUARTERS
REGIONAL HEADQUARTERS
HOST DETACHMENT
SATELLITE
OPP ADMINISTERED FN
OPP FN
400 Series Highway
Provincial Highway
Major Road
Detachment Boundary
Township Boundary
Non-OPP Policed
First Nation
Provincial Park

# 2023-2025 STRATEGIC PLAN

## Priorities and Commitments

### PEOPLE

**A healthy and resilient OPP**

We will strive to support all members in achieving their professional and personal best.

### WORK

**A responsive and evolving OPP**

We will empower our members to ensure the best possible policing services are delivered to Ontarians.

### COMMUNITIES

**A collaborative and progressive OPP**

We will partner and build relationships with a shared vision for safety and well-being.

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# Message from the Detachment Commander

I am pleased to present the City of Kawartha Lakes Detachment – 2024 OPP Detachment Board Annual Report. This report includes crime, traffic enforcement and community well-being data, and highlights initiatives and successes from the past year. 2024 represents the midway point of the 2023-2025 City of Kawartha Lakes Detachment Action Plan and this report provides updates on our progress in meeting our Action Plan commitments.

I am proud of the work undertaken by our detachment.

In 2024, we saw an increase in cyber-enabled fraud, particularly targeting vulnerable populations such as seniors, and responded by implementing a multifaceted strategy that included specialized investigative training and a comprehensive public education campaign.

We maintained our commitment to traffic safety and continue to focus our efforts on high-priority areas. While motor vehicle collisions remain a complex challenge, our data-informed strategies and community engagement efforts have laid a strong foundation for continued progress in reducing motor vehicle collisions. We also responded to the increased presence of commercial motor vehicles on our roadways by equipping our officers with specialized training, ensuring effective enforcement and enhanced roadway safety. Based on concerns from community members, we increased our enforcement presence on local ATV trails and waterways, which, through joint operations with the OPP SAVE Team, led to lower injury and fatality rates compared to similar jurisdictions. We continued to leverage technology, including data-driven deployment models, to support efficient resource allocation without compromising frontline service delivery.

We partnered with community-based organizations such as the Canadian Mental Health Association and Ross Memorial Hospital to develop and implement co-response models that enhance our ability to respond to mental health-related calls. This collaborative, person-centered approach supported 433 individuals in crisis and contributed to a reduction in police calls for service and potentially violent interactions. We also partnered with organizations like Victim Services and the Boys and Girls Club of Kawartha Lakes to better support victims and promote community well-being. We continued to engage with groups and organizations across our area, building trust and resilience through meaningful collaboration. Our restorative justice initiatives, particularly with youth, reflect our commitment to preventative, community-based solutions that reduce lower-level chargeable calls and support long-term positive outcomes.

Finally, we supported the development of our members and participated in targeted recruitment efforts that led to a 78% increase in uniform applications over the previous year. These efforts have helped us build a police service that is not only professional and effective but also reflective of the diverse community we serve.

In 2025, we will be working with the City of Kawartha Lakes OPP Detachment Board to form the 2026-2029 City of Kawartha Lakes Detachment Action Plan. This work will include engaging with community members to ensure the needs of the communities we serve will be reflected in the commitments we make. Development of the 2026-2029 City of Kawartha Lakes Detachment Action

Plan will coincide with the creation of the 2026-2029 OPP Strategic Plan to ensure organizational alignment and support.

The City of Kawartha Lakes Detachment – 2024 OPP Detachment Board Annual Report begins to bridge the gap between *Police Services Act* (PSA) and *Community Safety and Policing Act* (CSPA) reporting requirements. In collaboration with relevant OPP program areas, working groups and the City of Kawartha Lakes OPP Detachment Board, this report will continue to develop in the years to come to include content from the OPP Detachment Board Chair(s) and additional data and updates from the OPP.

From detachment administrative staff to frontline uniform members to specialty units to supervisors, our members continue to serve with pride, professionalism and honour. As we anticipate future challenges and opportunities for policing and community safety, we remain dedicated to our mission of serving our communities by protecting citizens, upholding the law and preserving public safety.

Inspector Robert Flindall
Detachment Commander
City of Kawartha Lakes

# Summary of Commitments

Through analysis and consultation, the following areas of focus were identified for the years 2023-2025.

| Crime | Roadways, Waterways and Trails | Community Well-Being |
|---|---|---|
| To reduce victimization from cyber and/or technology enabled crime through engagement and education.<br><br>To minimize violent crime and reduce victimization in our communities.<br><br>To reduce the impact on our communities from the production and trafficking of opioids and other illicit drugs. | To sustain a continuous and year-round focus on the causal factors of motorized vehicle collisions.<br><br>Work towards mitigating risk to those utilizing local all-terrain vehicle (ATV) trails.<br><br>To address the increased presence of commercial motor vehicles (CMV) on local roadways.<br><br>Identify strategies to manage the significant number of vessels utilizing local waterways during the summer period. | Seek out efficiencies in how we manage available resources while supporting community members that are experiencing crisis.<br><br>Identify strategies to actively seek out and recruit qualified candidates from our local community who are interested in a career in policing.<br><br>Continue building our relationships with all community groups throughout the City of Kawartha lakes.<br><br>Utilize community partnerships with municipal agencies to address challenges that drive nuisance calls for service. |

# 2024 Crime Progress Updates

| Commitment | Progress Update |
|---|---|
| To reduce victimization from cyber and/or technology enabled crime through engagement and education. | We fully support the objective of reducing victimization from cyber and technology-enabled crime through community engagement and education. In our policing area, we have observed a substantial increase in fraudulent online activities, particularly those targeting vulnerable populations such as the elderly. In response, our service has taken a proactive and multifaceted approach to address this growing threat.<br><br>Our investigators have undergone specialized training to develop the skillsets required to identify, disrupt, and hold accountable those who perpetrate these crimes. In parallel, we have launched an intensive media and public awareness campaign to educate residents on best practices for online safety. A particular emphasis has been placed on targeted outreach to seniors, including in-person sessions, printed materials, and digital content tailored to their needs.<br><br>These efforts have been guided by the principles of Ontario's Mobilization and Engagement Model of Community Policing, which emphasizes collaborative, community-focused strategies. By working closely with local organizations, service providers, and community groups, we continue to strengthen public awareness and resilience against cybercrime. |
| To minimize violent crime and reduce victimization in our communities. | We remain committed to the goal of minimizing violent crime and reducing victimization within our communities. During the COVID-19 pandemic years, our policing area experienced a notable spike in violent crime and victimization, consistent with broader social and economic pressures of that period. However, we are encouraged to report that these numbers have plateaued in the years that followed, reflecting the impact of targeted enforcement and community-based interventions.<br><br>Despite this progress, intimate partner violence (IPV) has shown a concerning upward trend, demanding focused and sustained action. To address this, we have implemented enhanced offender management and monitoring strategies, ensuring that those who pose a risk are appropriately supervised and held accountable. At the same time, we are working closely with our community stakeholders and support agencies to provide victims with the resources, protection, and support they need.<br><br>Through continued collaboration and data-driven enforcement, we aim to not only respond to incidents but to prevent future victimization and build safer, more resilient communities. |

| | |
|---|---|
| To reduce the impact on our communities from the production and trafficking of opioids and other illicit drugs. | To reduce the impact of opioid and illicit drug production and trafficking in our communities, we have adopted an aggressive enforcement approach in recent years that has yielded notable results. This success is strongly attributed to our intelligence-led policing strategies and the collaborative efforts of our community stakeholder partnerships. While enforcement remains a key component, we have also embraced harm reduction initiatives through these partnerships, ensuring a balanced and compassionate response that prioritizes both public safety and community well-being. |

# 2024 Roadways, Waterways and Trails Progress Updates

| Commitment | Progress Update |
|---|---|
| To sustain a continuous and year-round focus on the causal factors of motorized vehicle collisions. | To sustain a continuous, year-round focus on the causal factors of motorized vehicle collisions, we have leveraged community engagement and data analytics to identify high-risk areas within our community. By analyzing collision trends and community feedback, we have strategically deployed officers to these problematic locations during peak times, ensuring the efficient and effective allocation of resources. This targeted approach enhances public safety by addressing the root causes of collisions and reinforcing safe driving behaviours where and when they are most needed. |
| Work towards mitigating risk to those utilizing local all-terrain vehicle (ATV) trails. | In our efforts to mitigate risks for users of local all-terrain vehicle (ATV) trails, we have significantly enhanced our enforcement initiatives through joint forces operations with the OPP SAVE Team over the past year. We are pleased to report that these collaborative efforts have proven effective, as reflected in lower ATV-related injury and fatality rates in our area when compared to neighboring, similarly sized detachments. This success highlights the impact of focused enforcement and our ongoing commitment to trail safety. |
| To address the increased presence of commercial motor vehicles (CMV) on local roadways. | In response to the increased presence of commercial motor vehicles (CMVs) on our local roadways, we have taken proactive steps to ensure public safety through enhanced enforcement efforts. Our general duty officers have received specialized training in CMV regulations and enforcement, equipping them with the tools and knowledge necessary to identify violations, conduct inspections, and enforce applicable laws effectively. This approach ensures that our roadways remain safe for all users while holding commercial drivers and operators to the highest standards of compliance. |
| Identify strategies to manage the significant number of vessels utilizing local waterways during the summer period. | We have significantly enhanced our marine patrols over the past several years by leveraging data-driven analytics to strategically guide deployment. Importantly, this has been achieved without impacting frontline officer staffing levels, ensuring consistent service delivery across all areas. |

# 2024 Community Well-Being Progress Updates

| Commitment | Progress Update |
|---|---|
| Seek out efficiencies in how we manage available resources while supporting community members that are experiencing crisis. | In 2024, the City of Kawartha Lakes OPP supported 433 community members experiencing crisis. This number is not just a statistic - it represents individuals in our community who received the help they needed during some of their most vulnerable moments. These figures reflect a continued trend we anticipate will carry into 2025, underscoring both the ongoing need for and the effectiveness of our community crisis response initiatives.<br><br>A cornerstone of this success has been our strengthened partnerships with the Canadian Mental Health Association (CMHA) and Ross Memorial Hospital. Together, we have significantly expanded our capacity to support those facing mental health and addiction-related crises. Through collaborative, person-centered care, we are not only reaching more individuals but also improving the quality of support they receive.<br><br>This integrated approach has also contributed to a measurable reduction in police calls for service and has helped prevent potentially violent police interactions. By ensuring that mental health professionals are engaged early and often, we are fostering safer, more holistic outcomes for everyone involved.<br><br>The City of Kawartha Lakes remains committed to evolving our crisis response model, supporting our community members with dignity and building a system where help is accessible when it's needed most. |
| Identify strategies to actively seek out and recruit qualified candidates from our local community who are interested in a career in policing. | In 2024, our recruiting branch experienced a 78% increase in applications compared to 2023. This is an encouraging indicator that our targeted efforts to engage the local community and expand our outreach are having a strong impact. To actively seek out and recruit qualified candidates from within our community, we implemented several key strategies focused on community engagement and diversifying recruitment methods. We enhanced our presence at local events, schools and job fairs, creating opportunities to connect directly with residents and promote careers in policing. By partnering with local colleges, community centers and employment agencies, we were able to identify and support prospective candidates who are already invested in the well-being of the community. Additionally, we broadened our outreach by launching targeted social media campaigns and creating inclusive recruitment materials that resonated with a wider audience. As a result of these efforts, we successfully recruited individuals who reflect the diversity of the City of Kawartha Lakes, helping to build a police service that is not only effective and professional but also representative of the community it serves. |

| | |
|---|---|
| Continue building our relationships with all community groups throughout the City of Kawartha lakes. | The City of Kawartha Lakes OPP remains committed to strengthening our relationships with all community groups across the county. We continue to maintain strong and collaborative partnerships with key organizations such as Victim Services, the Boys and Girls Club of Kawartha Lakes, and several local senior's groups. These partnerships play a vital role in our ability to implement the principles of Ontario's Mobilization and Engagement Model of Community Policing. By working closely with these agencies, we empower the community to take an active role in addressing local issues, fostering shared responsibility for safety and well-being. This proactive, community-driven approach has led to a measurable reduction in calls for service and officer hours, while building trust and resilience across diverse segments of the population. As we move forward, we remain focused on deepening these connections and continuing to support a safer, more engaged community through meaningful collaboration. |
| Utilize community partnerships with municipal agencies to address challenges that drive nuisance calls for service. | Through strong partnerships with local municipal and community agencies, the City of Kawartha Lakes OPP has been able to effectively address challenges that often lead to nuisance calls for service. By working collaboratively, particularly in cases involving youth, we have adopted a restorative justice approach that focuses on accountability, education, and reconciliation rather than formal charges. This proactive strategy has significantly reduced lower-level chargeable calls, helping young individuals avoid entering the criminal justice system while addressing the root causes of their behavior. In doing so, we not only support better long-term outcomes for youth but also alleviate the workload on our courts and reduce the demand on officer time and emergency response resources. These community-based solutions highlight the value of integrated, preventative approaches in maintaining public safety and enhancing the overall well-being of our community. |

# Other Community Updates

The City of Kawartha Lakes OPP continues to demonstrate a strong commitment to public safety through a wide range of proactive initiatives and strategic partnerships. Our frontline patrol units and Community Street Crime Unit (CSCU) have played a critical role in targeting illicit drug activity and illegal gun possession throughout the county. These efforts have significantly reduced the influence of organized crime in our service area, contributing to a safer community.

We have also expanded our network of community partnerships, including the addition of Seniors and Law Enforcement Together (SALT). This initiative focuses on protecting older residents from fraud and online scams, helping to reduce financial and emotional losses through education and outreach.

Our officers remain highly visible and engaged on our highways, trails and waterways, where proactive enforcement actions are reducing collisions and saving lives. These efforts specifically target the "Big 4" causal factors of serious and fatal collisions: speeding, impaired driving, lack of seatbelt use and distracted driving.

Through intelligence-led policing strategies, we continue to identify and monitor high-risk individuals, allowing us to intervene early and prevent further harm in cases such as intimate partner violence (IPV). This approach is instrumental in reducing repeat offenses and supporting the safety and well-being of potential victims.

These ongoing initiatives reflect our dedication to proactive, collaborative policing that strengthens community trust, reduces victimization and enhances overall safety in the City of Kawartha Lakes.

# Calls for Service

**Table 1.1**

| All CAD Events* | Immediate Police Response Required** |
|---|---|
| 21,528 | 5,843 |

* This represents all Computer Aided Dispatch (CAD) event types created for each detachment area. Not all CAD events are dispatched to a frontline OPP detachment officer. Some events may have been actioned by another OPP member, diverted to another unit, or deemed a non-OPP event. This does not include officer or detachment generated events that have not been reported through the PCC, or any online reporting events.

** This represents the total number of CAD events prioritized for an immediate police response, indicating the potential for extreme danger, catastrophic circumstances, injury, the threat of injury, death, and/or crime in progress.

# Crime and Clearance

**Violent Crimes** **Table 2.1**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| 01 - Homicide | 0 | 1 | 0 | - |
| 02 - Other Offences Causing Death | 0 | 0 | 0 | - |
| 03 - Attempted Murder | 2 | 0 | 0 | - |
| 04 - Sexual Offences | 42 | 56 | 47 | 68.09% |
| 05 - Assaults/Firearm Related Offences | 144 | 199 | 159 | 88.05% |
| 06 - Offences Resulting in the Deprivation of Freedom | 0 | 3 | 2 | 100.00% |
| 07 - Robbery | 3 | 3 | 0 | - |
| 08 - Other Offences Involving Violence or the Threat of Violence | 108 | 92 | 110 | 47.27% |
| 09 - Offences in Relation to Sexual Services | 0 | 0 | 0 | - |
| 10 - Total | 299 | 354 | 318 | 71.07% |

**Property Crimes** **Table 2.2**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| 01 - Arson | 0 | 0 | 0 | - |
| 02 - Break and Enter | 59 | 58 | 52 | 15.38% |
| 03 - Theft Over $5,000 | 52 | 68 | 58 | 13.79% |
| 04 - Theft Under $5,000 | 214 | 213 | 197 | 13.71% |
| 05 - Have Stolen Goods | 1 | 5 | 6 | 100.00% |
| 06 - Fraud | 200 | 244 | 252 | 5.56% |
| 07 - Mischief | 121 | 140 | 121 | 14.05% |
| 08 - Total | 647 | 728 | 686 | 11.66% |

**Other Criminal Code** **Table 2.3**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| 01 - Gaming and Betting | 0 | 0 | 0 | - |
| 02 - Offensive Weapons | 13 | 13 | 15 | 60.00% |
| 03 - Other Criminal Code Offences | 220 | 245 | 231 | 71.43% |
| 04 - Total | 233 | 258 | 246 | 70.73% |

**Drugs** **Table 2.4**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| 01 - Possession | 14 | 16 | 22 | 95.45% |
| 02 - Trafficking | 9 | 20 | 13 | 92.31% |
| 03 - Importation and Production | 2 | 1 | 0 | - |
| 04 - Cannabis Possession | 0 | 0 | 3 | 100.00% |
| 05 - Cannabis Distribution | 1 | 0 | 1 | 100.00% |
| 06 - Cannabis Sale | 0 | 0 | 0 | - |
| 07 - Cannabis Importation and Exportation | 0 | 0 | 0 | - |
| 08 - Cannabis Production | 0 | 0 | 0 | - |
| 09 - Other Cannabis Violations | 2 | 0 | 0 | - |
| 10 - Total | 28 | 37 | 39 | 94.87% |

**Federal Statutes** **Table 2.5**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| Federal Statutes | 39 | 13 | 33 | 93.94% |

**Traffic Violations** **Table 2.6**

| Offences | 2022 | 2023 | 2024 | Clearance Rate |
|---|---|---|---|---|
| 01 - Dangerous Operation | 14 | 9 | 7 | 100.00% |
| 02 - Flight from Peace Officer | 3 | 3 | 17 | 5.88% |
| 03 - Operation while Impaired/Low Blood Drug Concentration Violations | 57 | 59 | 79 | 98.73% |
| 04 - Failure or Refusal to Comply with Demand | 6 | 9 | 4 | 100.00% |
| 05 - Failure to Stop after Accident | 2 | 6 | 5 | 20.00% |
| 06 - Operation while Prohibited | 8 | 12 | 10 | 100.00% |
| 07 - Total | 90 | 98 | 122 | 82.79% |

**Youth Crime** **Table 2.7**

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| Bail | 0 | 0 | 0 |
| Conviction | 17 | 10 | 10 |
| Diversion | 5 | 1 | 1 |
| Non-Conviction | 72 | 34 | 18 |
| Not Accepted | 1 | 1 | 2 |
| POA Ticket | 1 | 15 | 0 |
| NULL | 7 | 1 | 24 |
| Total | 103 | 62 | 55 |

**Victim Referrals** **Table 2.8**

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| Sum of Offered | 952 | 1070 | 1139 |
| Sum of Accepted | 394 | 455 | 397 |
| Sum of Total | 1346 | 1525 | 1536 |
| Sum of % Accepted | 29.27% | 29.84% | 25.85% |

# Traffic and Road Safety

**Motor Vehicle Collisions (MVC) by Type** **Table 3.1**

(Includes roadway, off-road and motorized snow vehicle collisions)

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| Fatal Injury Collisions | 5 | 7 | 5 |
| Non-Fatal Injury Collisions | 135 | 156 | 146 |
| Property Damage Only Collisions | 796 | 758 | 806 |
| Alcohol-Related Collisions | 34 | 42 | 46 |
| Animal-Related Collisions | 240 | 246 | 245 |
| Speed-Related Collisions | 121 | 120 | 108 |
| Inattentive-Related Collisions | 106 | 89 | 98 |
| Persons Killed | 5 | 7 | 5 |
| Persons Injured | 190 | 208 | 230 |

**Primary Causal Factors in Fatal MVCs on Roadways** **Table 3.2**

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| Fatal Roadway Collisions where Causal is Speed Related | 0 | 1 | 1 |
| Fatal Roadway Collisions where Causal is Alcohol/Drug Related | 0 | 0 | 1 |
| Persons Killed in Fatal Roadway Collisions where lack of Seatbelt/Helmet use is a Factor | 0 | 1 | 1 |
| Fatal Roadway Collisions where Causal is Inattentive Related | 0 | 1 | 2 |
| Fatal Roadway Collisions where Causal is Animal Related | 0 | 0 | 0 |

**Fatalities in Detachment Area** **Table 3.3**

| Fatality Type | Category | 2022 | 2023 | 2024 |
|---|---|---|---|---|
| Roadway | Fatal Incidents | 5 | 6 | 5 |
| Roadway | Persons Killed | 5 | 6 | 5 |
| Roadway | Alcohol/Drug Related Incidents | 0 | 0 | 1 |
| Marine | Fatal Incidents | 0 | 0 | 1 |
| Marine | Persons Killed | 0 | 0 | 1 |
| Marine | Alcohol/Drug Related Incidents | 0 | 0 | 0 |
| Off-Road Vehicle | Fatal Incidents | 0 | 0 | 0 |
| Off-Road Vehicle | Persons Killed | 0 | 0 | 0 |
| Off-Road Vehicle | Alcohol/Drug Related Incidents | 0 | 0 | 0 |
| Motorized Snow Vehicle | Fatal Incidents | 0 | 1 | 0 |
| Motorized Snow Vehicle | Persons Killed | 0 | 1 | 0 |
| Motorized Snow Vehicle | Alcohol/Drug Related Incidents | 0 | 1 | 0 |

**Big 4** **Table 3.4**

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| Distracted (HTA 78.1) | 4 | 10 | 31 |
| Impaired (CCC 320.14 & 320.15) | 107 | 122 | 143 |
| Seatbelt (HTA 106) | 62 | 59 | 74 |
| Speeding (HTA 128) | 1,471 | 1,779 | 3,318 |

**Charges** **Table 3.5**

| Offences | 2022 | 2023 | 2024 |
|---|---|---|---|
| HTA | 2,522 | 3,569 | 5,989 |
| Criminal Code Traffic | 146 | 191 | 181 |
| Criminal Code Non-Traffic | 884 | 983 | 866 |
| LLCA | 75 | 68 | 90 |
| Controlled Drug and Substance Act | 77 | 102 | 90 |
| Federal Cannabis Act | 9 | 1 | 16 |
| Provincial Cannabis Act | 18 | 20 | 46 |
| Other | 384 | 420 | 672 |

# Policing Hours

The OPP has developed a Service Delivery Model (SDM) in response to several reviews and audit recommendations. The SDM is designed to:

- Promote officer wellness through balanced workloads
- Determine adequate staffing levels at each detachment
- Ensure the continued delivery of adequate and effective policing services in accordance with the Community Safety and Policing Act (CSPA).

To implement the SDM, the OPP has submitted a seven-year staffing strategy to address required increases in detachment personnel. This model supports the OPP's ability to:

- Respond rapidly to increasing calls for service
- Maintain safe communities through proactive patrols and community engagement
- Address municipal concerns about reduced police visibility

To monitor progress and guide detachment-level planning, the OPP has established time allocation targets for provincial constables (figure 1). These targets reflect how time should ideally be distributed by the end of the seven-year strategy.

The targets are based on a provincial average and variations are expected between detachments due to differences in geography, operational structure, recruitment and other absences.

In the short term, detachments may face challenges in achieving these targets. Continued improvements in scheduling tools, data integrity, and strategic deployment will support progress toward these goals.

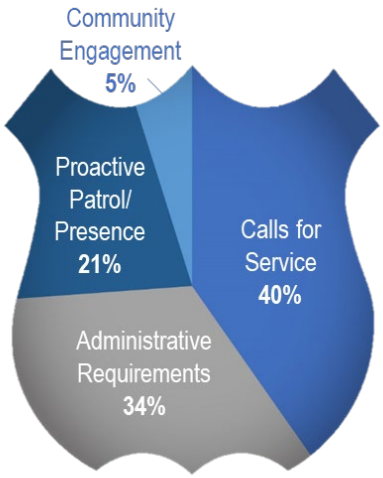


**Figure 1: Service Delivery Model Provincial Target**

**Service Delivery Activity Allocations** **Table 4.1**

| Calls for Service | Administrative Requirements | Proactive Patrol | Community Engagement |
|---|---|---|---|
| 41.6% | 41.9% | 14.9% | 1.6% |

**Hours (Field Personnel)** **Table 4.2**

| | 2022 | 2023 | 2024 |
|---|---|---|---|
| TOTAL FRONTLINE HOURS | 103,625 | 97,296 | 106,697 |

# Endnotes

## Tables 2.1, 2.2, 2.3, 2.4, 2.5, 2.6

Source: Niche Records Management System (RMS), (2025/04/23)

Note:

- Statistics Canada's Uniform Crime Reporting Survey was designed to measure the incidence of crime in Canadian society and its characteristics.
- Actual counts (2022, 2023 and 2024) and Clearance Rate for 2024 included.
- The most serious violation methodology (MSV) is used, which is the same as Statistics Canada's methodology. The MSV counts only the first of up to four offences per incident that occurred in the specific time range.
- First Nation population is not included.
- Statistics Canada Verified (green checkmark) only.

## Table 2.1 Violent Crimes

Corresponding Violation Description

01 Murder 1st Degree, Murder 2nd Degree, Manslaughter, Infanticide
02 Criminal Negligence Causing Death, Other Related Offences Causing Death
03 Attempted Murder, Conspire to Commit Murder
04 Sexual offence which occurred prior to January 4, 1983, Sexual Assault, Level 3, Aggravated, Sexual Assault, Level 2, Weapon or Bodily Harm, Sexual Assault, Level 1, Sexual Interference, Invitation to Sexual Touching, Sexual Exploitation, Sexual Exploitation of a Person with a Disability, Incest, Corrupting Morals of a Child, Making Sexually Explicit Material Available to Children, Parent or Guardian Procuring Sexual Activity, Householder Permitting Sexual Activity, Luring a Child via Computer, Agreement or Arrangement - Sexual Offence Against a Child, Bestiality - Commits, Compels Another Person, Bestiality in, Presence of, or Incites, a Child, Voyeurism, Non-Consensual Distribution of Intimate Images
05 Assault Level 3, Aggravated, Assault Level 2, Weapon/Bodily Harm, Assault Level 1, Unlawfully Causing Bodily Harm, Discharge Firearm with Intent, Using firearm/Imitation of Firearm in the Commission of an Offence, Pointing a Firearm, Assault, Peace-Public Officer, Assault Against Peace Officer with a Weapon or Causing Bodily Harm, Criminal Negligence Causing Bodily, Harm, Trap Likely to or Causing Bodily Harm, Other Assaults
06 Kidnapping, Forcible Confinement, Hostage Taking, Trafficking in Persons, Abduction Under 14, Not Parent/Guardian, Abduction Under 16, Removal of Children from Canada, Abduction Under 14 Contravening a Custody Order, Abduction Under 15 by Parent/Guardian
07 Robbery, Robbery to Steal Firearm
08 Extortion, Intimidation of a Justice System Participant or a Journalist, Intimidation of a Non-justice System Participant, Criminal Harassment, Indecent/Harassing Communications, Utter Threats to Person, Explosives Causing Death/Bodily Harm, Arson - Disregard for Human Life, Other Violations Against the Person, Failure to Comply with Safeguards (MAID), Forging/Destruction of Documents (MAID)
09 Obtaining Sexual Services for Consideration, Obtaining Sexual Services for Consideration from Person Under the Age of 18 Years, Material Benefit from Sexual Services, Material Benefit from Sexual Services Provided by Person Under the Age of 18 Years, Procuring, Procuring a Person Under the Age of 18 Years, Advertising Sexual Services

## Table 2.2 Property Crimes

Corresponding Violation Description

01 Arson
02 Break & Enter, Break & Enter to Steal a Firearm, Break & Enter a Motor Vehicle (Firearm)
03 Theft over $5000, Theft over $5000 from a Motor Vehicle, Shoplifting over $5000, Motor Vehicle Theft
04 Theft $5000 or Under, Theft under $5000 from a Motor Vehicle, Shoplifting $5000 or Under
05 Trafficking in Stolen Goods over $5000, Possession of Stolen Goods over $5000, Trafficking in Stolen Goods $5000 and Under, Possession of Stolen Goods $5000 and Under
06 Fraud, Identity Theft, Identity Fraud
07 Mischief, Mischief to Cultural Property, Hate-motivated mischief relating to property used by identifiable group, Mischief Relating to War Memorials, Altering/Destroying/Removing a Vehicle Identification Number (VIN)

## Table 2.3 Other Criminal Code

Corresponding Violation Description

01 Betting House, Gaming House, Other Violations Related to Gaming and Betting
02 Offensive Weapons: Explosives, Weapons Trafficking, Possession and Distribution of Computer Data (Firearm), Altering Cartridge Magazine, Weapons Possession Contrary to Order, Possession of Weapons, Unauthorized Importing/Exporting of Weapons., Firearms Documentation/Administration, Unsafe Storage of Firearms
03 Failure to Comply with Order, Escape and being at large without excuse - escape from custody, Escape and being at large without excuse - Unlawfully at Large, Failure to Appear, Breach of Probation, Disturb the Peace, Child Pornography (Possessing or Accessing), Child Pornography (Making or Distributing), Public Communications to Sell Sexual Services, Offences Related to Impeding Traffic to Buy or Sell Sexual Services, Counterfeiting, Indecent Acts, Voyeurism (Expired), Corrupting Morals, Lure child via Computer (Expired), Obstruct Public/Peace Officer. Trespass at Night, Threatening/Harassing Phone Calls (Expired), Utter Threats Against Property or Animals, Advocating Genocide, Public Incitement of Hatred, Promoting or Advertising Conversion Therapy, Unauthorized Recording of a Movie/Purpose of Sale, Rental, Commercial, Distribution, Offences Against Public Order (Part II CC), Property or Services for Terrorist Activities, Freezing of Property, Disclosure, Audit, Participate in Activity of Terrorist Group, Facilitate Terrorist Activity, Instruction/Commission of Act of Terrorism, Hoax – Terrorism, Advocating/Promoting Terrorism, Firearms and Other Offensive Weapons (Part III CC), Leave Canada to Participate in Activity of a Terrorist Group, Leave Canada to Facilitate Terrorist Activity, Leave Canada to Commit Offence for Terrorist Group, Leave Canada to Commit Offence that is Terrorist Activity, Harbour/Conceal Terrorist (Max = Life), Harbour/Conceal Terrorist (Max Does Not = Life), Harbour/Conceal Person Likely to Carry Out Terrorist Activity, Offences Against the Administration of Law and Justice (Part IV CC). Sexual Offences, Public Morals and Disorderly Conduct (Part V CC), Invasion of Privacy (Part VI CC), Failure to Comply with Regulations / Obligations for Medical Assistance in Dying (MAID), Other Offences Against the Person and Reputation, Offences Against the Rights of Property (Part IX CC), Fraudulent Transactions, Relating to Contracts and Trade (Part X CC), Offences Related to Currency, Proceeds of Crime (Part XII.2 CC), Attempts, Conspiracies, Accessories, Instruct Offence for Criminal Organization, Commit Offence for Criminal Organization, Participate in Activities of Criminal Organization, Recruitment of Members by a Criminal Organization, All Other Criminal Code (includes Part XII.1 CC)

## Table 2.4 Drugs

Corresponding Violation Description

01 Possession – Heroin, Possession – Cocaine, Possession - Other Controlled Drugs and Substances Act, Possession - Methamphetamine (Crystal Meth), Possession - Methylenedioxyamphetamine (Ecstasy), Possession – Opioid (other than heroin)
02 Trafficking – Heroin, Trafficking – Cocaine, Trafficking - Other Controlled Drugs and Substances Act, Trafficking - Methamphetamine (Crystal Meth), Trafficking - Methylenedioxyamphetamine (Ecstasy), Trafficking – Opioid (other than heroin)
03 Import / Export – Heroin, Import / Export – Cocaine, Import / Export - Other Controlled Drugs and Substances Act, Import / Export - Methamphetamines (Crystal Meth), Import / Export - Methylenedioxyamphetamine (Ecstasy), Import/Export – Opioid (other than heroin), Production – Heroin, Production – Cocaine, Production - Other Controlled Drugs & Substances Act, Production - Methamphetamines (Crystal Meth), Production - Methylenedioxyamphetamine (Ecstasy), Production – Opioid (other than heroin), Possession, sale, etc., for use in production of or trafficking in substance
04 Possession of illicit or over 30g dried cannabis (or equivalent) by adult, Possession of over 5g dried cannabis (or equivalent) by youth, Possession of budding or flowering plants, or more than four cannabis plants, Possession of cannabis by organization
05 Distribution of illicit, over 30g dried cannabis (or equivalent), or to an organization, by adult, Distribution of cannabis to youth, by adult, Distribution of over 5g dried cannabis (or equivalent), or to an organization, by youth, Distribution of budding or flowering plants, or more than four cannabis plants, Distribution of cannabis by organization, Possession of cannabis for purpose of distributing
06 Sale of cannabis to adult, Sale of cannabis to youth, Sale of cannabis to an organization, Possession of cannabis for purpose of selling
07 Importation and exportation of cannabis, Possession of cannabis for purpose of exportation
08 Obtain, offer to obtain, alter or offer to alter cannabis, Cultivate, propagate or harvest cannabis by adult, Cultivate, propagate or harvest cannabis by youth or organization
09 Possess, produce, sell, distribute or import anything for use in production or distribution of illicit cannabis, Use of young person in the commission of a cannabis offence, Other Cannabis Act

## Table 2.5 Federal Statutes

Corresponding Violation Description

Bankruptcy Act, Income Tax Act, Canada Shipping Act, Canada Health Act, Customs Act , Competition Act, Excise Act, Youth Criminal Justice Act (YCJA), Immigration and Refugee Protection Act, Human Trafficking (involving the use of abduction, fraud, deception or use of threat), Human Smuggling fewer than 10 persons, Human Smuggling 10 persons or more, Firearms Act, National Defence Act, Emergencies Act, Quarantine Act, Other Federal Statutes

## Table 2.6 Traffic Violations

Corresponding Violation Description

01 Dangerous Operation Causing Death, Dangerous Operation Causing Bodily Harm, Dangerous Operation
02 Flight from Peace Officer
03 Operation - low blood drug concentration, Operation while impaired causing death (alcohol), Operation while impaired causing death (alcohol and drugs), Operation while impaired causing death (drugs), Operation while impaired causing death (unspecified), Operation while impaired causing bodily harm (alcohol), Operation while impaired causing bodily harm (alcohol and drugs), Operation while impaired causing bodily harm (drugs), Operation while impaired causing bodily harm (unspecified), Operation while impaired (alcohol), Operation while impaired (alcohol and drugs), Operation while impaired (drugs), Operation while impaired (unspecified)
04 Failure or refusal to comply with demand (alcohol), Failure or refusal to comply with demand (alcohol and drugs), Failure or refusal to comply with demand (drugs), Failure or Refusal to Comply with Demand (unspecified), Failure or refusal to comply with demand, accident resulting in bodily harm (alcohol), Failure or refusal to comply with demand, accident resulting in bodily harm (alcohol and drugs), Failure or refusal to comply with demand, accident resulting in bodily harm (drugs), Failure or refusal to comply with demand, accident resulting in bodily harm (unspecified), Failure or refusal to comply with demand, accident resulting in death (alcohol), Failure or refusal to comply with demand, accident resulting in death (alcohol and drugs), Failure or refusal to comply with demand, accident resulting in death (drugs), Failure or refusal to comply with demand, accident resulting in death (unspecified)
05 Failure to stop after accident resulting in death, Failure to stop after accident resulting in bodily harm, Failure to stop after accident, Operation while prohibited

## Table 2.7 Youth Crime

Source: Niche Records Management System (RMS), (2025/04/24)

Note:

- Youth Charges by Disposition Type
- Only charges that have had a disposition type recorded in the OPP Niche RMS application are included.
- Youth charges without a disposition type are not included which may result in under stating the actual youth charges.
- “NULL” represents blanks, or where officers did not indicate the Disposition Type, however charges were applied.

## Table 2.8 Victim Referrals

Source: Niche Records Management System (RMS), (2025/04/24)

Note:

- Number of Referrals to Victim Service Agencies

## Table 3.1 Motor Vehicle Collisions (MVC) by Type

Source: Ontario Provincial Police, Collision Reporting System (CRS), (2025/02/21)

Note:

- Total Motor Vehicle Collisions (Fatal Injury, Non-Fatal Injury and Property Damage Only): Reportable Fatal Injury, Non-Fatal Injury and Property Damage Only Collisions entered into the eCRS for All Motorized Vehicles (MVC-Roadway, MSV- Snowmobile and ORV-Off Road Report Type) regardless of completion/approval status.
- Alcohol/Drug Related Collisions: Reportable MVC collisions where Alcohol/Drug Involved field indicated as Yes OR Contributing Factor scored as Ability Impaired (Alcohol or Drug) OR Driver Condition reported as Had Been Drinking or Ability Impaired.
- Animal Related Collisions: Reportable MVC collisions where Contributing Factor scored as Animal OR Wildlife Involved was an Animal OR Sequence of Events was an Animal.
- Speed Related Collisions: Reportable MVC collisions where Contributing Factor scored as Excessive Speed or Speed Too Fast For Conditions OR Driver Action reported as Exceeding Speed Limit or Speed Too Fast For Conditions.
- Inattentive Related Collisions: Reportable MVC collisions where Contributing Factor scored as Inattentive OR Driver Condition reported as Inattentive.
- Persons Killed or Injured: Number of Persons Injured or Killed in Reportable MVC collisions.

## Table 3.2 Primary Causal Factors in Fatal MVCs on Roadways

Source: Ontario Provincial Police, Collision Reporting System (CRS), (2025/02/21)

Note:

- Fatal Roadway Collisions where Causal is Speed Related: Reportable Fatal Roadway Collisions where Contributing Factor scored as Excessive Speed or Speed Too Fast For Conditions OR Driver Action reported as Exceeding Speed Limit or Speed Too Fast For Conditions.
- Fatal Roadway Collisions where Causal is Alcohol/Drug Related: Reportable Fatal Roadway Collisions where Contributing Factor where Alcohol/Drug Involved field indicated as Yes OR Contributing Factor scored as Ability Impaired (Alcohol or Drug) OR Driver Condition reported as Had Been Drinking or Ability Impaired.
- Persons Killed in Fatal Roadway Collisions where lack of Seatbelt/Helmet use is a Factor:
  Persons Killed in Reportable Fatal Roadway Collisions where Victim is fatally injured AND a vehicle occupant AND where safety equipment reported to be not used but available.
- Fatal Roadway Collisions where Causal is Inattentive Related: Reportable Fatal Roadway Collisions where Contributing Factor scored as Inattentive OR Driver Condition reported as Inattentive.
- Fatal Roadway Collisions where Causal is Animal Related: Reportable Fatal Roadway Collisions where Contributing Factor scored as Animal OR Wildlife Involved was an Animal OR Sequence of Events was an Animal.

## Table 3.3 Fatalities in Detachment Area

Source: Ontario Provincial Police, Collision Reporting System (CRS), (2025/02/21)

Note:

- Fatal Incidents: Reportable Fatal Collisions by Report Type (Roadway, Marine, Off-Road Vehicle, Motorized Snow Vehicle).
- Persons Killed: Number of Involved Persons where Injury is fatal by Report Type (Roadway, Marine, Off-Road Vehicle, Motorized Snow Vehicle).
- Alcohol/Drug Related Incidents: Reportable Fatal Collisions by Report Type (Roadway, Marine, Off-Road Vehicle, Motorized Snow Vehicle) where Alcohol/Drug Involved field indicated as Yes OR Contributing Factor scored as Ability Impaired (Alcohol or Drug) OR Driver Condition reported as Had Been Drinking or Ability Impaired.

## Table 3.4 Big 4

Source: Niche Records Management System (RMS) & eTicket, (2025/02/21)

Note:

- Speeding (HTA 128): Charges are based on date charged. Speeding = HTA s.128 charges.
- Seatbelt (HTA 106): Charges are based on date charged. Seatbelt = HTA s.106 charges.
- Distracted (HTA 78.1): Charges are based on date charged. Distracted = HTA s.78.1 charges.
- Impaired (CCC 320.14 & 320.15): Charges are based on date charged. Impaired = CCC s.320.14 & 320.15 charges.

## Table 3.5 Charges

Source: Niche Records Management System (RMS) & eTicket, (2025/02/21)

Note:

- HTA: Charges are based on date charged. Highway Traffic Act Statute charges.
- Criminal Code Traffic: Charges are based on date charged. Criminal Code Traffic (CCC s320.13, 320.14, 320.15, 320.16, 320.17 & 320.18) charges.
- Criminal Code Non-Traffic: Charges are based on date charged. All CCC charges not included in the Criminal Code Traffic section above.
- LLCA: Charges are based on date charged. Liquor Licence and Control Act charges.
- Federal Cannabis Act: Charges are based on date charged. Cannabis Act charges.
- Provincial Cannabis Act: Charges are based on date charged. Cannabis Control Act charges.
- Controlled Drug and Substance Act: Charges are based on date charged. Controlled Drug and Substance Act charges.
- Other: Charges are based on date charged. "Other" charges is comprised of CAIA, Other Provincial & Federal Offences not already captured in sections above.

## Table 4.1 Service Delivery Activity Allocations

Source: Daily Activity Reporting (DAR) System

Date: April 17, 2025

Note: Activity allocation percentages are based on the total reported hours of detachment provincial constables performing duties within their home detachment location.

## Table 4.2 Hours (Field Personnel)

Source: Daily Activity Reporting (DAR) System

Date: January 20, 2025

Note:

- Total reported hours, excluding paid duties.
- Includes Provincial Constable to Sergeant ranks only.
- Excludes First Nations badge numbers.
- Excludes administrative accounts and joint services accounts.
- Excludes incomplete DAR entries and those with errors.
- Excludes General Headquarters location codes.

# CONTACT THE OPP

## REACH THE OPP BY PHONE

- Know your location: Be ready to describe your surroundings. Look for addresses, landmarks and buildings that may help identify your location.
- Call 9-1-1 if there is immediate risk to someone's life or property.
- Don't hang up, stay on the line
- Call 1-888-310-1122 for non-life-threatening incidents that require police attention
- TTY 1-888-310-1133, or Agent 511 for registered subscribers (for the Deaf, Hard of Hearing and Speech Impaired)

## PROVIDE AN ANONYMOUS TIP

- Call Crime Stoppers at 1-800-222-8477 (TIPS)
- Visit www.crimestoppers.ca

## SPEAK WITH AN OFFICER FOR ALL OTHER MATTERS

To arrange to meet an officer at a detachment, go to www.opp.ca to use the Local Detachment Finder and follow the prompts.

## REPORT AN INCIDENT ONLINE

You have the option to report select occurrences to police from the convenience of a computer.

Visit www.opp.ca/reporting to use the Citizen Self Reporting system. Specific incidents can be reported online without attending a detachment or waiting for an officer.

You can use this system to report:

- Theft Under $5,000
- Mischief / Damage to Property Under $5,000
- Mischief / Damage to Vehicle Under $5,000
- Theft from Vehicle Under $5,000
- Lost / Missing Property Under $5,000 including a licence plate(s) or validation sticker(s)
- Theft of any type of gasoline from a gas station
- Driving Complaints
- Theft from Vehicle Under $5,000
- Lost / Missing Property Under $5,000 including a licence plate(s) or validation sticker(s)
- Theft of any type of gasoline from a gas station
- Driving Complaints

**Do not use this system if this is an emergency! If it is, call 9-1-1.**

### 9-1-1 is for police, fire or medical emergencies only.

Accidental, hang-up or abuse of 9-1-1 calls tie up emergency lines, communicators and officers which could result in the slower response to a real emergency, risking the safety of people who need urgent help.

### #KnowWhenToCall

If you've dialed 9-1-1 in error, stay on the line. Your call will be connected to police. Answer all questions asked by the communicator. This eliminates a lengthy follow up process that may lead to officers attending your location to ensure your safety.

**DETACHMENT BOARD ANNUAL REPORT**

**2024**

# CITY OF KAWARTHA LAKES DETACHMENT

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Lindsay ,ON
K9V 4R1

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# Committee of the Whole Report

| | |
|---|---|
| **Report Number:** | **PR2025-009** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **Parks and Recreation Strategic Plan - Draft** |
| **Description:** | Review of the draft final Parks and Recreation Strategic Plan |
| **Author and Title:** | Jenn Johnson, Director, Community Services |

## Recommendation(s):

**That** Report PR2025-009, **Parks and Recreation Strategic Plan - Draft**, be received;

**That** the final recommended Parks and Recreation Strategic Plan be brought forward to Council for approval at the Regular Council Meeting of November 18, 2025; and

**That** these recommendations be brought forward to Council at the next regular Council Meeting.

**Department Head:** _____

**Financial/Legal/HR/Other:**_____

**Chief Administrative Officer:**_____

## Background:

The City of Kawartha Lakes' first Parks and Recreation Strategic Plan was prepared in 2004. Since that time, the community has grown and changed, recreation trends have shifted, and many facilities and parks have aged. With more than two decades having passed, it is timely to revisit the Plan to ensure programs, facilities, and parks continue to meet current and future needs.

The Draft 2025 Parks and Recreation Strategic Plan (Plan), Appendix A, provides a high-level review of recreation services and facilities. It identifies community needs, establishes appropriate service levels, and recommends where new or improved programs, facilities, and parks may be required through to 2040. Many recommendations set the direction for further, more detailed work such as facility needs assessments, program-specific needs studies, or business case evaluations. As a living document, the Plan serves as a practical road map that will be reviewed annually.

Plan development occurred between Spring 2024 and Winter 2025 through four phases: data collection and consultation; needs assessments for programs, facilities, parks, and service delivery; financial and organizational analysis; and draft revisions. The resulting draft Plan has been finalized for release and will be available for public comment between October 7 and 21, 2025. While the Plan does not commit the City to immediate capital spending, its recommendations provide a framework to guide future decisions and will need to be incorporated into the City's long-term financial plan as priorities are advanced.

## Rationale:

Parks and recreation strategic plans provide significant community benefit by supporting active, healthy lifestyles, fostering social connection, and contributing to the overall quality of life for residents. They also enhance tourism and economic vitality by showcasing the municipality's natural assets, recreational amenities, and events. Beyond these community benefits, strategic plans serve as important corporate planning tools. They ensure that municipal investments are based on evidence and community need, and that decisions align with broader corporate objectives such as growth management, accessibility, sustainability, and fiscal responsibility. In this way, the Plan directly supports Council's Strategic Plan priorities of An Exceptional Quality of Life, A Healthy Environment, A Vibrant and Growing Economy, and Good Government.

The Parks and Recreation Strategic Plan was developed through extensive consultation with residents, staff, Council, and community partners. Engagement activities included interviews, open houses, focus groups, and surveys that collectively reached thousands of residents. This process provided valuable insights into current strengths and challenges while confirming priorities for the future. Community members highlighted growing demand for programs and facilities, limited satisfaction with aging indoor facilities, gaps in age-specific programming (particularly for youth, adults, and seniors), and barriers such as distance, affordability, accessibility, and program hours. There was also strong demand for more arenas, pools, pickleball courts, trails, and walking tracks, along with improved park amenities such as shade, seating, washrooms, and waterfront access. Participants also emphasized the need for better volunteer support and stronger partnerships with schools and community groups.

Analysis of existing conditions underscored the importance of responding to several key considerations. The municipality's expansive geography and dispersed population create challenges for equitable access, while staffing constraints and declining volunteerism impact service delivery. Aging, single-purpose facilities limit flexibility, and climate change requires more resilient approaches to operations and facility planning. At the same time, population growth and demographic change — particularly an aging population — will require balancing diverse needs. Accessibility, financial responsibility, and stewardship of the municipality's abundant outdoor assets were also identified as critical to future planning.

The resulting Strategic Plan sets out more than 180 recommendations for programs, events, facilities, and parks to guide decision-making through 2040. These recommendations, supported by detailed timing and costing in the Implementation Plan (Executive Summary), describe a vision of recreation that is more connected, inclusive, and sustainable. A central theme is the transition toward multi-use indoor and outdoor recreation hubs that maximize efficiency and broaden opportunities for residents. Improvements to Destination and Community parks will ensure rural and urban communities are better served, while expanded programs will be supported through enhanced spaces, flexible operating models, and new partnerships with non-municipal providers. The recommendations are organized across five focus areas: Programs and Events; Indoor Recreational Facilities; Outdoor Recreational Facilities; Parks; and Service Delivery, Resources, and Asset Management.

Taken together, the Plan establishes a clear and forward-looking framework to strengthen recreation services across Kawartha Lakes. It balances community needs with fiscal realities, positions the municipality to respond to demographic change, and leverages natural assets to expand outdoor recreation opportunities. Most importantly, it provides a practical yet aspirational path to build stronger, healthier, and more connected communities over the next 15 years.

## Other Alternatives Considered:

There are no other alternatives being considered at this time due to the 'For Information' context of the report.

## Alignment to Strategic Priorities:

The Parks and Recreation Strategic Plan advances A Healthy Environment by promoting outdoor recreation, climate resilience, and sustainable facility planning, while protecting and enhancing natural assets such as trails, waterfronts, and open spaces.

It contributes to An Exceptional Quality of Life by improving access to recreation programs and facilities for all ages and abilities, strengthening inclusion, accessibility, and community connection across rural and urban areas.

The Plan supports A Vibrant and Growing Economy by enhancing tourism, events, and local spending through investment in parks, trails, waterfronts, and multi-use recreation hubs, making Kawartha Lakes more attractive for residents, businesses, and visitors.

Finally, it reinforces Good Government by providing an evidence-based, financially responsible framework for investment and service delivery, aligning recreation planning with long-term financial strategies and corporate priorities.

## Financial/Operation Impacts:

There are no financial impacts associated with this report.

## Consultations:

Throughout the development of the Plan multiple internal departments and divisions were consulted. Similarly, the Parks Advisory Committee, Volunteers Management Committees, community groups and organizations, and user groups were included in the development of the Plan.

## Attachments:

Appendix A – Draft Parks and Recreation Strategic Plan

Document to be Embeded

**Department Head email:** jjohnson@kawarthalakes.ca

**Department Head:** Jenn Johnson

# City of Kawartha Lakes Parks and Recreation Master Plan

October 2025

## Land Acknowledgment

The City of Kawartha Lakes respectfully acknowledges that we are situated on Mississauga lands and the traditional territory covered by the Williams Treaties.

We are grateful for the opportunity to work here and we thank all the generations of people who have taken care of this land - for thousands of years. We recognize and deeply appreciate their historic connection to this place. We also recognize the contributions of Métis, Inuit, and other Indigenous peoples, both in shaping and strengthening this community and country as a whole. This recognition is connected to our collective commitment to make the promise and the challenge of Truth and Reconciliation real in our community.

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# 1.0 Introduction

## 1.1 Purpose of the Strategy

The purpose of the Kawartha Lakes Parks and Recreation Strategic Plan (herein referred to as the 'Plan') is to define community needs related to recreation programming, facilities, and parks; identify where programs, facilities, and parks should be located, when they will be needed, and how they will be delivered. The Plan provides clear, action-oriented recommendations to meet the needs of current and future residents over the next 15 years to 2040 through appropriate levels of service, anticipated improvements/additions, and trends and best practices. Intended as a living document, this Plan provides a road map, with the intent that it should be reviewed and updated annually.

## 1.2 Process for Developing the Strategy

The Plan's development took place between Spring 2024 and Winter 2025. The first two phases included data collection/review and consultation with Council, municipal staff, and the broader community. These activities provided the foundational knowledge base for the assessments. The findings from phases 1 and 2 were summarized in the Background and Consultation Report (October 2024), which can be found on the municipal website.

Phases 3 and 4 involve conducting needs assessments for each service area (programs, parks, recreation facilities, and service delivery), a financial and organizational analysis, and several rounds of drafts and revisions with staff. The resulting draft was shared with the community for consultation and comment prior to finalizing and presenting to Council.

## 1.3 Structure of the Strategy

The Plan begins with an overview of the community context (section 2.0), and then provides key considerations that apply to all service areas, and an overview of the strategic direction (section 3.0). It then presents the needs assessments for each service area; programs (section 4.0), indoor and outdoor recreation facilities (section 5.0), parks (section 6.0), service delivery (section 7.0), and Resources and Asset Management (section 8.0). Finally, all the recommendations are entered into an implementation plan with suggested timing and estimated costs, where available (section 9.0).

# 2.0 Community Context

## 2.1 Geographic Context

Kawartha Lakes is a geographically large single-tier municipality with over 3,000 square kilometres in land area. This makes it the second largest single-tier municipality in Ontario by geographic size. The municipality is a mix of rural and urban land, connected by over 250 lakes and rivers, five conservation areas, the Oak Ridges Moraine, as well as over 350 kilometers of trails. Other major land uses include agriculture, aggregates, and forestry.

A key challenge for the community has been delivering services to a population that is both geographically dispersed and composed of communities with distinct identities (Figure 2-1). Balancing the unique needs of each area with the recreational demands of the broader municipality poses challenges but also offers the chance to create a vibrant, diverse, and thriving parks and recreation system that serves all residents.

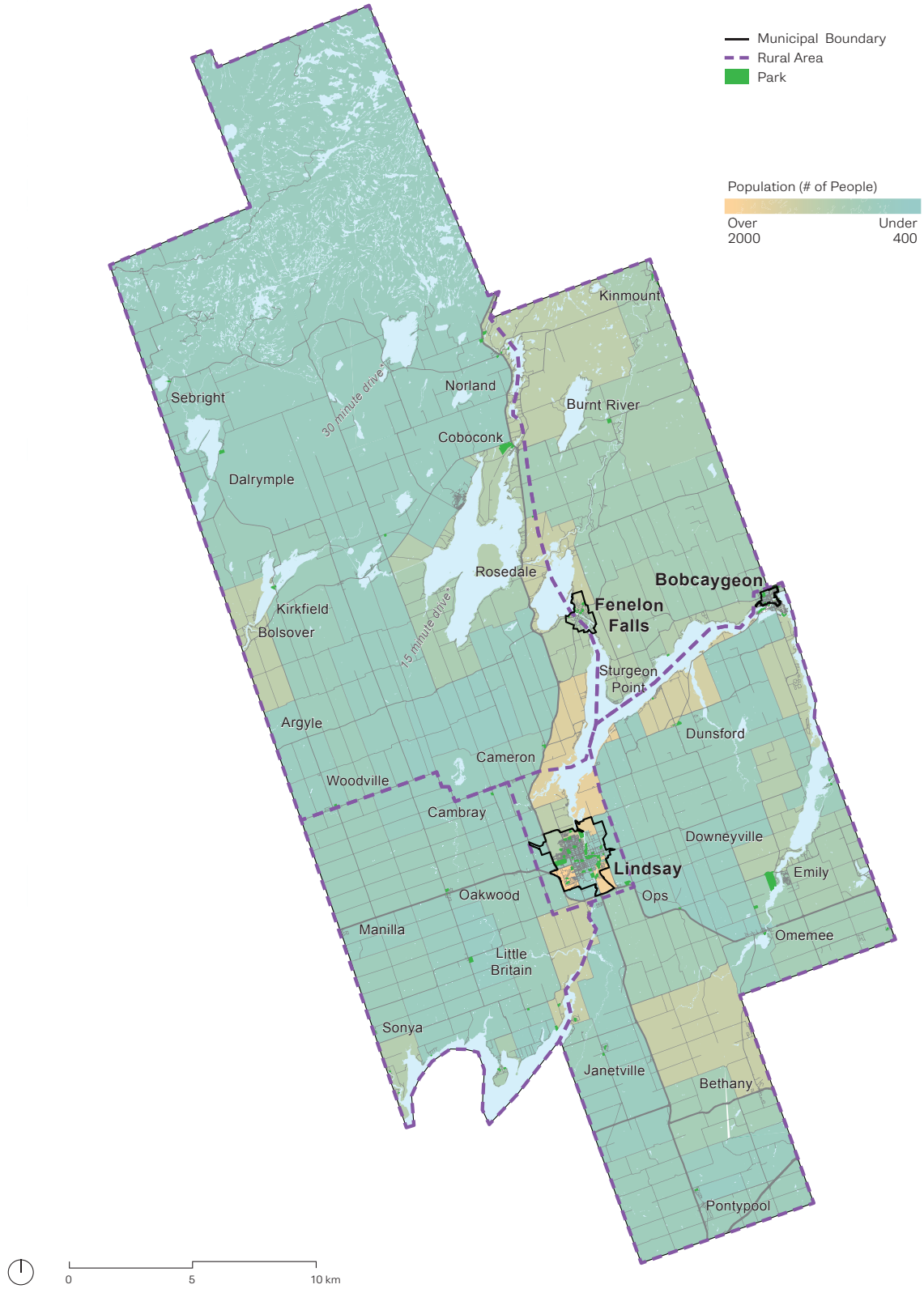


**Figure 2-1 Population Distribution and settlement areas of Kawartha Lakes**

## 2.2 Socio-demographic Context

### 2.2.1 Quick Facts

| | |
|---|---|
| **Income** | The median ($72,500) and average ($84,400) incomes of residents in Kawartha Lakes is approximately 90% of that of the Province. |
| **Age Distribution** | The municipality has an older age distribution than the Province, and is anticipated to see a notable increase (10%) in the 75+ age group between 2021 and 2040. |
| **Land Area** | At 3,033.66 km2, Kawartha Lakes is the second largest single-tier municipality in Ontario, by geography. |
| **Density** | The population density of Kawartha Lakes (26.1 people per km2 ) is low in much of the municipality, which is composed of large rural areas. Density is higher in the urban areas |
| **Anticipated Development** | A significant increase in development in the urban areas of Kawartha Lakes (Bobcaygeon, Fenelon Falls, Omemee, and in particular Lindsay) is anticipated, with a potential population increase of 42% between 2021 and 2040. |
| **Household Type** | The two most predominant household types in Kawartha Lakes are couple family households without children and one-person households. Couple family households with children are the third most predominant type. |
| **Seasonal Dwellings** | Approximately 16% (6,200) of total dwelling units in Kawartha Lakes were considered to represent seasonal dwellings as of 2021, with 893 net new seasonal dwelling units forecast to be developed by 2040. |
| **Diversity** | The vast majority of residents are of European descent. However, it is anticipated that with new development the municipality may see an increase in ethnic diversity. |

## 2.2.2 Population Projections

The largest proportion of the population is in Lindsay and the lowest in Woodville. Since 2016, notable growth has been seen in Lindsay (8%), with minor growth in Bobcaygeon (1.4%) and Fenelon Falls (1.1%), while Omemee (-16.6%) and Woodville (-13.1%) have both declined in population.

The municipality is preparing for significant growth, with a population projection of approximately 112,265 by 2040 (high growth scenario) — representing a 42% increase in population from 2021.[1] Under this scenario, Lindsay will grow by approximately 22,673 (total population of 47,220) and make up about 42% of the estimated population of the municipality by 2040.[2]

In the same timeframe, Bobcaygeon is anticipated to grow by 3,040 people, reaching a total population of 6,616. Fenelon Falls is expected to grow by 2,723 people, reaching a total population of 5,213, and Omemee by 481 people, reaching a total population of 1,541 (Figure 2-2).[3]

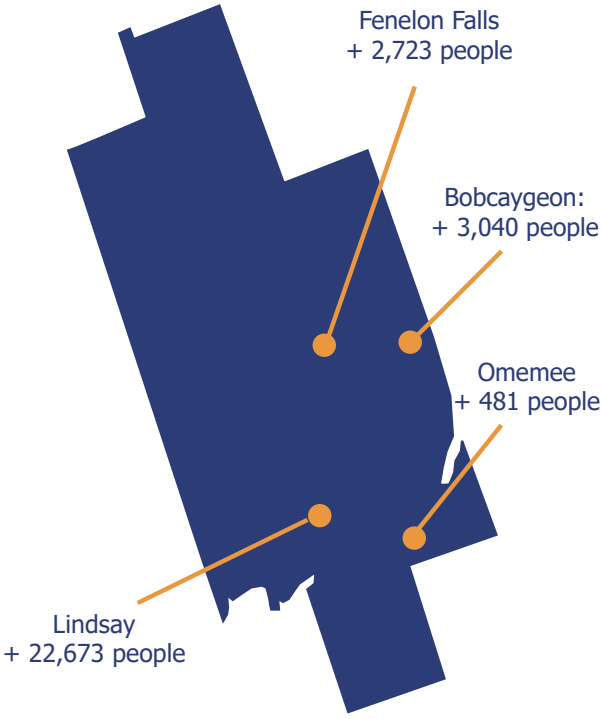


**Figure 2-1: 2025 Growth Management Strategy Projected Growth for Fenelon Falls, Bobcaygeon, Omemee, and Lindsay (2021-2040)**

### Figures Used for Assessments

This Plan and its assessments assume a current population of 81,200 and a projected population of 112,265[4] by 2040 at the end of the Plan's term (Table 2-1). These figures are based on the 2025 Kawartha Lakes Growth Management Strategy.

1 This figure is based on 2041 population growth estimates from the 2025 Growth Management Strategy, minus one year of growth calculated by assuming equal annual growth.
2 This figure is based on estimates from the 2025 Growth Management Strategy, which projects a population increase in Lindsay of approximately 24,900 people between 2021 and 2041, minus one year of growth calculated by assuming equal annual growth.
3 These figures are based on 2051 population growth estimates from the 2025 Growth Management Strategy, minus 11 years of growth calculated by assuming equal annual growth.
4 This figure is based on 2041 population growth estimates from the 2025 Growth Management Strategy, minus one year of growth calculated by assuming equal annual growth.

## 2.2.3 Projected Age Distribution

Figure 2-2 summarizes the population growth forecast by age group from 2021 to 2040 for the City of Kawartha Lakes.[5] Key observations are as follows:

- The percentage of the population in the 75+ age group is forecast to significantly increase from 12% in 2021 to 22% in 2040.
- The 55-74 age group is forecast to decline from 33% to 26% in 2040, as these young seniors age into the 75+ age group
- A minor decrease is anticipated in the 25-44 age group (-2% over the course of the plan)

**Figure 2-2: Projected Population of Kawartha Lakes from 2021-2040**

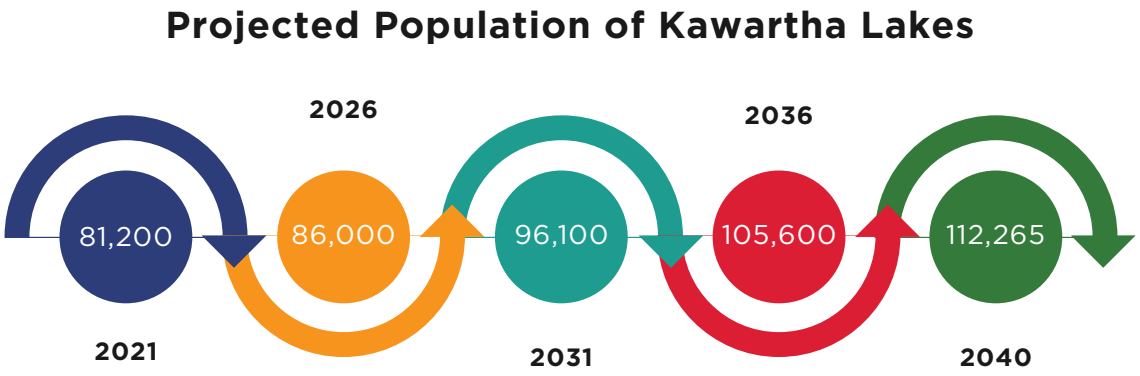


**Table 2-1: Projected Age Distribution of Kawartha Lakes from 2021-2040**

| | 2021 | 2040 | Percentage Change of Projected Age Distribution Over Course of Plan |
|---|---|---|---|
| **0-14 years** | 13% | 13% | None |
| **15-24 years** | 10% | 10% | None |
| **25-34 years** | 10% | 9% | -1% |
| **35-44 years** | 10% | 9% | -1% |
| **45-54 years** | 12% | 12% | None |
| **55-64 years** | 17% | 13% | -4% |
| **65-74 years** | 16% | 13% | -3% |
| **75 years and over** | 12% | 22% | +10% |

5 Figures are based on the 2025 Kawartha Lakes Growth Management Strategy

## 2.3 Planning and Policy Context

A review of relevant plans, policies, strategies, and other documents was conducted to provide essential contextual information for the development of the Kawartha Lakes Parks and Recreation Strategic Plan. The documents reviewed discuss various subjects, such as land designations, economic development, parks and facilities, and tourism.

The following documents were considered in preparation for the Parks and Recreation Strategic Plan:

- Kawartha Lakes Official Plan (2012)
- Lindsay Secondary Plan (2017)
- Fenelon Falls Secondary Plan (2015)
- Parkland Dedication By-Law
- Parks, Recreation and Culture Strategic Plan (2004)
- Trails Master Plan Update (2023)
- Destination Development Plan (2021)
- Active Transportation Master Plan (2024)
- 2024-2027 Strategic Plan
- People Strategy (2022)
- Kawartha Lakes Growth Management Strategy (2025)
- Development Charges Background Study (2019)
- Disposal of Real Property Policy (2018)

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# 3.0 Key Considerations and Directions

## 3.1 Key Considerations

- Expansive Geography and Dispersed Population: The municipality's large geographic size and low population density create challenges for equitable access, efficient facility placement (especially considering placement of current facilities from legacy municipalities pre-amalgamation), and maintenance/staffing.
- Staffing Constraints: Challenges with recruiting qualified staff can hinder the ability to maintain facilities and deliver programs effectively.
- Impact of Climate Change: Increasingly extreme weather events and shifting seasons necessitate resilient and sustainable service delivery planning.
- Volunteer Recruitment and Retention: A strong culture of volunteerism has historically supported recreation opportunities in the municipality. However, a declining volunteer base poses challenges for community-led initiatives and facility operations.
- Aging and Single-Use Facilities: Many existing facilities are aging and were designed for single purposes, making them less adaptable to evolving community needs.
- Population Growth: There will be an ongoing need to monitor and manage the demand for recreation facilities and programming during periods of significant population growth and demographic shifts.
- Aging Demographic: There is a need to plan facilities and programs to meet the needs of an aging population while balancing the needs of younger residents.
- Abundant Outdoor Recreation Assets: There is an opportunity to capitalize on the region's natural resources to enhance outdoor recreation while ensuring preservation and accessibility.
- Accessibility Standards: Need to enhance accessibility/inclusivity to ensure recreation opportunities are available for people of all abilities.
- Importance of Financial Responsibility: Need to allocate resources effectively among competing services while maintaining fiscal responsibility.

## 3.2 Overall Directions to 2040

The Plan provides 183 recommendations for programs, events, indoor and outdoor facilities and parks, to be implemented over the next 15 years. All of the recommendations, with their suggesting timing and costing, are provided in the implementation plan (Section 4.0 of the Executive Summary, and Section 9.0 of the Strategic Plan).

With such a large scope, it is helpful to be able to condense the directions and visualize the end goal. Figures 3-1, 3-2 and 3-3 illustrate strategic approaches to recreation to 2040, as outlined in the recommendations.

Key goals and strategic approaches of the Plan are to:

- Move towards multi-use indoor and outdoor recreation hubs for better service and more efficient operations
- Improve key Destination and Community parks to better serve rural areas
- Expand program offerings in urban and rural areas through improving and adding spaces, working with volunteer groups, adjusting operating hours, and supporting/facilitating access to non-municipal spaces

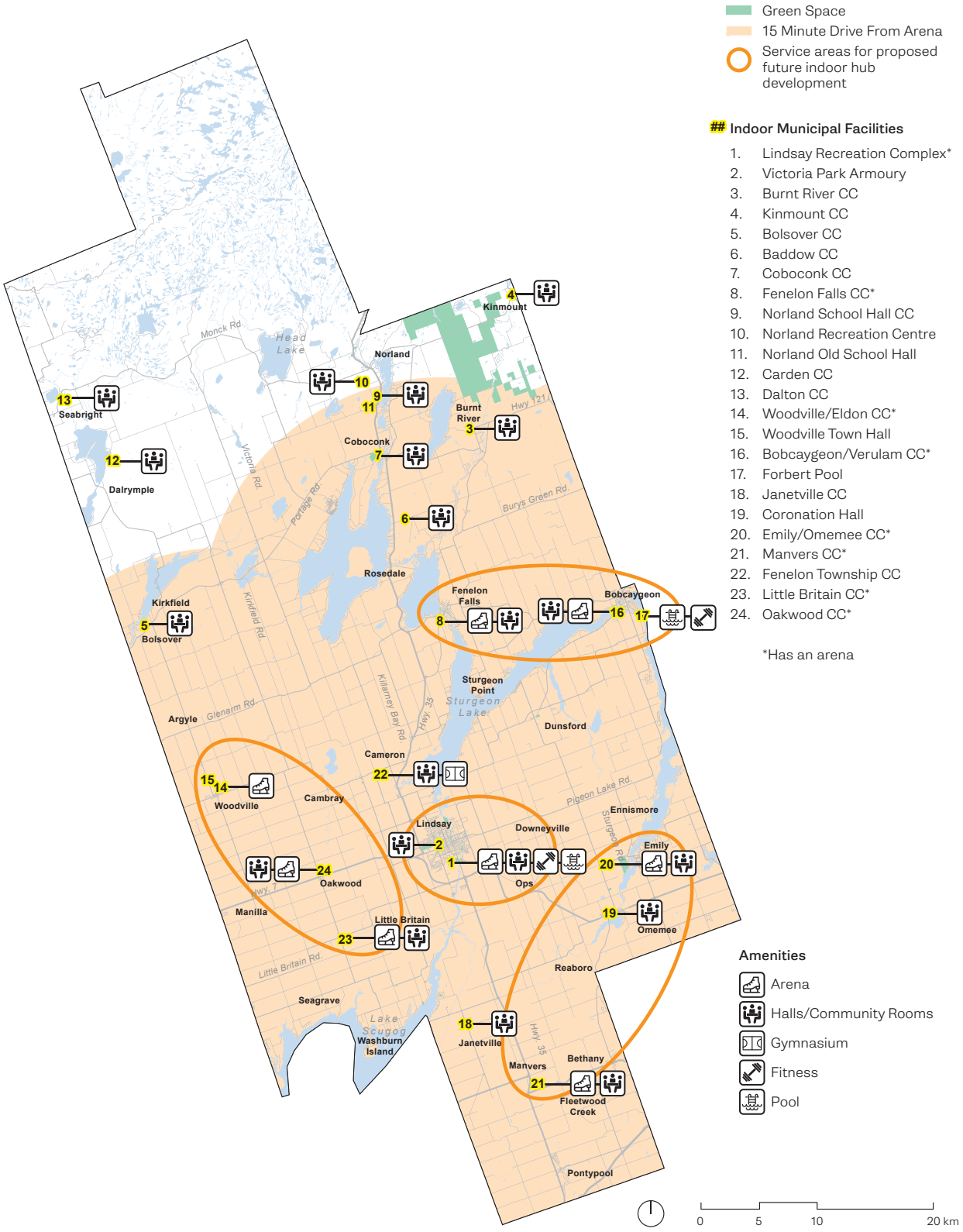



**Figure 3.1: Existing indoor facilities and proposed arena areas for indoor hub development**

## Directions for Indoor Recreation Facilities

In order to accommodate additional programming and activities, along with future potential population growth, additional indoor facility spaces are needed. In particular, there is need/demand for ice pads, pools, gymnasiums, fitness facilities, indoor walking tracks, and multi-purpose rooms. Where possible, these facilities should be provided together in indoor hubs to facilitate use by all ages, and leverage operating efficiencies.

Figure 3-1 outlines the existing and new arenas to be considered for inclusion in four indoor hubs: Fenelon Falls/Bobcaygeon; Emily/Omemee/Manvers; Woodville/Little Britain/Oakwood; and South Lindsay. These would be developed over time to serve existing and future residential areas. Each hub could be anchored by a twin pad arena, as part of a larger facility containing, for example, a gymnasium and walking track. These co-located facilities would be determined based on needs to be met at each location. The arenas for inclusion in the hubs were determined by factors such as the results of previous studies, anticipated population growth areas, community and user group activity, and ice scheduling and use.

More analysis is required to understand the relevant market(s) and financial implications of redeveloping or adding new facilities to supply. The Strategy recommends preparing a detailed Recreation Facility Master Plan to confirm facility requirements by type, and to provide specific guidance on redevelopments, new developments, configurations, and locations of hubs.

### Ice

- Confirm the number of pads needed through the recommended Recreation Facility Master Plan. (RFMP)
- Treat future twin pads as the core of indoor hubs to be combined with other facilities (e.g., gymnasiums, fitness facilities, tracks).
- Accommodate immediate additional need through weekend scheduling.

### Gymnasiums

- Consider gymnasiums in future hubs to serve the north and south ends of the community.
- Accommodate immediate need through investigating increased access to Fleming College Field House and school board gyms.

### Pools

- As part of the recommended RFMP, investigate expanding the Forbert Memorial Pool to include a 25m, 8 lane facility with a leisure component.

### Fitness Facilities and Walking Track

- As part of future indoor recreation hub development, consider including strength and conditioning rooms, fitness studios, and walking tracks.

### Multi-purpose Rooms

- Working with VMCs, collect ongoing data on use.
- Confirm future of standalone community rooms through the recommended RFMP.

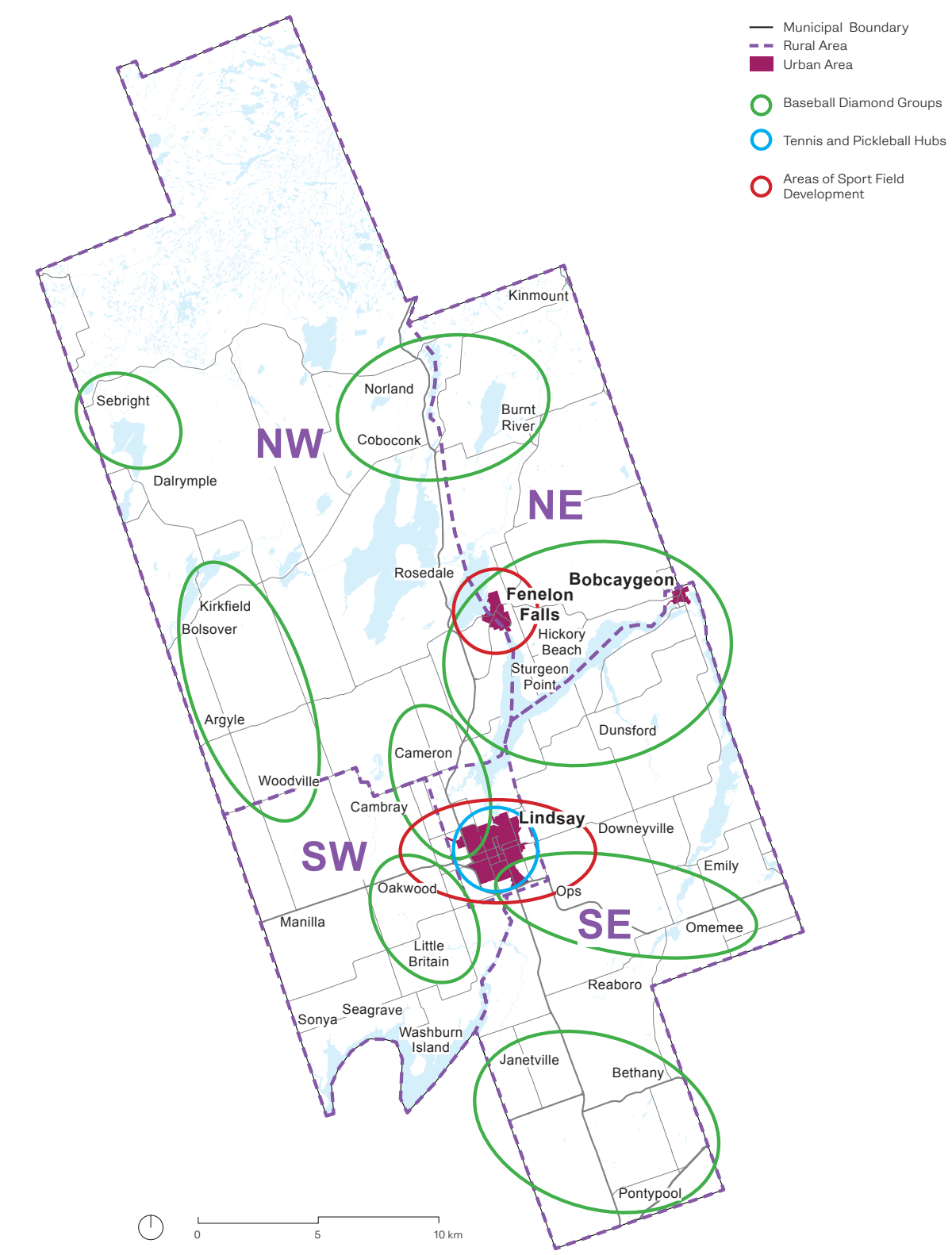



**Figure 3.2: Existing outdoor facilities and locations of proposed improvements/expansions**

# Directions for Outdoor Recreation Facilities

The analysis of outdoor recreation facilities sought to balance needs based on population and actual use, along with ensuring sufficient recreation opportunities across Kawartha Lakes.

For ball diamonds and athletic fields this means working with user groups to optimize/increase use of existing assets, including making upgrades and adding lighting where necessary. Taking a "group" approach to investing in playing fields can also help better serve communities throughout Kawartha Lakes.

Future directions for tennis and pickleball include focusing on developing single use hubs for each sport, with additional courts added to supply, along with dual lined courts for casual use.

### Diamonds and Athletic Fields

- For diamonds and athletic fields, adjust prime time to include Friday evenings, aim to increase weekend use and better distribute use through June - August, charge hourly rates, and work with VMCs to schedule and track organized use. Once these actions are in place, continue to monitor use to verify unmet demand.
- Consider collaborating with the Fenelon Agricultural Society, the Optimist Club, and Fleming College for additional fields (soccer, cricket).

### Courts

- Convert the courts at Wilson Fields to tennis only, and add two more.
- Convert the courts at Memorial Park to pickleball only and add four more.
- Confirm projections and locations for additional tennis, pickleball and shared use courts to 2040.

### Allocation and Agreements

- Create a formula-based seasonal allocation policy to optimize distribution of prime time among all groups using ice and ball diamonds.
- Post court protocols and develop an honour system for shared use courts.
- Consider reciprocal use agreements with schools for fields.

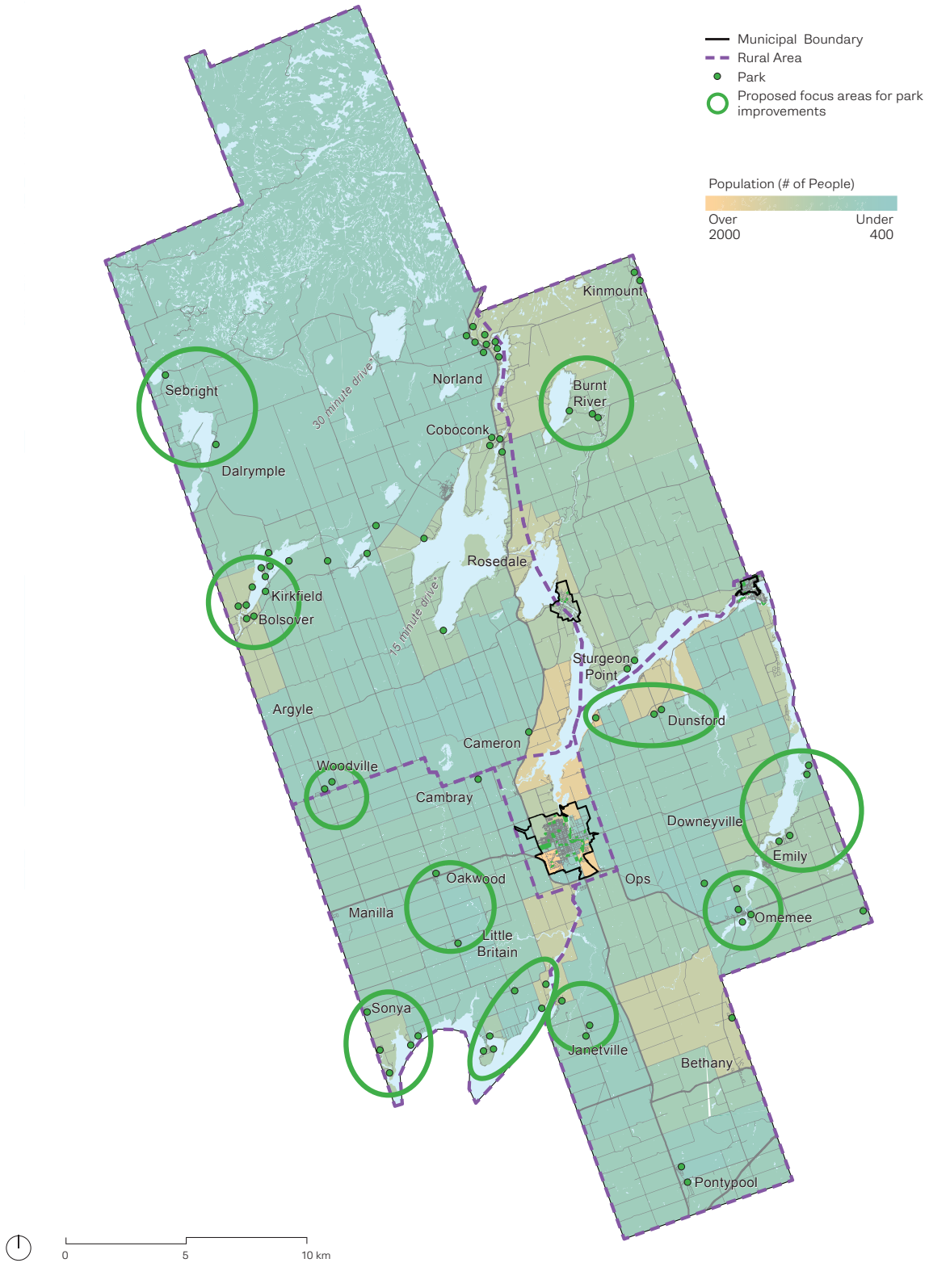



**Figure 3.3: Proposed focus areas for rural parks improvements**

## Directions for Parks

Unscheduled park amenities were analysed based on comparative provision (with similar municipalities), demographic needs, geographic distribution and community demand. Recommended additions to supply include skateparks/ pump tracks, dog parks, a splash pad, and amenities for all ages such table tennis or outdoor fitness equipment along trails.

The Plan directs to aim to maintain the current level of park provision (3.2 ha:1,000 people), and/or an 800 m radius to parks for all households in urban areas. It provides a framework for accepting land from new developments that assists the municipality with understanding the operating/staff costs of growth in supply, and directs to accept cash-in-lieu in rural areas to help fund needed improvements to parks in rural areas.

Recognizing the importance of parks in rural areas to provide more local recreation opportunities, the Plan divides the municipality into four quadrants, and provides recommendations for each area to improve the quality and quantity of park amenities in each zone. The focus is to improve selected Destination and Community parks in rural areas. Further specific park improvements (including those in the urban areas), and waterfront improvements are to be explored in the proposed Parks Master Plan.

Finally, direction is provided to support climate conscious parks such as naturalization, LIDs, tree canopy, pollinator gardens, horticulture, and community gardens.

**Casual Use Facilities**

- Recommended additions to supply include skateparks/pump tracks, dog parks, a splash pad, and amenities for all ages such table tennis or outdoor fitness equipment in parks and along trails.

**Rural Recreation**

- The focus is to improve selected Destination and Community parks to improve access to recreation for four rural zones - Northwest, Northeast, Southwest and Southeast

**Parks Master Plan**

- Further specific park improvements (including those in the urban areas), and waterfront improvements are to be explored in the proposed Parks Master Plan.

**Accessibility and Environment**

- Support climate conscious parks such as naturalization, LIDs, tree canopy, pollinator gardens, horticulture, and community gardens.

## Directions for Programming

Directions for programs focus on increasing capacity in high demand programs, developing new programs for expressed areas of interest, meeting demographic needs, and improving access for rural residents. Accessing additional recreation space, moving programs outdoors where possible, and adding staff will support achieving these recommendations. Key directions from the recommendations include:

- Increase capacity in high-demand programs
- Introduce more outdoor programming
- Increase drop-in options
- Explore solutions for rural access to programs, including summer camps
- Monitor community interests on a 5 year cycle
- Collaborate with volunteer groups to support seniors programs, and if needed, add a seniors-focused Community Development Coordinator (CDC)
- Add a CDC to focus on event development and support for community events (e.g., Municipal Event Application)
- Collaborate with Economic Development to provide/support large-scale sports tourism events

## Directions for Service Delivery

The approach to service delivery focuses on updating existing and developing new policies to address emerging trends and areas in need of guidance, data collection for improved asset management, further defining levels of service and associated staff hours, undertaking periodic community consultation for specific services, and supporting/developing partnerships and agreements. For example, agreements and partnerships will potentially have an important role in meeting need for both indoor and outdoor scheduled facilities, including with VMCs, school boards, and Fleming College. A Community Engagement/ Outreach/Partnerships Coordinator is recommended to support this direction.

Additional parks staff will likely be needed as parkland is acquired through development, and a calculation is provided to determine how many staff will be required based criteria including number of hectares, park type, and park level of service.

# 4.0 Programs, Activities, and Events

## 4.1 Current Programming Context

Kawartha Lakes currently offers a range of recreation programs and events directly to residents, with a focus on aquatics, ice-based programs, fitness classes, sports leagues, and day camps. The municipality also maintains many key recreation facilities, such as the Lindsay Recreation Complex, Forbert Memorial Pool, and various arenas and community centers, which indirectly support local organizations by providing access to necessary facilities to those who provide recreation programming. This section reviews the existing supply of recreation programs, activities, and events in Kawartha Lakes.

### 4.1.1 Programs/Activities

A high level overview of program and activity supply is provided in Table 4-1, while a more detailed listing is contained in Appendix A. While not an exhaustive inventory, the programs and activities outlined offer a sample of the recreational offerings available to residents and visitors, and highlight key opportunities for residents and visitors to enjoy and engage with the area's offerings.

As can be seen in Appendix A, nearly all municipally-led programs had high participation rates in 2023, including sports programs (100% total registration), day camps (92% total registration), fitness classes (85% total registration), and aquatics classes (75% total registration). The only program area with low registration rates was arts and culture, in which two photography programs were offered in 2023, with a collective 14% participation rate.

## Table 4-1: Population Distribution and settlement areas of Kawartha Lakes

| Activity Type | Examples | Primary Providers | Approximate Frequency | Primary Locations | Drop-in/ Casual Use | Organized Programs |
|---|---|---|---|---|---|---|
| **Fitness Classes** | Yoga, Cycling, Bootcamp | Commercial operators, City of Kawartha Lakes | Multiple times daily | Lindsay, Bobcaygeon | Yes | Yes |
| **Arena Sports** | Ice Hockey, Figure Skating, Free Skates | Community-based volunteer groups, non-profits, City of Kawartha Lakes | Daily/Multiple times weekly | Communities across the municipality | Yes | Yes |
| **Field Sports** | Baseball, Slo-pitch, Soccer | Community-based volunteer groups, non-profits | Multiple times weekly | Communities across the municipality | Available at local outdoor fields when programs are not running | Yes |
| **Gymnasium/ Court Sports** | Basketball, Volleyball | Not-for-profits, public agencies (e.g., local schools) | Weekly/Multiple times weekly | Lindsay | Available at local outdoor courts when programs are not running | Limited options for adults |
| **Racquet Sports** | Tennis, Badminton, Pickleball | Not-for-profits, City of Kawartha Lakes | Multiple times weekly | Lindsay, Omemee, Fenelon Falls, Burnt River, Bobcaygeon, Coboconk | Yes | Yes |
| **Aquatics Programs** | Swim Lessons, Swim Club, Public Swim | City of Kawartha Lakes | Multiple times daily | Lindsay, Bobcaygeon (indoor), outdoor locations at lakes across the municipality | Yes | Yes |
| **Arts and Culture** | Performing Arts, Visual Arts, Crafting | Commercial operators, non-profits, public agencies[1] | Weekly | Communities across the municipality (limited opportunities in northern areas) | Yes | Yes |
| **Social Clubs/ Service Clubs** | Seniors Club, Youth Programs, Lions Club | Community-based volunteer groups | Multiple times weekly | Communities across the municipality (limited opportunities in northern areas) | Yes | Yes |
| **Outdoor Recreation** | Hiking, Birdwatching, Boating, ATVing, Cycling | Public agencies, not-for-profits, independent recreation | Monthly | Communities across the municipality | Available on trails, lakes, parks, conservation areas, etc. | Limited recurring programming available |

1 limited offerings by City of Kawartha Lakes; Kawartha Lakes Public Library provides programming

## 4.1.2 Community Events

Community events in Kawartha Lakes are primarily provided by local volunteer groups and other public agencies. Major events run by the municipality include the annual Milk Run (5k and 10k run), Easter in the Park, Concerts in the Park, and the annual Kawartha Lakes Farmfest. The municipality also provides financial support to many volunteer groups to run community events, including the annual Canada Day celebrations, which are hosted in several communities.

Table 4-2 provides examples of major events held in the municipality. Most of the events are holiday-focused and serve the direct community. An outlier to this was the 2024 International Plowing Match, which was a larger scale event that drew visitors from outside the community. It is also noteworthy that most existing events take advantage of the natural resources that characterize Kawartha Lakes, with a focus on the municipality's rich connections to agriculture, its access to trails and waterfront spaces, and its parks and conservation areas. Registration/participation rates for the events below were not available.

**Table 4-2: Sample of Major Events in Kawartha Lakes Activities**

| Organizer | Type | Event |
|---|---|---|
| **Municipality** | Holiday -based | • Easter in the Park |
| | Other | • Concerts in the Park<br>• Milk Run (5km and 10km run)<br>• Kawartha Lakes Farmfest |
| **Public Agencies** | Holiday -based | • Kawartha Conservation - Christmas at Ken Reid |
| | Other | • Kawartha Conservation - Annual Fall Festival |
| **Not-for-Profit Agencies** | Other | • Ontario Plowmen's Association - 2024 International Plowing Match<br>• Lindsay Agricultural Society - Lindsay Exhibition<br>• Fenelon Falls Chamber of Commerce - Santa Day Fenelon Falls<br>• Kawartha Settlers' Village - Kawartha Lakes Festival of Trees |
| **Community-based Volunteer Groups** | Holiday -based | • Canada Day Celebrations<br>• Santa Claus Parades |
| | Other | • Kawartha Lakes Cycling Club - Kawartha Lakes Classic Cycling Tour<br>• Bassmasters and other similar fishing events (can differ year to year) |

## 4.2 What We Heard

As part of the preparation of this Plan, a Background and Consultation Summary Report was produced to provide a summary of findings from the data collection/review and consultation phases of this project. This document should be referred to for additional details regarding the consultation findings. The following provides a brief snapshot of these findings, as they relate to programming. Additional details are provided within the program assessment section below.

Through our consultations, we heard strong interest in expanding recreation programming, particularly in sports, physical activities, events, and outdoor recreation. Most feedback focused on increasing capacity for existing programs rather than introducing new ones, with high demand for more fitness classes, aquatics, pickleball, baseball, and soccer. Adults expressed a need for more sports leagues for those 30+, while seniors highlighted the importance of walking tracks, outdoor fitness equipment, and social spaces. Youth, especially tweens, were identified as underserved and would benefit from additional activities like youth shinny, skate parks, and basketball courts.

Participants identified several barriers to participation, including lack of program capacity—especially in aquatics, youth sports, soccer, and day camps—along with geographic challenges, particularly in the northern parts of the municipality. Some residents also cited a lack of awareness about available programs and scheduling conflicts as obstacles. Addressing these barriers will be key to ensuring broader community access to recreation opportunities.

## 4.3 Key Considerations for Programming

This section outlines local conditions and trends that influence the demand for parks and recreation programming in Kawartha Lakes, as well as the capacity of municipal staff and community organizations to meet this demand. It also outlines the findings of a benchmarking exercise, which was conducted to compare the programming provided by the City of Kawartha Lakes with that of Norfolk County, Greater Sudbury, Chatham-Kent, and Quinte West. Appendix B provides additional information on the comparative analysis. Appendix C provides additional discussion on recreation trends.

## Table 4-3: Summary of Local Conditions Impacting Recreation Programs in Kawartha Lakes

| Strategy Key Considerations (outlined in section 3.1) | Impact to Programming |
|---|---|
| **Expansive Geography and Dispersed Population/Staffing Constraints** | • Challenges offering programs in close proximity to all residents partially due to difficulty recruiting staff in these areas |
| **Volunteer Recruitment and Retention** | • Declining volunteer base may jeopardize sustainability of many existing community-led programs |
| **Aging and Single-Use Facilities** | • Limited variety of facilities limits types of programming that can be offered<br>• Aging facilities present accessibility challenges |
| **Population Growth** | • Population will increase by 38% by 2040, increasing demand for more diverse programming and putting pressure on existing capacity constraints<br>• Urban centres will see increased pressure for additional programming as Kawartha Lakes grows |
| **Aging Demographic** | • Proportion of residents 75 years and older will increase from 12% to 22% by 2040, increasing demand for seniors' programming |
| **Abundant Outdoor Recreation Assets** | • Natural assets provide significant opportunities in terms of community and tourist-focused events, self-directed recreation, and structured programs |

## Table 4-4: Summary of Recreation Trends Impacting Kawartha Lakes

| Program Types: | Participants Needs & Interests: |
|---|---|
| • Growing emphasis on outdoor Recreation<br>• Demand for drop-in and unstructured Activities<br>• Interest in park related tourism/sustainable tourism<br>• Digital fatigue and loneliness<br>• Interest in endurance sports<br>• Pickleball's rapid growth | • High level of inactivity in children and youth<br>• Growing need for active seniors programming<br>• Importance of accessible programming<br>• Need for free and low-cost recreation opportunities<br>• Importance of supporting women and girls in sports<br>• Growing demand for multi-cultural activities |

### Table 4-5: Comparison of Programming in Kawartha Lakes to Other Municipalities

| | |
|---|---|
| **Overall Performance** | • Performs well in relation to other municipalities, with similar types of recreational programs and events offered<br>• Focuses on pool and ice-based programs, fitness programs, day camps, and community events |
| **Strengths** | • More fitness and aquatics programs than Norfolk County, Chatham-Kent, and Quinte West. However, Chatham-Kent and Quinte West rely more heavily on community providers, including local YMCAs<br>• Similar number of fitness programs to Greater Sudbury, despite having half the population<br>• More seniors-specific sports programs than its peers, though Norfolk County offers more non-sport seniors' programs |
| **Potential Gaps** | • Fewer recreation locations despite lower population density<br>• Fewer dry-land programs for toddlers and children<br>• Fewer drop-in sports for youth and adults<br>• Fewer arts and culture programs for adults and seniors<br>• Fewer walking programs for adults and seniors |

## 4.4 Assessment

### 4.4.1 Variety of Programs

A review of existing program, activity, and event supply in Kawartha Lakes demonstrated that programs/activities are provided in all major recreation categories that were evaluated, including fitness classes, arena sports, field sports, gymnasium/court sports, racquet sports, aquatics, arts and culture, social clubs/ service clubs, and outdoor recreation. This illustrates that there are a wide range of programs currently available to Kawartha Lakes residents. Additionally, the benchmarking exercise outlined in Appendix B (Program and Events Benchmarking Results) demonstrated that Kawartha Lakes performs well in its recreation programming, with only a few potential gaps identified.

Consultation results suggest residents do not see a strong need to expand program offerings, with 92% of random telephone survey respondents stating there are no programs of interest currently unavailable in Kawartha Lakes. Public survey respondents also ranked programs and events as their lowest priority for improvement or expansion, behind parks, outdoor sports facilities, open spaces, and indoor recreation facilities. The municipality should touch base with the community on a 5 year cycle to conduct a program needs assessment (that includes community consultation) to monitor how demand for programs changes.

The relatively low demand for additional programs reported during consultations for this Plan may be due to the high level of program supply already available in Kawartha Lakes, particularly for organized sports and self-directed physical activity. However, consultations also identified specific program gaps that can be addressed through strategic planning over the course of this Plan, as discussed below.

**Capacity of Popular Programs**

Despite the availability of fitness classes, aquatics, pickleball, baseball, and soccer programs in Kawartha Lakes, multiple consultation sources identified a need for these activities. This suggests that the primary issue is not a lack of program variety but rather insufficient capacity in existing offerings. This is reinforced by the fact that 51% of public online survey respondents cited full facilities/ programs as a barrier to participation. Staff also reported that aquatics and day camp programs struggle to meet demand, a concern echoed in resident surveys. Additionally, 90% of user group survey respondents anticipate increased participation over the next five to ten years, with 77% reporting growth from 2022 to 2024—further underscoring the need for expanded capacity throughout the Plan's timeframe.

The capacity limitations of certain programs are, in part, a result of limited access to certain facilities, such as pools, soccer fields, and gymnasiums, with pressures on these facilities anticipated to continue growing as the population of the municipality quickly rises over the next 15 years. Additionally, the capacity of municipal staff and community volunteers to support additional programming will need to be considered as programs and events see growing demands.

In summary, there is demand for additional capacity to existing programs, however, capacity is limited by facility space and the ability to hire/retain instructors. Facility needs over the horizon of the Plan will be discussed further in section 5, while staffing and service delivery needs will be discussed in sections 7 and 8.

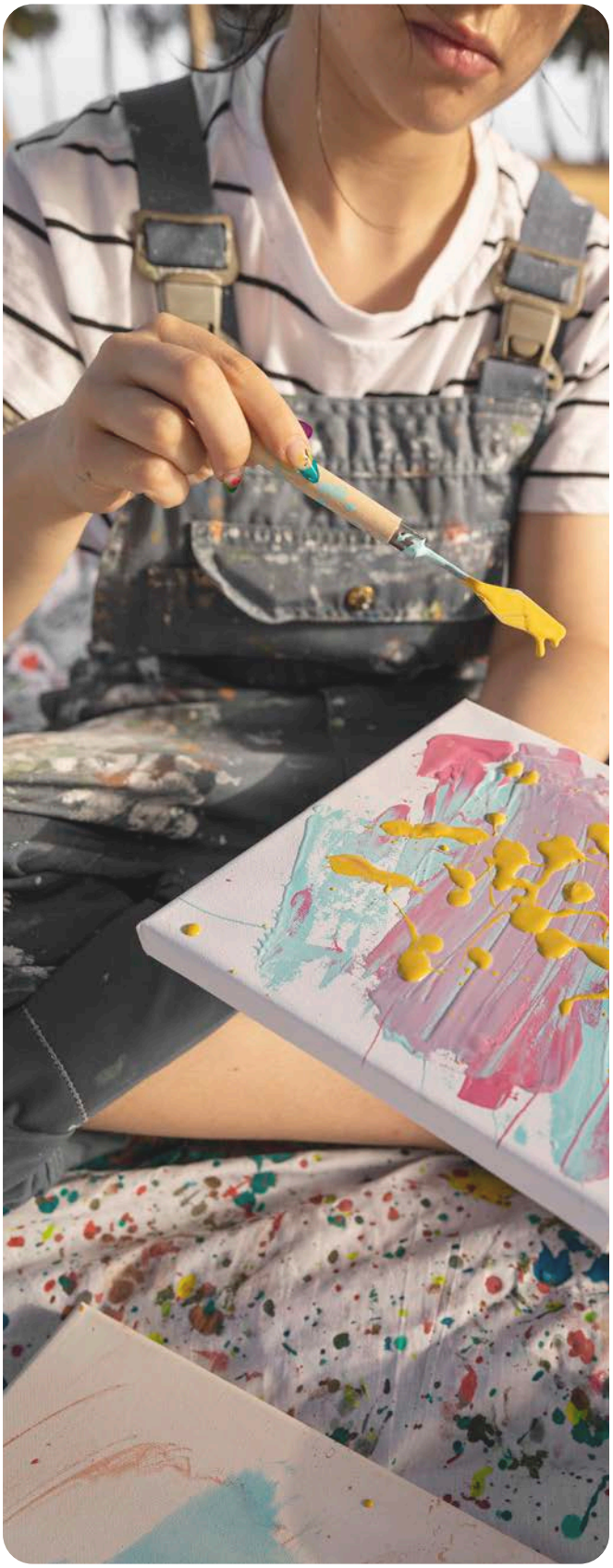
**Arts and Culture**

In terms of non-sport programming interests, consultation revealed a strong interest in outdoor recreation and community events, and notable interest levels in learning and arts/ culture activities, especially for adults and seniors. Recent arts and culture programs offered by the municipality have had low enrollment, which could indicate that commercial operators and community-groups are adequately addressing this interest or that this interest is secondary to other interests for many residents. It could also indicate that the programs that have been offered (i.e., photography programs) do not appeal to the community.

As Kawartha Lakes continues to grow and welcome more diverse communities, it is essential to ensure that residents of all racial, ethnic, and faith backgrounds feel acknowledged and included in programs and events. This can be achieved by incorporating culturally inclusive programming, recognizing diverse traditions and celebrations, and fostering an environment that promotes belonging and engagement for all community members. The municipality can do this by, for example, trying to ensure that advertising and communications reach these groups, featuring a diversity of people in advertising, working to see recreation staff reflect the diversity of the community, and through staff training.

From the perspective of providing programming that is culturally-appropriate, the municipality is currently providing programming that is traditional to Canadian communities, such as ice-based programs, aquatics, and weights and cardio-based fitness classes. Given the vast majority of residents are of European descent, with less than 1.4% of Kawartha Lakes residents having immigrated to Canada after 2000, the current programming is likely appropriate. However, it will be important for staff to monitor demand for more diverse types of programs, activities, and events.

Going forward, the future Kawartha Lakes Cultural Centre will take the lead on assessing arts and culture programs and event needs, and the provision thereof.



## BRIDGING ARTS AND PARKS

Parks play a crucial role in community development and self-expression, as public spaces that are accessible to all residents. Leveraging this potential, arts and literacy activities can greatly enhance the vitality of parks, while helping to address potential gaps in program variety. Recognizing this, many municipalities and libraries have started to offer outdoor programming in these public spaces. Parks are ideal settings for a range of arts and literacy-based programs. These programs offer participants the dual benefits of engaging activities and time spent outdoors. Moreover, they contribute to the overall vibrancy of public spaces and increase community awareness of these valuable programs.

Online resources such as the Ontario Arts Council's Community-Engaged Art Workbook[1], the Toronto Arts Foundation's Arts in the Parks Toolkit[2], and the Placing Parks In the Cultural Landscape Toolkit[3] provide advice, frameworks, useful considerations, and case studies for planning arts activities in municipal parks, establishing partnerships, fundraising, conducting outreach and engagement, and evaluating programs, amongst others.

1 https://www.arts.on.ca/oac/media/oac/Publications/Framing-Community-A-Community-Engaged-Art-Workbook.pdf
2 https://torontoartsfoundation.org/getattachment/Initiatives/Arts-in-the-Parks-(1)/Pages/Arts-in-the-Parks-Toolkit/CTA-TOOL-KIT/AITP-TOOL-KIT/AITP-Toolkit-2019.pdf.aspx
3 https://www.placingparks.ca/toolkit

**Outdoor Recreation and Events**

Outdoor recreation presents a strong opportunity for program growth in Kawartha Lakes, with potential offerings such as paddling, outdoor survival skills, trail running, etc. These activities can take advantage of the municipality's natural resources while encouraging residents to engage with their surroundings in new and meaningful ways. Another simple way to provide more outdoor programming is to move existing programs outdoors where compatible. For example, in the spring, summer, and fall, bootcamp, yoga, simple crafting, literacy, parent-and-tot programs and others could easily be moved outdoors/an outdoor option added. Activating parks and open spaces in this way can enhance their vibrancy, encourage greater use, and increase awareness of available programs.

Currently, Kawartha Lakes offers its Concerts in the Park events on Sunday afternoons and Wednesday evenings in the summer. However, given the City's access to green space, the community's interest in outdoor recreation, and trends associated with park-related tourism and digital fatigue and loneliness, the City should seek to integrate more small-scale arts and culture programs within local parks to animate these spaces and increase their use by all age groups. Potential offerings could include drumming circles, open mics, storytelling/oral history sharing, stand-up comedy, magic, casual choir, art classes, dance lessons, improv workshops, book clubs, creative writing/poetry circles, etc. Parks and Recreation staff can work with Cultural Centre staff to help support these activities in parks.

Parks classified as "City Parks and Waterfront Parks" or "Community Parks" under the Parkland Hierarchy set out in section 6.4.1 of this Plan are recommended for park activation uses, though other parks should be considered where improved geographic accessibility is needed. For example, Ward Park in Norland, Carden Community Centre Park, Lion's Park in Cocobonk, Memorial Park in Lindsay, Elgin Park in Lindsay, and Tommy Anderson in Bobcaygeon may provide appropriate spaces for park activation activities. Park amenities such as washrooms, drinking water fountains, seating, and shade structures (e.g., gazebos, pavilions) are important considerations to ensure participants are comfortable while engaging in activities. Additionally, program coordinators must consider whether a power hookup is needed for activities.

Another great way to activate different parks in Kawartha Lakes would be to introduce a mobile activity centre. This would involve a vehicle containing various equipment such as skateboards, racquet sports, spike ball sets, frisbees, seated table games, chalk, bubbles etc. The options are vast. The van would travel to set locations around the municipality that are scheduled in advance and posted so that residents are aware of the dates, times, and locations. The activities do not only have to be geared to youth, as a mobile activity centre can provide a great opportunity for intergenerational activities by providing equipment/games of interest to all ages. Consideration should be made for winter as well as summer activities to encourage outdoor recreation at parks year-round. Development of a Mobile Activity Centre could also be a joint venture between departments, with the Library, or with other interested local organization.

## RECOMMENDATIONS

PE 1. Expand capacity for high-demand programs such as aquatics, day camps, fitness classes, pickleball, baseball and soccer, through facility expansion and staffing (see Facilities and Service Delivery recommendations).

PE 2. Work with the Cultural Centre to support arts and culture programming and events in parks.

PE 3. Where feasible, move existing programming (e.g., bootcamp, yoga, simple crafting, literacy, parent-and-tot programs to parks to increase outdoor recreation opportunities.)

PE 4. Introduce a mobile activity centre, and seek partners to assist with equipment, volunteering, etc.

PE 5. Introduce water, park and trail-based programming to engage residents in outdoor recreation through programs like paddling clinics, outdoor survival skills courses, trail running, etc.

PE 6. Monitor demand for a more diverse range of programs, activities, and events as Kawartha Lakes' population grows, and conduct programs needs assessments on a 5 year cycle (including community consultations) to confirm interest before pursuing new offerings.

### 4.4.2 Variety of Events

Consultation highlighted strong community interest in expanding event offerings. Given the geographic challenges of hosting annual events in every community, the municipality has traditionally collaborated with community groups to support their events—a model that has proven effective.[1] If this continues to be successful, the City should continue to encourage community organizations to host local small-scale events by providing support, resources, and promotional assistance. Additionally, many community-led events in Kawartha Lakes currently revolve around Canadian holidays, such as Canada Day celebrations and Christmas parades. To foster the growth of community events, the City should support volunteer groups in diversifying event offerings to reflect a broader range of interests and demographics.

To supplement these smaller-scale community events, the municipality should develop larger-scale parks and recreation-focused events that attract both residents and tourists. There is particular support from municipal staff and the Parks Advisory Committee to expand sports tourism events, an idea reinforced by the success of past events like the "Milk Run" and strong community interest in organized sports. The Community Services Division should work directly with the Economic Development Division to plan and execute these types of events, using parks and open spaces whenever appropriate.

In seeking to provide additional large-scale event programming that both appeals to the local community's interests while also drawing in new visitors, one event type that could be considered is adventure racing. Adventure racing is an example of an outdoor endurance sport that typically combines mountain biking, trail running or trekking, paddle sports, and navigation using a map and compass. Race lengths vary significantly, from short events lasting two to five hours to multi-day challenges.[2] Teams, usually consisting of two to four people, compete in races that cater to all experience levels, from beginners to extreme athletes. Many Ontario communities have successfully hosted similar events, such as Storm the Trent (see sidebar), the Raid the Rib Adventure Run in Niagara Region[3], and the Cataraqui Adventure Trek in Kingston.[4] Adventure racing can be an effective way to tap into trends related to endurance sports, while capitalizing on the municipality's environmental resources. Further exploration of unique sports tourism opportunities in Kawartha Lakes is strongly encouraged to ensure the municipality is effectively leveraging its strengths and resources, while bringing both experiential and economic benefits to the community.

1 The City provides a municipal event application reference guide and an online form for community members to submit applications to host municipal events.This process is discussed further in Section 7.
2 https://www.stormrace.ca/about.html
3 https://www.dontgetlost.org/raidtherib
4 https://mtadventures.ca/adventure-trek-series/cataraqui-adventure-trek/

## ADVENTURE RACING: STORM THE TRENT

A prominent example of adventure racing in Ontario is the Storm Adventure Race (formerly "Storm the Trent"). Originally launched in 2002, Storm the Trent was hosted in various locations across the Kawartha Lakes and Haliburton Highlands regions, attracting over 12,000 participants in its 20-year history.[1] In 2023, under new leadership, the event rebranded as Storm Adventure Race and moved to new venues, including Albion Hills Conservation Area (Caledon) in 2023 and Island Lake Conservation Area (Orangeville) in 2024. In 2024, participants chose from three course options: a short course (3-5 hours; 30-45km), a long course (4-7 hours; 45-60km), and an advanced course (6-9 hours; 75km). All races ran concurrently with staggered start times, and registration fees ranged from $115 to $170.[2]

1 ibid.
2 https://www.stormrace.ca/race-details.html

Groups and individuals wishing to host an event in Kawartha Lakes must complete a Municipal Event Application (MEA), which is coordinated by a Community Development Coordinator (there are currently two CDCs in the division). The MEA ensures that groups have obtained all required permits, and that event support services will be in place as required. As the MEA requires coordination among multiple departments and specialized knowledge in event planning and safety, it is a time consuming task in addition to the CDCs other duties. Considering this, along with the recommendations to develop a Mobile Activity Centre and more community events, the municipality should add a third CDC position to focus on community events and park activation (i.e., including managing all MEAs and the mobile activity centre).

## RECOMMENDATIONS

PE 7. Continue to support community groups to organize events by providing support, resources, and promotional assistance, while encouraging them to diversify events to reflect the changing needs and preferences of the community.

PE 8. Explore opportunities to provide large-scale sports tourism events in collaboration with the Economic Development Division to enhance the local economy, strengthen the municipality's tourism brand, and create unique experiences that benefit both residents and visitors.

PE 9. Add a Community Development Coordinator position to focus on event development (both community and City-led), MEAs, and the Mobile Activity Centre.

### 4.4.3 Age-based Programming Gaps

A review of existing program, activity, and event supply in Kawartha Lakes demonstrated that the municipality provides programming for all age groups, including preschoolers, children, youth, adults, and seniors. Some of the programs cater to specific age groups (e.g., baby aquafitness, youth shinny, senior skates), while others may appeal to a range of age groups (e.g., drop-in pickleball, public swims/skates, and community events). When Kawartha Lakes was compared against the other selected municipalities, as part of the benchmarking exercise outlined in Appendix B, the following age-based gaps were identified.

### Dry-Land Programs for Toddlers and Children

There are currently fewer dry-land programs (i.e., not ice or pool-based) available for toddlers and children. The only municipally-run dry-land programs for these age groups are day camps, and municipal staff have identified a need for additional capacity. However, an analysis of existing dry-land programs offered by non-municipal organizations indicates a broad variety of supply (e.g., Kawartha Lakes Public Library's arts/culture programs, BGC Kawarthas' arts/culture and sports programs, as well as programs run by commercial operators and community-led groups).

While feedback from the open house and online surveys suggested a need for more programming for children and youth, the volume of responses was limited, and much of the feedback reflected broad requests for children/youth rather than specific needs for younger age groups. This makes it difficult to determine the exact demand for toddler and children's programming compared to youth programming.

However, despite Kawartha Lakes' aging demographic, the population of children aged 0–14 is expected to grow by approximately 3,100 by 2040.[1] Given this projected increase, the municipality should continue offering its existing programs for this age group while monitoring demand annually to assess whether additional programming is needed. Recommendation PE 6 outlined a 5-year cycle of program needs assessments, however, for children and youth a shorter time cycle is required otherwise they would age out before any needs can be addressed. For this reason, the municipality should seek community input from caregivers, children, and youth, to maintain a pulse on how needs and interests are potentially growing and changing. Regular feedback should also be collected at the conclusion of municipally-run programs to identify emerging needs.

Camps are one area where need and demand is confirmed (based on participation rates and consultation feedback). Staff should explore ways to expand day camp capacity by increasing municipal offerings or partnering with organizations such as BGC Kawarthas to increase day camp spaces and locations. There are approximately 30 weekly camp sessions offered every year, with an average registration rate of 92%. This clearly demonstrates existing demand, and with the anticipated growth in population of this age group, demand is expected to grow over the course of this plan.

Currently, municipally-run day camps operate out of the Lindsay Recreation Complex (LRC) and the Frost Field House at Fleming College, which is adjacent to the LRC. Additionally, BGC Kawarthas offers day camps out of Lindsay. However, as of 2021, only 29.3% of 0-19 year olds in Kawartha Lakes lived in Lindsay.[2] Combined with consultation feedback demonstrating a desire for a stronger geographic distribution of programming, there is clear justification to expand day camp programming to at least one additional location outside of Lindsay.

1 Based on 2021 Statistics Canada Census data and Ontario Population Projections for 2040.

2 Based on 2021 Statistics Canada Census data.

It is recommended that staff explore the option of offering day camps at the Fenelon Falls Community Centre to provide an option that is more easily accessible for residents in the northern parts of Kawartha Lakes. This location would also help address the anticipated increase in service needs for both Fenelon Falls and Bobcaygeon as their populations expand over the course of this plan. Moreover, the arena floor, multi-use space, and kitchen in the facility and proximity to Garnet Graham Park should provide sufficient space and amenities to accommodate a camp program.

To facilitate a smooth transition, staff should initially offer a limited number of sessions at the new location and expand only once participation rates demonstrate sustainable demand. For example, weeks with the highest participation rates in Lindsay could be targeted for expanded programming at a second location. By taking a phased approach to expansion, the municipality can ensure that day camps remain both accessible and financially viable while responding to community needs.

**Drop-in Sports Opportunities for Youth and Adults**

Kawartha Lakes offers fewer drop-in sports opportunities for youth and adults than the municipalities it was compared against. Currently, municipally-run drop-in programs include badminton, pickleball, public skates, public swims, and ice programs such as shinny, stick and puck, and ticket ice. Expanding drop-in sports opportunities would enhance flexibility for participants and reduce financial barriers by eliminating the requirement to pay for multiple sessions in advance.

Feedback from Council, staff, open house participants, online survey respondents, and community groups highlighted the need for more youth programs, particularly youth sports leagues, as well as additional 30+ adult sports leagues. Broader trends promoting free and low-cost recreation and addressing youth inactivity further support expanding drop-in sports programming. Well-advertised drop-in options could also attract seasonal residents who may be interested in recreation opportunities but unable to commit to multi-session programs.

The municipality should build on its existing drop-in programs by introducing additional options for both youth and adults. Further consultation should determine appropriate age groups and gender-specific opportunities, such as 30+ drop-in beach volleyball at Garnet Graham Beach Park, youth drop-in basketball at Frost Field House (in partnership with Fleming College), or ultimate frisbee.

One approach that can help increase sports programming for youth and adults with minimal staff or volunteer support needed is through the provision of pick-up sports leagues. This type of league can also help address barriers that many residents face related to unsuitable program hours, lack of time, and affordability. Apps like Pick-up Hub have been used successfully to facilitate low-cost sport play at local facilities (see sidebar).

**PICK-UP HUB**

Pickup Hub is an app that assists municipalities in organizing pick-up sports games. Residents can view upcoming scheduled games including the location, time, cost, age level, and required number of players. After creating an account, participants secure their spot with a credit card via the online payment system. The municipality can schedule games from a few hours to four months in advance. Participants can see the names and number of players who have signed up for a game slot. If the minimum number of players is not reached, the game is cancelled, and players are not charged.

The City of Waterloo has successfully used Pickup Hub to deliver adult shinny, basketball, soccer and volleyball as well as youth basketball and ball hockey, all at low costs ranging from $5-$10 per player per game.[1]

1 https://pickuphub.net/city-waterloo

Considering the need for more recreation opportunities in rural areas for youth and adults, roller sports is one area of opportunity that is suitable for the facilities available in rural areas (i.e., arena floors, parking lots, pavilions). The indoor skating pop-up in the City of Ottawa provides an example of a similar initiative (see sidebar). Kawartha Lakes could consider a similar type of programming during the summer using arena floors, the Norland outdoor roofed pavilion, and parking lots at community halls. The program can begin using only the floor, with participants bringing their own equipment, and learning basic riding skills and tricks for skateboards, scooters, inline and roller skates. After a few sessions, if the program is successful, the municipality could consider purchasing ramps and other equipment to expand the program.

**INDOOR SKATEBOARDING POP-UP**

In 2022, the City of Ottawa launched a pop-up program that offers free indoor skateboarding lessons in the Aberdeen Pavilion in Lansdowne Park during the winter months.[1] The program started by offering three 1-hour free skate sessions over the course of one evening per week, and has since expanded to offer eight 1-hour sessions over two nights per week. Participants are asked to sign up for a spot in advance of the session they plan to attend, as the spots are offered on a first-come first-served basis with limits on the number of participants per session. Specific sessions for "women, girls, and gender diverse folks" are also available to provide a safe and inclusive space for these participants.

The program is run by City staff, but the Ottawa Skateboard Association and the local Birling Skateboard Shop have helped source ramps, rails, boxes, and other equipment for skaters to use, while volunteers help to maintain and fix the equipment. Ottawa Skateboard Association has also offered learn to skate sessions on a biweekly basis for beginners, with boards and helmets available to loan for free.

1 https://capitalcurrent.ca/skateboard-sessions-in-aberdeen-pavilion-offer-escape-from-ottawa-winter/

### Walking Programs for Adults and Seniors

The municipality does not currently offer any walking programs. However, the local organization Kawartha Lakes Community Care provides an indoor walking program twice a week in Lindsay from November to April, as well as an outdoor Nordic Pole walking program twice a week in Bobcaygeon and Lindsay from May to September. The comparative analysis showed that the Greater Sudbury Area, Chatham-Kent, and Norfolk County all offer walking programs. Walking is an excellent way for seniors to remain active and social. As such, the municipality may consider opportunities to offer or encourage additional walking groups to form. Outdoor walking clubs could be hosted on local trails, while additional indoor walking groups could be considered in areas outside of Lindsay through partnerships with local schools (similar to the Community Care program that walks the halls of various schools during the winter). In the short term, it may be necessary for the municipality to act as a lead for these programs, but the long-term goal could be to pass the program off to volunteers, while the municipality could act as a liaison with the schools or provide other types of administrative support.

### Other Seniors' Programs

With regards to other seniors' programs, the municipality currently offers senior-specific drop-in programs for skates and shinny, as well as aquafitness, pickleball, badminton, and fitness classes. Historically, volunteer groups and service organizations have led local seniors' clubs and programming. However, consultation revealed that many of these organizations are finding it challenging to retain volunteers and keep programs running. Staff and Council also expressed a desire to provide adequate programming for seniors by taking a more active role in programming. Additionally, the open houses, random telephone survey, and community group interviews revealed an interest in more seniors programming.

With the proportion of residents aged 75 and older expected to increase by over 10% by the end of this Plan, it will be essential to ensure adequate programming for seniors. A key starting point should be working with existing volunteer groups to explore ways the municipality can better support them and promote their sustainability. Volunteer retention often declines when individuals feel overburdened without sufficient support or impact. By reducing administrative and operational pressures on volunteers, the municipality may help sustain their involvement.

If seniors' clubs in the community continue to experience declines in membership and programming, the municipality should begin taking a more active role in providing programming for this age group. Norfolk County's seniors programming may offer inspiration, with potential initiatives such as baking classes, gardening workshops, local speaker events, and bus trips to nearby destinations providing engaging opportunities for older adults. London's Seniors' Satellite Programs (see sidebar) model could be particularly appropriate for Kawartha Lakes, as it would enable more seniors programming spread across the rural areas.

**LONDON'S "SENIORS' SATELLITE" PROGRAMS**

The City of London's "Seniors' Satellite" programs may also offer a good model for the provision of programs at a variety of locations throughout the community, including Tai Chi for Seniors, Line Dancing, Chair Yoga, as well as some virtual online programs.[1] As part of the City's seniors' centres strategic plan, they moved to a 'hub and satellite' model of service delivery in 2012.[2] Each satellite operates one to two days per week, typically for about three hours per day. The programming at the eight satellite locations mimics the programs that are made available through the two larger seniors' centres (i.e., the hubs), and takes place in locations provided by community partners, such as the Public Library. These partners are encouraged to offer supplementary programs for older adults before, during, and after satellite programs. Membership to any satellite is open to anyone aged 55 and over living in London, and members can opt to pay for membership to a single satellite location or to all locations.

1 https://london.ca/living-london/recreation/seniors-recreation-opportunities#:~:text=Seniors'%20Satellites,%242.33%20are%20charged%20per%20class.
2 https://extranet.who.int/agefriendlyworld/afp/seniors-satellites/

In Kawartha Lakes, consideration may be given to creating an overarching administrative structure for seniors programs provided by volunteer groups that creates some consistency with relation to the programs being offered and provides some financial structure and management support to volunteer groups who are currently seeing declines in membership. The exact nature of this structure would need to be decided upon by the volunteer groups involved. Additionally, consideration could be given to the benefits of offering in-person video-based programming (i.e., similar to the SAGES program that Community Care currently offers[1]) in more rural and remote areas as a means of addressing this service gap, while recognizing the challenges of recruiting instructors who live in or are willing to travel to these areas.

Another consideration for improving service to seniors is to increase/ improve communications and marketing. Over a quarter of online public survey participants noted they were "not aware of what is available" in relation to recreation programming in Kawartha Lakes. The municipality may consider alternative methods to sharing information with residents about available programming, such as a seniors programs directory (see sidebar).

**CLARINGTON'S 55+ ACTIVE ADULTS PROGRAM DIRECTORY**

The Municipality of Clarington produces a 55+ Active Adults Directory each season, which outlines programs, workshops and special events that are targeted at this demographic.[1] Supporting this initiative is the Clarington 55+ Active Adults Community Committee, which includes residents and staff who provide advice, assist with events, and foster awareness of recreation opportunities in the community. These initiatives help bridge the communication gap that often acts as a barrier for the participation of older adults in recreation programming.

1 https://www.clarington.net/en/recreation-and-tourism/55--Active-Adults.aspx

1 https://ccckl.ca/programs-services/wellness-programs/exercise-programs/exercise-for-seniors-sages/

## RECOMMENDATIONS

PE 10. Monitor demand for dry-land programs for toddlers and children on an annual basis through community outreach to assess whether additional programming is needed. Regular feedback should also be collected at the conclusion of municipally-run programs to identify emerging needs.

PE 11. Explore opportunities to expand day camp programming by introducing sessions at the Fenelon Falls Community Centre, using a phased approach based on demand, to improve geographic accessibility and accommodate anticipated population growth.

PE 12. Build on existing drop-in programs by introducing additional drop-in sports programs for both youth and adults, while exploring opportunities to facilitate these programs through the use of an app such as Pickup Hub.

PE 13. Consider opportunities to offer or encourage additional walking groups to form in Kawartha Lakes, with the long-term goal of having programs led by volunteers.

PE 14. Collaborate with volunteer groups offering seniors' programs to identify ways the municipality can support their sustainability. If groups are unable to provide services, and the municipality must begin providing seniors' programs directly, a seniors-focused Community Development Coordinator will be required.

PE 15. Consider developing targeted communications/marketing to seniors to increase awareness of parks and recreation services.

### 4.4.4 Geographic Programming Gaps

In terms of location, municipal programming is primarily provided at the Lindsay Recreation Complex and Forbert Memorial Pool, with a limited number of programs offered in other locations, such as badminton at the Victoria Park Armoury and pickleball at the Fenelon Falls Community Centre. Ice-based programs are provided at all arena locations in Kawartha Lakes. One of the gaps that presented itself through the benchmarking exercise included the use of fewer locations for recreation programming than the four municipalities Kawartha Lakes was compared against, despite being larger than all but Greater Sudbury (which is only about 3% larger, geographically).

Consultation revealed that about one-quarter of online survey respondents identified the distance of facilities and programs from their homes as a barrier to participation. Additionally, community group interviews expressed a desire to expand recreation programming in northern and rural areas of the municipality. However, staff noted significant challenges in recruiting and retaining qualified personnel to deliver programs in these areas. While ensuring accessible programming for all residents is an important goal, the municipality remains constrained by staff and instructor availability and the willingness/ability of staff and instructors to travel to more remote locations.

As the population grows, however, there may be more opportunity to recruit new program instructors who are willing to travel to rural communities to offer programs, or who are already located in these areas. The municipality should be continuously proactive in its efforts to recruit staff who can meet these needs. If staffing can be obtained, the municipality should offer additional programming (of the types recommended throughout this assessment) at Forbert Memorial Pool and Fenelon Falls Community Centre to offer closer options to communities in the north, while also preparing for population growth in these two communities.

The municipality should also continue to work with existing non-municipal program providers who are already working in rural and remote communities (e.g., BGC, Community Care) to explore opportunities to partner to provide additional programming.

#### RECOMMENDATION

PE 16. Explore solutions for providing programming that is accessible to rural and remote areas through the expansion of programming at Fenelon Falls Community Centre and Forbert Memorial Pool.

## 4.4.5 Accessible Programming

Kawartha Lakes currently provides a few programs and program supports to residents who have disabilities, including private and semi-private swimming lessons, discounts on public swims, accessible skates, and one-on-one inclusion support at summer day camps. Although consultation did not reveal many comments about accessibility with relation to programming, some community groups did note the need to address physical barriers to participating in community-led programs by adapting municipal facilities to meet the demands of individuals with varying abilities. The municipality should prioritize addressing these physical barriers (discussed further in sections 5 and 6 on Facilities and Parks), while exploring additional opportunities to remove accessibility barriers to recreation activities.

Although municipalities are not generally experts in delivering programs to populations that may need unique approaches to ensure they are included in service provision, there are agencies and organizations with mandates for this work. For example, Special Olympics Kawartha Lakes provides sports programs for individuals with intellectual disabilities in the area (e.g., gymnastics, swimming, floor hockey, powerlifting). The municipality may benefit from exploring additional opportunities to partner with this organization and others in the community to make programming more accessible for individuals of all abilities. The initiatives described on the facing page provide additional examples of accessible programs and services the municipality can explore either alone, or in collaboration with others.

**MAGNUS CARDS**

MagnusCards provide digital app-based support for individuals with Autism Spectrum Disorder or cognitive disabilities for navigating spaces and activities. MagnusCards comprises a library of digital guides (Card Decks) to destinations and activities. Each digital guide combines a proven method of instruction (applied behaviour analysis), visual cues and step-by-step instructions to map experiences and prompts and positive reinforcement to support experiential learning. The Town of Halton Hills has developed three sets of MagnusCard decks for ActiVan, Halton Hills Public Library and Recreation and Parks.[1] The MagnusCards App and MagnusCards are free to download and use. The Recreation and Parks decks are as follows:

1. How to purchase a Recreation Pass
2. How to register for programs online
3. How to create a Recreation & Parks online account
4. How to prepare to go swimming at a pool
5. How to prepare to go skating at an arena

1 https://www.investhaltonhills.com/en/accessibility.aspx#MagnusCards-available-in-Halton-Hills

### WASCANA PARK ACCESSIBILITY PROJECT

The Canadian National Institute for the Blind (CNIB) completed a project in Regina's Wascana Park that installed more than 230 GPS points that speak to the BlindSquare Event app.[1] The GPS points help mark amenities such as benches, park lookouts and monuments, but they also help mark the meandering trails that can be difficult to navigate. The project has resulted in Wascana Park, one of the largest urban parks in North America, becoming accessible for people with vision loss and is the third park in Regina to be installed on the app. CNIB is open to exploring opportunities with other communities to create accessible parks and recreation services.

1 https://www.spra.sk.ca/Blog/cnib-jrpm-2020/

### SAFARI WALKING GROUP

Community groups have long been effective leaders in advancing accessible programming. Organizations led by persons with disabilities not only deeply understand the existing accessibility barriers, but often have well connected networks of partners and participants. Based in the City of Toronto, the Safari Walking Group is an example of one such community-based organization. The organization offers exploratory walks on a weekly basis around Toronto's natural green spaces for persons who are blind or with vision impairment.[1]

1 https://www.thestar.com/life/blind-walking-group-finds-magic-and-music-on-the-beach-boardwalk/article_35db22c8-bf27-5058-9389-821a12d6ed52.html

### SENSORY SWIMS, SKATES, AND KITS

The City of Oakville has begun offering sensory swims and skates to the community, which allow participants to enjoy a lower participant capacity and more relaxing environment during certain drop-in times.[1] By limiting the amount of noise and other sensory stimuli, a calmer and more welcoming environment is created for those who are sensitive to these types of external stimuli. Similarly, the City lends sensory kits out to children through its community centres, which contain noise cancelling headphones, colouring worksheets, and fidget toys. These kits can be used at community events, like hockey games, but could also be offered to those participating in park-based programming, such as farmers markets or live music events. The Kawartha Lakes Public Library currently lends out sensory support kits; however, it may be worth exploring if these kits could be made available at parks and recreation events, to increase their accessibility.

1 https://www.oakville.ca/parks-recreation-culture/programs-activities/inclusion-support/

## RECOMMENDATIONS

PE 17. Collaborate with local agencies that specialize in inclusive recreation to identify opportunities for improving program accessibility.

PE 18. Develop additional recreation programs that target accessibility barriers, while exploring new opportunities to use supportive technology to enhance access to both organized and self-guided recreation activities.

## Affordable Programming

A few drop-in programs currently provide low-cost recreation opportunities without requiring upfront payment for a full session package, offering greater flexibility for individuals with limited disposable income. These include aquafitness, badminton, tennis, Collaborate with volunteer groups offering seniors' programs to identify ways the municipality can support their sustainability. If groups are unable to provide services, and the municipality must begin providing seniors' programs directly, a seniors-focused Community Development Coordinator will be required. pickleball, public skates, public swims, and ice programs (e.g., shinny, stick and puck, ticket ice). Kawartha Lakes also has an abundance of outdoor opportunities for self-directed recreation that are free or low-cost, such as hiking, skateboarding, paddling, disc golf, and beach volleyball (see Appendix A for additional examples).

Beyond the cost of municipally-led programs, user group survey respondents expressed concerns about high municipal facility rental fees, which can increase the cost of community-led programs for participants. Developing a formal pricing policy may help identify appropriate opportunities to support low-cost recreation options (see Section 8.2 for further discussion about this policy). Additional ways to expand affordable recreation opportunities should also be explored, such as subsidies for children and youth (see sidebar).

### YORK REGION'S POSITIVE LEISURE ACTIVITIES FOR YOUTH (PLAY)

Some municipalities have taken steps to address program affordability needs specific to children and youth by offering supportive recreation programs. For example, York Region's Positive Leisure Activities for Youth (PLAY) program provides subsidies for children and youth from low-income families to access recreation programs and camps and supports adaptive programming and events that are put on by King Township.[1]

This program is available to families who live in York Region and meet at least one of the following criteria:

- Receive rent subsidy
- Receive Ontario Works, Ontario Disability Support Program or Assistance for Children with Severe Disabilities
- Receive Child Care Fee Subsidy with an annual household income of $43,000 or less

York Region also partners with local municipalities and community organizations to promote awareness of the PLAY program and ensure families can easily access information about available supports. By reducing financial barriers, programs like PLAY help create more inclusive recreation opportunities, allowing all children and youth to participate regardless of their economic circumstances.

1 https://www.york.ca/support/financial-assistance/recreation-subsidies

While the Kawartha Lakes Public Library already runs a "Library of Things" program, which allows residents to borrow many items, including badminton sets, bird watching kits, disc golf sets, kid's adventure kits, pickleball sets, lawn games, soccer sets, spikeball, and lifejackets, feedback from the community group interviews confirmed there is interest in the municipality expanding the variety of equipment the library lends out. Local organizations, service clubs, and businesses (e.g., Lion's Clubs, Chambers of Commerce) could be approached to sponsor or supply the equipment. Previous municipalities have also had success securing equipment through government grants, as was the case in the South Dundas case study (see sidebar).

Given the numerous water access points in Kawartha Lakes, the municipality's lending program could expand to include paddles, stand-up paddleboards, kayaks, and other equipment that encourages engagement with the municipality's lakes and waterways. Another opportunity could involve introducing gardening tools for community use. To further promote these offerings, the municipality could develop programs such as paddling clinics or community gardening workshops, helping residents become familiar with the equipment and encouraging participation. Expanding the lending program in this way would not only increase awareness and utilization of the program itself but also enhance community engagement with existing low- and no-cost recreation opportunities.

**SOUTH DUNDAS SPORTS EXPANDED EQUIPMENT LENDING LIBRARY**

The Municipality of South Dundas has developed and implemented a free lending library to support active, healthy lifestyles and low-cost sports and leisure activities in the community. After signing up for a membership, residents can access a wide array of sporting equipment including soccer balls and small portable nets, footballs, volleyballs, basketballs, bocce ball sets, a road hockey set (goalie pads, blockers, gloves, sticks, balls), horseshoes, croquet sets, bicycles (adult and youth road bikes, mountain bikes, helmets), as well as equipment for water sports (stand-up paddleboards, single and double kayaks, canoes, life jackets, paddles), winter sports (cross-country skis, poles, boots; snowshoes), and racquet sports (badminton/tennis/pickleball nets, racquets, paddles, birdies, balls).

## RECOMMENDATION

PE 19. Consider working with the Kawartha Lakes Public Library to expand the variety of equipment that is lent out through the "Library of Things", and to develop programming that promotes these offerings.

### Programming for Girls/Women in Sports

In terms of recreation programs that cater specifically to women and girls, Kawartha Lakes provides women's ball hockey and ice hockey leagues. These programs have been successful, and growing over the past few years, with the municipality adding capacity as facility space/access allows.

As another means of supporting programming for women and girls, the municipality consults with local community groups, such as the Kawartha Lakers Girls Softball Association, the Lindsay Wildcats Basketball organization, the Lindsay Lynx Girls Hockey Association, and the Kawartha Lakes Soccer Club's Women's League to gain deeper insight into community needs and collaboratively lead program planning for women's sports.

One way to further support could be to integrate additional resources/courses within training requirements for Parks and Recreation staff to encourage a gender inclusive lens. Some examples can be found from the Canadian Association for the Advancement of Women and Sport and Physical Activity (e.g., Leading the Way: Working with LGBTQ Athletes and Coaches, Gender Equity LENS), Canadian Centre for Diversity and Inclusion, and through providers like Sensitivity Training Canada.

## RECOMMENDATIONS

PE 20. Continue to engage local recreation groups that focus on girls' and/or women's sports to better understand community needs and support program planning and development.

PE 21. Integrate gender-inclusive training for Parks and Recreation staff.

# 5.0 Recreation Facilities

## 5.1 Introduction

This section addresses the need for current improvements to, and future provision of, municipal indoor and outdoor facilities. These facilities are (or could be) scheduled for organized use or structured programming by the municipality and/or other providers that deliver community programs and services. The assessment is presented under the following main headings:

- what we heard
- key considerations
- indoor facilities assessment
- outdoor facilities assessment
- facility allocation
- facility agreements
- inclusive facility design

## 5.2 What We Heard

Figure 5.1 shows the results of the random telephone survey of 750 resident households on three variables regarding indoor and outdoor sports and recreation facilities in Kawartha Lakes: household use, opinions on need for improvements, and thoughts on additions to supply.

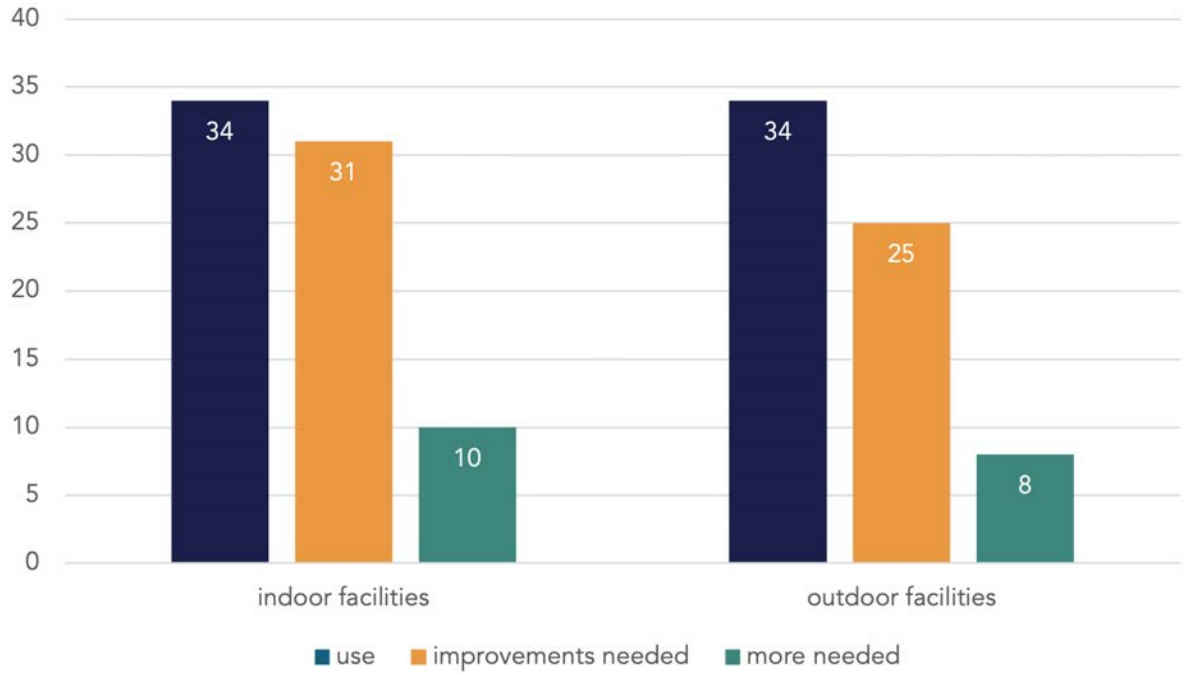



**Figure 5-1: Percent of Random Survey Respondents Using Facilities and Indicating Improvements or More Are Needed**

As the most representative of the research tools used in the consultation program, the results of this survey provide a community-wide perspective to inform the Strategic Plan. The charts show that 34% of residents use both indoor and outdoor facilities. Roughly one-third (31%) and one-quarter (25%) think indoor and outdoor facilities require improvements, respectively. Similarly, a larger proportion (10%) think more indoor facilities are needed, compared to 8% who think the same about outdoor facilities.

When asked how well indoor sports and recreation facilities in Kawartha Lakes meet their expectations, respondents to the random household survey indicated the lowest levels of satisfaction with how 'up to date' facilities are, operating hours, facility variety, and accessible/inclusive features. Conversely, highest levels of satisfaction emerged for geographic distribution, cleanliness/maintenance, number, and supporting amenities. Building or improving indoor facilities and amenities was identified as the top priority for municipal focus.

Over 1,000 people participated in the online survey for the Strategic Plan. Key results related to facilities included:

- The largest proportion (43% or 477 respondents) were 'neutral' about their satisfaction with parks and outdoor recreation facilities in Kawartha Lakes.
- The largest proportion (45% or 484) were 'disappointed' with the indoor facilities in Kawartha Lakes.
- 51% (555) indicated that a main barrier is that facilities/programs are full. This was by far the most frequently reported barrier to using parks and recreation facilities and/or participating in programs among the choices listed.
- The largest proportion (38% or 419) noted that improving and/or expanding indoor facilities should be the top priority in Kawartha Lakes.

## 5.3 Key Considerations

### Aging Facilities

Supply comprises a relatively large number of aging facilities, meaning:

- there are few state-of-the-art facilities to accommodate today's activity interests.
- capital investment needs to be directed to extending the lifespan of old facilities as well as providing new ones.
- program/activity potential is constrained in some areas of current/ emerging interests.

### Legacy Supply

As an amalgamated municipality, Kawartha Lakes' legacy comprises facilities that have developed to serve its historic townships, meaning:

- an existing pattern of decentralization provides access to recreation and focal points for local community activity.
- duplication in facility numbers may represent oversupply, underuse and an imbalanced distribution.
- costs are higher to maintain and staff facilities in numerous locations across a large geographic area.

### Future Facility Distribution

For facilities that are added to supply, configuring them in the best way to meet needs across a large geographic area, while co-locating complementary facilities in state-of-the-art recreation hubs, will require decision trade-offs.

### Alternatives to Municipal Supply

While there are recreation facilities owned by other parties in Kawartha Lakes that are available for community use (e.g., education, not-for-profit and commercial sectors), access to them can be constrained by factors such as rental costs, and limited time for scheduling outside owners' needs.

### Summary of Key Considerations

While current public input suggests a preference for improving existing municipal facilities rather than building new ones, long-term planning must consider future needs. Factors such as population growth, aging infrastructure, and evolving program demands point to the eventual need for expanded and diversified facilities. To effectively support the programs and events outlined in Section 4.0, future spaces must meet both functional and geographic needs. This may create opportunities to replace outdated facilities with modern, multi-purpose ones that will enhance the overall facility supply while also addressing emerging community interests.

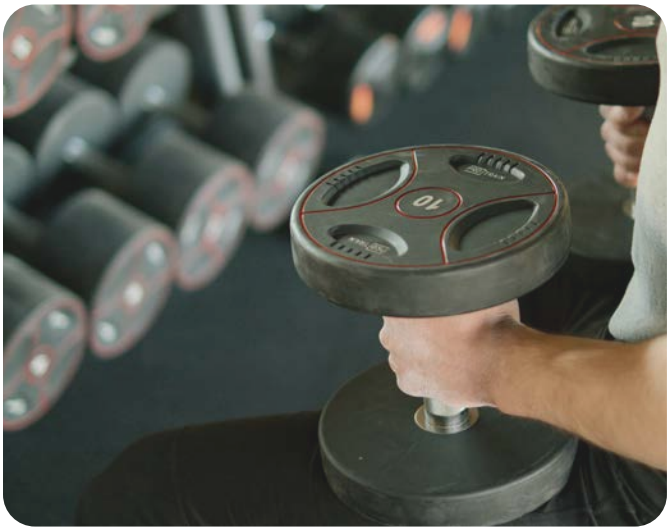
The Plan's assessments in terms of future facility provision are projected requirements for planning purposes. Verifying actual need to add to supply will require ongoing evaluation of existing facility use and other relevant factors. This will inform careful decisions on investment in facilities over time as the community changes.

# 5.4 Indoor Facilities Assessment

## 5.4.1 Overview of Supply, Distribution and Community Interest

Table 5-1 summarizes information on the current supply of municipal indoor recreation facilities and indicators of interest that emerged through the consultation program.

For each facility in the table, reported community interest in improved or additions to supply was assigned a low, moderate or high rating. This qualitative approach was based on the frequency with which the facilities were mentioned, recognizing that since different audiences were 'surveyed' in different ways the results are not directly comparable. Using a cursory method, we assigned indicators of low, moderate or high to the findings. Understandably, the facilities that emerged at the 'top' of the list largely comprise those that are not currently available in Kawartha Lakes and/or are more broadly popular today.



## Table 5-1: Municipal Indoor Facility Supply and Community Interest

| Facility | Existing Supply | | | New Facility of Interest to Community | Comparison Supply Range (Appendix D) |
|---|---|---|---|---|---|
| | # Facilities or Locations | Population Based Provision Ratio | Improve/ Increase[1] | | |
| **Ice Pads** | 9 | 1:9,022 | low | | 1:15,520 to 1:10,375 |
| **Pools** | 2 | 1:40,600 | moderate | | 1:67,490 to 1:41,501 (25m, 8 or 6-lane) |
| **Gymnasiums** | 0 | | | high | 1:46,560 (one only) |
| **Artificial Turf Field/ Fieldhouse** | 0 | - | - | high | |
| **Walking track** | 0 | | | high | |
| **Pickleball Courts** | 0** | | | high (not specific to indoor) | |
| **Fitness Facilities** | 2 | 1:40,600 | moderate | | |
| **Squash Courts** | 2 | 1:40,600 | low | | |
| **Halls/ Community Rooms** | 26 | 1:3,123 | moderate | | 1:12,999 to 1:3,970 (community centres) |
| **Youth Centre** | 0 | | | moderate | |
| **Seniors Centre*** | 1 | 1:81,200 | moderate | | 1:67,490 to 1:9,453 |

*operated by Lindsay Seniors Association using leased space in municipal facility
** no formal indoor courts; Fenelon Falls Community Centre Hall is used

1 Seven interest sources: open houses, Jump In consultation page, online resident household survey (1,101 respondents), random resident household survey (750 respondents), user group survey (23 respondents), interested/ affected community groups, Parks Advisory Committee.

Municipally owned/operated recreation facilities are supplemented by a those owned by other organizations and agencies. These are shown in Table 5-2, which does not represent a comprehensive list.

### Table 5-2: Non-municipal Indoor Facility Supply

| Facility | Existing Facility Supply |
|---|---|
| **Gymnasiums** | • BGC Kawartha Lakes (and program rooms)<br>• 31 schools in municipality<br>• Fleming College (fieldhouse) |
| **Halls** | • Dunsford Community Centre<br>• Pontypool Community Centre<br>• Bobcaygeon Lions Club<br>• Kirkfield District Lions Club<br>• Fowler's Corners and District Lions Club<br>• Omemee Lions* |
| **Curling Rinks** | • Lindsay Lions<br>• Oakwood Curling Club<br>• Lindsay Curling Club<br>• Bobcaygeon Curling Club<br>• Fenelon Falls Curling Club<br>• Omemee Curling and Recreation Club* |
| **Seniors Centre + One Leased City Space** | • Southview-Cameron New horizons Seniors Club<br>• Fenelon Falls Seniors Club<br>• Bobcaygeon Senior Centre |

*same location

## 5.4.2 Ice Pads

### Assessment Variables

- Existing supply is 9 or 1: 9,022 population, which is high compared to the communities reviewed.
- Relative to facilities that are not available, community interest in increased supply is low.
- Despite the number of ice pads, accommodating requests for prime time is a challenge.
- Interest exists in access to summer ice.
- Detailed condition assessments are to be prepared in the current 5-year program for all municipal buildings.
- Interest exists in substantial upgrades to the Emily-Omemee Community Centre/Arena.

### Facility Supply Requirements

Collectively, feedback on ice needs conflicted. A view that the municipality is already supporting more ice surfaces than are needed, along with concerns about the underuse of Bobcaygeon-Verulam Community Centre Arena contrasted with reports on the need for additional pads/ an arena now to meet existing organized users need for more access to prime time. The assessment addresses ice pad requirements from a use/operations perspective as an indicator of the need to add more facilities to existing supply.

### Winter Ice

Ice schedules for the 2023/24 season were used to identify the peak months during the ice-in season, which were November 2023 and January 2024. Within these two months a review of prime time use during the week (Monday through Friday evenings from 5pm to 11pm) revealed that not all prime time was used at all arenas. Discussion with municipal staff, however, indicated that the potential to increase weeknight use is limited. This is largely due to the distance users must travel to most arenas, making both earlier start times and later night use impractical. For all intents and purposes, therefore, the assessment assumes that all ice pads are used to capacity on weeknights during the fall/winter season.

Weekend use, however, falls below that which would be expected if all available time was being used. Weekends typically do not present the same time constraints that users have during the work week and comprise prime time since it is in high demand. Currently, Kawartha Lakes arenas are operated only during scheduled times on weekends. Strictly speaking, therefore, 100% of prime weekend time is used. At the same time, if weekend prime time is viewed from a potential operating 'window' and ice pads were available from 8am to 11pm on Saturday and Sunday, prime time would total 30 hours per weekend (i.e., 15 operating hours per day). Two 15-hour weekend operating days are typical in many Ontario arenas, as municipalities strive to optimize facility use.

Ice schedules on weekends for peak months during the 2023/24 season (November and January) were used to determine the extent to which a 30-hour prime time 'window' is being used at Kawartha Lakes' arenas. Using peak months means that other ice-in months will have more weekend prime time

available than that shown in Table 5.3. Scheduling during the other fall/winter months, therefore, will result in lower proportions of prime time use and should be easier.

**Table 5-3: Peak Months' Weekend Prime-time Use (2023-24 Season)**

| Highest to Lowest Prime Time Use | November 2023 | | | | January 2024 | | | |
|---|---|---|---|---|---|---|---|---|
| | 120 Hours Per Month of Weekend Prime Time Available | | | | 120 Hours Per Month of Weekend Prime Time Available | | | |
| | Prime Time Used | | Prime Time Hours Available to Schedule | | Prime Time Used Hrs (% of 120) | | Prime Time Hours Available to Schedule | |
| | Hours | Percent | Month Total* | Weekly Average (= */4) | Hours | Percent | Month Total* | Weekly Average (= */4) |
| **Lindsay RC #1** | 110 | 92% | 10 | 2.5 | 109.5 | 91% | 10.5 | 2.5 |
| **Emily Omemee** | 106 | 88% | 14 | 3.5 | 106 | 88% | 14 | 3.5 |
| **Fenelon Falls** | 102 | 85% | 18 | 4.5 | 101.5 | 85% | 18.5 | 4.5 |
| **Lindsay RC #2** | 90 | 75% | 30 | 7.5 | 103.75 | 86% | 16.25 | 4.0 |
| **Manvers** | 91.5 | 76% | 28.5 | 7.0 | 93.5 | 78% | 26.5 | 6.5 |
| **Little Britian** | 84.5 | 70% | 35.5 | 8.75 | 92.5 | 77% | 27.5 | 6.75 |
| **Oakwood** | 83 | 69% | 37 | 9.25 | 88 | 73% | 32 | 8.0 |
| **Woodville** | 74.5 | 62% | 45.5 | 11.0 | 79.5 | 66% | 40.5 | 10.0 |
| **Bobcaygeon** | 54.5 | 45% | 65.5 | 16.0 | 52.5 | 44% | 67.5 | 16.75 |
| **Totals** | **796** | **73.7%** | **284** | **70** | **826.75** | **76.6%** | **253.25** | **62.5** |

Collectively, the arenas provide 1,080 hours of weekend prime time (120 hours per month x 9 ice pads), of which roughly 75%[1] is used across all pads. In relation to potentially available prime time at 15-hour operating days, therefore, existing pads are underused and could accommodate approximately 25% more scheduling on weekends per month or 270 hours total. Further, use patterns that are essentially consistent for both months at each arena suggests scheduling additional use in available hours would not create significant disruption even if current time allocations had to be shifted. Table 5.4 summarizes weekday and weekend prime time, and proportionate use for all pads.

Although prime time might not be available at preferred arenas, there are 270 hours available per month on weekends, assuming full operating hours. This is the equivalent of one pad of prime weekend time not being used, which suggests an oversupply of ice in relation to use of prime time.

As noted above, however, 100% use of weeknight prime time on all nine (9) pads indicates that all are needed to serve current population. Using 2021 figures, therefore, a population-based supply ratio of 1 ice pad per 9,022 people (81,200/9) reflects current facility needs based on use patterns. Population growth to 2040, therefore, would generate the need for a total of 12 pads (111,650/9,022) or three (3) more than the existing supply. It is anticipated, however, that opening up the existing and future arenas to more weekend use will, over time, reduce projected long-term need for additional pads to up to two (2). For planning purposes, therefore, up to two (2) additional ice pads or a total of up to 11 pads are indicated as needed in Kawartha Lakes to serve projected population growth during the term of the Plan.

**Table 5-4: Ice Pad Prime Time and Use on Weeknights and Weekends**

| | Per Ice Pad | Total (all nine ice pads) | | | |
|---|---|---|---|---|---|
| | Prime Time Hours per Week | Prime Time Hours per Week | Prime Time Hours per Month | Current Use Level | Hours Unused Prime Time |
| **Weeknights** | 30 (6 hours x 5 nights) | 270 | 1,080 | 100%[1] | 0 |
| **Weekends** | 30 (15 hours x2 days) | 270 | 1,080 | 75% | 270 |

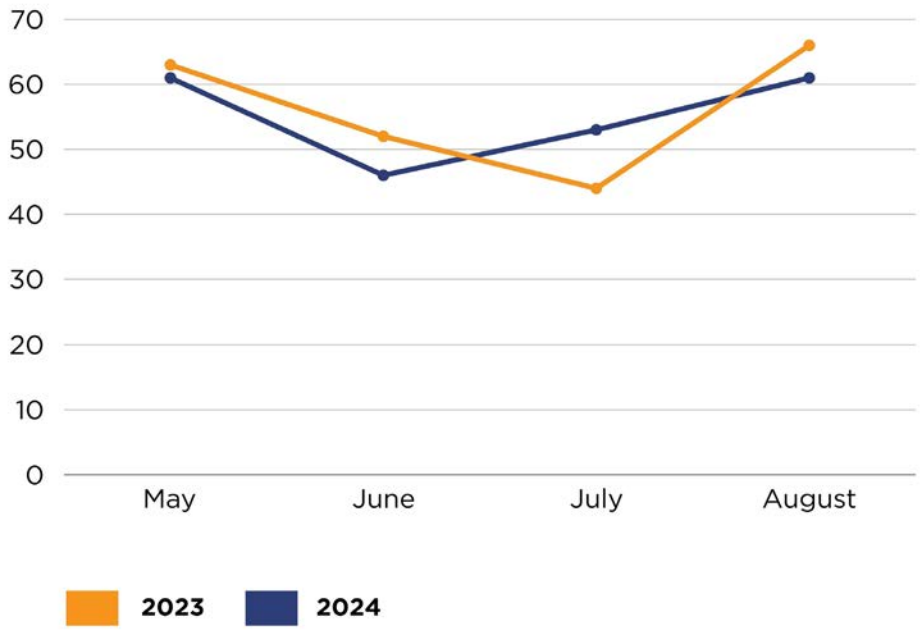
1 based on municipality indicating that no more use can reasonably be accommodated

1 Mid-point between 74% in November 2023 and 76% in January 2024.

## Summer Ice

User groups indicated interest in additional access to summer ice. Figure 5.2 shows levels of use during summer months at LRC in 2023 and 2024 ranging from 46% to 61% and from 46% to 66%, respectively.

**Figure 5-2: Summer Ice Use 2023 and 2024**




Typical use levels, therefore, appear to provide considerable opportunities for access to time by other interested groups. Over the long-term, if community demand for summer ice increases to the point where insufficient time is available, current uses that comprise commercial operators may need to be limited as per the municipality's ice allocation priorities. To the extent possible, however, commercial uses should be retained as they provide services that cannot be feasibly delivered by the municipality while generating additional revenue to offset facility costs.

**Floor Use**

Four of nine arena pads are used for floor activities during the ice-out season. In 2024,[1] the four arenas recorded a total of following 540.5 hours of floor use from April through July, as follows:

- LRC: 280.5
- Oakwood: 141
- Fenelon Falls: 110
- Bobcaygeon: 9

Information from the municipality notes that arenas in rural areas are not used during the summer, except for occasional events. These findings indicate that need is well met with considerable potential to increase use if demand warrants it.

**Future Facility Provision**

In summary, the foregoing assessment of collective prime time use at all ice pads in Kawartha Lakes indicates that: a) a total of up to eleven (11) ice pads will be required to serve winter ice needs for projected population growth during the term of the Plan, and b) need for summer ice, as well as floor use during the ice-out season, will be accommodated with available facilities.

Ensuring an adequate supply of ice pads in relation to population distribution is also important, given the municipality's large geographic area. Kawartha Lakes is anticipated to grow by 30,450 people or 38% by 2040 (from 81,200 to 111,650). As noted previously, the 2025 Growth Management Strategy allocates most of this growth to the south end of the municipality (23,154)[2] , and primarily Lindsay (22,673). The northeast area of the municipality is anticipated to grow by 5,763 in Fenelon Falls and Bobcaygeon. Future facility supply, therefore, should consider the location of facilities in relation to growth areas.

In addition to providing an adequate supply of optimally located ice pads over the term of the Strategic Plan, existing aging facilities require upgrades to maintain facility integrity and serviceability. The municipality will be preparing detailed building condition assessments for its arenas as part of the ongoing five-year corporate program. These will identify required capital expenditures in upcoming years to sustain the arenas. At the same time, the results of these assessments may confirm the need to replace facilities that have exceeded their lifespans or will do so during the timeframe of the Strategic Plan.

Previous studies prepared by the municipality have recommended replacing old single ice pads with twin pad facilities to leverage the cost and programming efficiencies associated with larger arenas. The Strategic Plan supports this service direction for both facility replacement and future new ice pads. Table 5.5 outlines the four arena-based hubs to consider for future facility development. It assumes that the LRC twin pad arena will continue to serve the community in its current capacity and is not included in the table. Collectively, however, there will potentially be hubs to serve Kawartha Lakes.

1 Little Britain Arena, which also typically accommodates floor use, was under construction in 2024.
2 Lindsay + Omemee

Table 5-5: Proposed Arena-Based Hubs

| Existing and Proposed Arenas for Future Hubs | Current Ice Pad Supply | Potential Future Supply (in twin pads) |
|---|---|---|
| **South Lindsay** | 1 | 2 |
| **Fenelon Falls/ Bobcaygeon** | 2 | 2 |
| **Emily/ Omemee/ Manvers** | 2 | 2 |
| **Woodville/ Little Britain/ Oakwood** | 3 | 2 |

As shown in Table 5.5, three of the four proposed hubs comprise existing arenas that could be twinned upon replacement. South Lindsay is identified as the area for a fourth arena-based hub to provide additional needed pads to supply and locate a twin pad where near term population growth in Kawartha Lakes will be concentrated.

The most likely site for its provision is Ops, which is currently designated for redeveloping existing outdoor facilities. Including a twin pad arena here will create an indoor-outdoor recreation hub in a growth area, for which existing arenas will be unable to accommodate demand generated by new residents. Locating a new twin pad arena here will also:

- as a completely new build, avoid the short-term disruption to operations involved in replacing existing facilities
- provide additional ice time to relieve pressure on the existing arenas now and, as future replacement projects are undertaken, accommodate some of the use temporarily displaced by closures
- meet community expectations that the former arena on this site would be replaced with a new facility
- if required, due to needed municipal servicing improvement, allow a phased approach to development by constructing one pad in a design that anticipates a second to be added and provides amenities to support both.

For these reasons, it is suggested that Ops be considered as a priority in the municipality's arena development strategy. Beyond Ops, the locations of one twin pad to serve an area or areas that currently have two or more single pad arenas will be determined when needs are confirmed and plans developed based on this information.

Opportunities to co-locate other needed facilities (e.g., gyms, program space, as discussed in other sections of the Strategy) with consolidated arenas at other locations will facilitate creating additional recreation hubs that provide overall improvements to service levels to the community.

## Confirming Future Provision of Ice Pads

The Parks & Recreation Strategic Plan covers 15 years into the future, given variables that are currently known and changes that are anticipated to occur. It envisions an approach to provision that will be incrementally implemented and confirmed by the ongoing evaluation of outcomes by project and the implications of one development for the next initiative. Consequently, the configuration of the facility supply towards the end of the Strategy's term and beyond will depend on the cumulative outcomes of earlier projects as well as the impacts of unanticipated variables.

In moving towards implementing the directions contained in the Strategy, additional work is needed to confirm an appropriate level of investment in developing major facilities like arenas. It is recommended that the municipality prepare a detailed Recreation Facility Master Plan to inform decision-making over the next ten years. The study's scope should include confirming the number of ice pads needed during this period based on:

- the results of this Plan (which incorporates previous work);
- the extent to which municipal investment in improvements to existing arenas will extend their serviceability and delay the need to replace them;
- planned residential growth areas, population projections for these, and the pace and timing of growth in each;
- further consultation with arena user groups and the community, as required, to project facility use and building components required to accommodate it;
- facility configuration and sequencing for those recommended to be developed in the next ten years.

Given the above discussion, it is suggested that arena development at Ops be a priority to be addressed in this Plan.

## Contextual Factors for Arena Development in Kawartha Lakes

Of particular importance to arena development is broader trends in ice sports that will be reflected in local activity and so will contribute to ongoing determination of ice pad requirements. Although female participation in hockey appears to be increasing, there is concern among Canadian hockey organizations that overall continued growth is not assured as factors such as the high cost of participation, the increasing professionalization of amateur sport, and emerging 'replacement' sports reduce its dominance in the field.[1] The need for more facilities to serve population growth alone, therefore, may be offset by declines in participation in ice sports.

Policy changes within the Ontario Hockey Federation may also have an impact on where demand for ice materializes.[2] Beginning with the 2025/2026 season, minor hockey players outside the GTHL[3] at the U10 level and above will be able to play for teams outside their own

1 See Appendix B for more detail and sources.
2 https://www.ohf.on.ca/player-movement/#:~:text=By%20removing%20residency%20restrictions%20for,accessible%20for%20everyone%20in%20Ontario.
https://www.thestar.com/sports/hockey/parents-wanted-more-choice-ontario-hockey-federation-to-let-players-choose-where-they-want-to/article_3197c29c-bca7-11ef-9646-db13c35fc96f.html
3 The Greater Toronto Hockey League has allowed this sort of movement between teams for a while, but it is new to areas outside the GTHL.

community without needing to request a waiver, which was previously the case. Kawartha Lakes proximity to the GTA and potential player movement out of the municipality may impact future ice needs within its boundaries. The full impact of this policy, however, may not be felt for several years, as the, "The OHF is implementing a temporary hold on the addition of Rep teams at U10 age group and above by Associations and OHF Members. This hold will allow for a thorough review and adjustment of the number of teams at each age group and Category."

If approved by Council, a recent community-initiated proposal to build an outdoor, covered refrigerated rink at the LRC will also inform future demand for ice. The proposal envisions an NHL-size pad and dressing rooms that would function primarily to support tournaments at the LRC, and to accommodate special events. At other times, it could be scheduled for community organizations for practices and games. While still in the early stages of planning, if this facility is approved and developed, its implications on use of, and demand for, indoor ice - as discussed above - will need to be factored into other development decisions.

## RECOMMENDATIONS

F 1. Optimize use of all ice pads by increasing weekend prime time scheduling between 8am and 11pm on Saturday and Sunday.

F 2. Prepare a detailed Recreation Facility Master Plan and, as part of this study, confirm the number of ice pads needed to serve population growth.

F 3. For additional ice pads recommended in the Recreation Facility Master Plan and beyond, consider their provision as part of twin pad facilities to also replace aging single pads in locations that will cover existing markets and serve population growth in each of the following areas: South Lindsay; Fenelon Falls/ Bobcaygeon; Emily/ Omemee/Manvers; and Woodville/ Little Britain/Oakwood.

F 4. As part of the recommended Recreation Facility Master Plan, assess Ops as a priority location for a new twin pad facility in South Lindsay.

F 5. Treat potential twin pad arenas as the core of future indoor recreation hubs that may also be appropriate locations for other needed facilities (e.g., gyms, multipurpose space, etc.).

F 6. Use detailed building condition assessments being prepared for the arenas over the next five years to inform the priority of proposed arena replacements as part of twin pad facilities.

F 7. Monitor and apply trends in participation/use of all ice pads to ensure projected facility requirements reflect demand over time to confirm when new facilities should be designed and developed, and how they should be configured.

## 5.4.3 Gymnasiums

Assessment Variables

- There are no municipal gyms in Kawartha Lakes.
- Relative to other interests, a gym/fieldhouse was strongly requested by the community.
- The gymnasium (fieldhouse) at Fleming College's, Frost Campus in Lindsay is available for use by the community when not being used for college activity, and School Board gymnasiums are also available during non-academic hours.
- Interest in pickleball courts was also strong, and these are facilities often incorporated in municipal gym design.
- It was reported that gyms at schools and the college are limited in available time and too expensive for volunteer organizations to rent.
- Gymnasiums belonging to other providers include BGC Kawartha Lakes in Lindsay, which is used for the agency's programs.
- User groups reported that they use facilities in Kawartha Lake schools to run their programs and activities, and most often those belonging to the Trillium Lakelands District School Board.
- Reliance on school gyms was attributed to lack of municipal facilities, and that access to school gyms is limited by near capacity use and high cost.
- Gymnasiums designed for multiple uses often comprise part of municipal facility supply.

**Facility Supply Requirements**

For the purposes of the assessment, gymnasium refers to both a traditionally designed space and a gym/fieldhouse such as the facility at the Fleming College Lindsay Campus. Participants in consultation activities sometimes used the words interchangeably

There are 31 schools in Kawartha Lakes, 15 of which are in Lindsay and the remainder are distributed throughout the municipality. While there may be issues related to suitability for all levels of play, availability and cost, schools are important locations for community-based recreation. Their community-centric distribution and inclusion of gyms and other spaces that can be used for recreation programs provides opportunities to deliver programs close to residents in school catchment areas.

At the same time, school facilities cannot match the potential for a municipal gym to provide both structured programs and drop-in activities. School gyms cannot fully meet needs for program/activity development due to no daytime access for community use, cancellations for school events, and adults as a lower priority in allocation policy.

Unlike school facilities, a municipal gym can be programmed full time with many activities, while assigning community use full access and top priority. As in many communities, there is strong interest in more indoor pickleball locations in Kawartha Lakes, which is still a growth sport and one that municipalities are working to provide facilities to meet demand.

'Traditional' gym designs have evolved into a diverse range of options, many of which make the space optimally usable and integrate it more seamlessly into the building. Various structured programs and drop-in uses can be accommodated with, for example, courts designed for pickleball, basketball, volleyball, badminton, etc. Gymnasiums are also highly complementary to aquatic facilities and arenas and can support concurrent programming and cross-training. With the appropriate design elements, the space can also function as a venue for performing arts and entertainment events.

**Future Facility Provision**

While it is expected that schools will continue to serve local communities in Kawartha Lakes with facilities and spaces for recreation, the municipality can complement this supply and diversify its own by looking at the feasibility of adding a gym to selected future arena redevelopments or new build projects. Consideration should be given to providing a gym with the new twin pad facility at Ops to serve residents and population growth in this area. Ideally, a second facility to serve residents should be considered as part of a possible twin pad development to serve the northern portion of the municipality.

When determining the projects to pursue, the design, cost and site capability of providing double over single gyms should be investigated. Double gyms provide more space for indoor sports/active recreation (e.g., winter soccer training) and, when divided, allow structured programs and drop-in activities to occur simultaneously.

The recent legislative changes reducing international student eligibility for post-secondary education in Canada is, in turn, impacting the use of school sports and recreation facilities at these institutions. Fleming College has a fieldhouse which is close to the LRC and includes a double gymnasium. The municipality should approach the College to gauge its interest in the City taking responsibility for managing/programming the facility through either an operating agreement or acquisition. In the event of acquisition, physically connecting the fieldhouse to the LRC would enhance the facility's indoor hub function. Securing community access to an existing facility may be a factor to consider in providing a gym at Ops in terms of the type of facility needed.

Given the time it will take to develop a municipal gym, options to optimize the use of existing facilities and facilitating access to those of other providers is an interim measure. The Kawartha Lakes Pickleball Association currently uses indoor spaces throughout the municipality to run its activities.

According to the group's website, indoor courts total 24 at the following locations:

- 4 at Bobcaygeon Curling Club (scheduled, during ice-out season)
- 5 at Omemee Curling Club (during ice-out season)
- 1 at Burnt River Community Centre (reserved drop-in; municipal program)
- 3 at Fenelon Falls Community Centre (reserved drop-in)
- 8 at LEX Commonwell Building (KLPA

rental November to April)

- 3 at BGC (programs coordinated by BGC Kawarthas seasonally)[1]

These arrangements reflect an efficient and well distributed use of available spaces to support pickleball. Demand for indoor pickleball appears to be such that existing facilities can continue to be used to provide additional courts.

Section 4.0 provides examples of the potential to better use arena floors for programming, assuming staffing requirements are met. At the same time, greater access to School Board gyms should be pursued through agreements to reduce costs to organized community-based users, particularly in rural areas of the municipality (see also Service Delivery, Section 5.6 on Facility Agreements).

## RECOMMENDATIONS

F 8. Secure use of the Fleming College Fieldhouse through an agreement or other alternative arrangement with the College, as deemed appropriate.

F 9. As part of future arena-recreation hub development, consider including municipal gyms to serve the north and south ends of Kawartha Lakes (pending access to Fleming College Fieldhouse in Lindsay).

F 10. Establish agreements for greater access to School Board gyms, especially in rural areas of the municipality.

1 https://www.klpa.ca/wheretoplayindoors

## 5.4.4 Fitness Facilities

### Assessment Variables

- There are two well equipped municipal strength and conditioning rooms (at the LRC and Forbert Pool) and a large fitness studio (at the LRC); supply levels are 1:40,600 and 1:81,200, respectively, which are low compared to many municipalities.
- As in Kawartha Lakes, these types of facilities are typically components of recreation centres/complexes, as opposed to stand alone facilities.
- Relative to facilities that are not available, community interest in an increased supply of both is moderate.

### Facility Supply Requirements

Although the current supply of municipal fitness rooms in Kawartha Lakes is relatively low, limited interest emerged in community consultation for additional facilities. This suggests the need for limited service expansion.

### Future Facility Provision

Although fitness programming is a municipal responsibility in Kawartha Lakes, public provision of conditioning and strength training rooms generally considers the supply of commercial operators in the community. The availability of commercial services often precludes municipalities having to purchase (or lease) and maintain their own equipment. At the same time, the municipality wants to provide affordable fitness options to all its residents. Community interest in municipal fitness equipment/services is now quite common and municipalities are working to respond in ways that do not compete with other providers.

The north and central areas of the municipality are provided with strength and conditioning facilities at the LRC and Forbert Pool. Future indoor recreation hubs should also be considered as locations for these types of facilities. The 2019 Development Charges Background Study[1] assigned a net capital cost of $847,700 for upgrades and expansion to the Forbert facility. This work has not yet been done and should be confirmed with a facility needs assessment prior to implementation.

### RECOMMENDATIONS

F 11. As part of future indoor recreation hub development, consider including strength and conditioning rooms and fitness program studios.

F 12. Prepare a facility needs assessment to confirm required upgrades and expansion to the Forbert Memorial Pool fitness facility.

1 Watson & Associates Economists Ltd.

## 5.4.5 Track

### Assessment Variables

- There are no indoor tracks in Kawartha Lakes.
- Relative to other interests, an indoor walking track was strongly requested by the community.
- These are facilities often incorporated in arenas or municipal gym design.

### Future Facility Provision

Tracks are increasingly being integrated with gyms, at either floor or mezzanine level around the perimeter of the gym, or as part of arenas around the ice pad's perimeter. Indoor tracks provide opportunities for people to stay active during the winter when it is more difficult to exercise/train outdoors. An even, fabricated surface also mitigates or prevents joint stress and injuries. These facilities can be programmed, scheduled for organized use, and/or made available for casual use. Typically, casual use for personal fitness is free of charge.

Kawartha Lakes residents expressed relatively strong interest in an indoor track. Although community interest focused on walking, walking/running tracks are also becoming more popular, with each activity allocated to separate lanes with space to pass (e.g., lanes one and two for walking; lanes three and four for running). Incorporating a track should be considered in future centre redevelopment plans for arenas to create indoor recreation hubs.

## RECOMMENDATIONS

F 13. As part of design/costing work related to future development plans for arena-based recreation hubs, investigate options to including an indoor track.

## 5.4.6 Squash Courts

### Assessment Variables

- There are two (2) international size squash courts at the Lindsay Recreation Centre or 1 for every 40,600 population.
- Relative to facilities that are not available, community interest in increased supply is low.
- Information on the use of the squash courts in 2024 shows 571 hours (5.5%) of 10,266 available hours were used.
- "The global squash market is anticipated to rise at a considerable rate between 2024 and 2031. In 2023, the market is growing at a steady rate and with the rising adoption of strategies by key players, the market is expected to rise over the projected horizon. North America (United States, Canada and Mexico) is a leading market for this sport."[1]

### Facility Requirements and Future Provision

Current use levels of the squash courts represent a per capita provision of 0.007 hours (571/81,200). At the same rate of participation, population growth to 2040 will generate a total of approximately 782 hours of court use or 210 more than 2024. This would increase total use to 7.6% of available hours, indicating that existing facilities will meet demand for the term of the Strategic Plan - even if local participation in squash grows.

## RECOMMENDATIONS

F 14. No additional squash courts will be needed during the term of the Strategic Plan.

1 https://www.linkedin.com/pulse/squash-sport-market-2024-trends-future-growth-analysis-rgrof/

## 5.4.7 Pools

### Assessment Variables

- Existing supply comprises two aquatic facility locations (3 tanks) or 1:40,600.[1]
- Neither facility is state-of-the art in terms of design and/or capacity.
- Aquatics programs and services are close to capacity but are not meeting current demand due to facility capacity, with potential registrants being turned away.
- Relative to facilities that are not available, community interest in increased supply is moderate.
- Detailed building condition assessments are to be prepared over the next five years.

Interest in an additional indoor pool emerged in consultation, although not to the same extent as that for facilities not currently available in supply (e.g., gym, indoor track, etc.). Despite the strain on the capacity of existing pools to accommodate current demand for programs, the view that additional/ expanded facilities are needed immediately was not unequivocal. It was suggested, however, that projecting current demand may mean another pool is required to serve population growth.

Although there are no definitive standards for pool provision, a general rule of thumb is that a population in the range of 30,000 to 35,000 can support an indoor aquatic facility at a reasonable operating cost (i.e., net deficit).

**Table 5-6: Indoor Pools in Kawartha Lakes**

| Facility | Pool Components | Setting |
|---|---|---|
| **Southeast** | | |
| **Bobcaygeon: Forbert Pool** | • 1, 3-lane, 18 metre pool<br>• stepped ramp, change room facilities and showers | • complements a full workout centre within the same building |
| **Lindsay** | | |
| **Lindsay Recreation Complex** | • 1, 6 lane, 25 metre pool<br>• 1 therapeutic pool<br>• on-deck sauna, a 1 metre diving board, change room facilities and showers | • part of large complex including strength and conditioning room, fitness studio, etc. |

1 https://www.linkedin.com/pulse/squash-sport-market-2024-trends-future-growth-analysis-rgrof/

Today, the 'core' facility typically comprises an 8-lane, 25 metre tank and a leisure pool, and may include complementary components such as a therapeutic (warm) pool. As shown in Table 5.6, Kawartha Lakes' pools comprise most - but not all - of these features.

These findings suggest the potential to support up to two 'full service' indoor pools at current population levels, with the possible need for a third facility in the long term. Three major indoor aquatic centres, however, would be extremely costly to provide. Moreover, settling on an appropriate location for a state-of-the-art, third facility to serve a disbursed population outside Lindsay would be difficult. The current supply of municipal aquatic facilities in Kawartha Lakes, therefore, are anticipated to continue as the primary locations of indoor activity over the term of the Strategic Plan.

**Future Facility Provision**

As discussed in the program section, an initial step to accommodating unmet resident demand for access to aquatic services is through facility supply. Initiatives should focus on:

- addressing required changes to existing supply to address aging infrastructure concerns

- where feasible, increasing capacity and accommodating demand generated by population growth at these two facilities

The upcoming building condition assessments will inform the anticipated costs to sustain both the LRC and

Forbert Memorial pools, and required improvements should be implemented.

Maximizing use of existing facilities can help absorb currently unmet, and future, demand generated by growth. Extending pool operating hours at the LRC should be explored as a means of increasing capacity to meet unmet demand for programs, especially in the short to medium term. Shifting programs that do not need a large pool from the LRC to Forbert Memorial Pool could also be considered.

The combined results of changes to policy, operating hours and program relocation will improve the performance of the two existing pools to meet community need to some extent.

In anticipating long-term need as a result of population growth, the recommended Recreation Facility Master Plan should include a facility needs/feasibility assessment for a redevelopment/ expansion at the Forbert Memorial Pool. Ideally, a 25m, 8-lane facility with a leisure component should be considered, along with complementary amenities. In the interests of sport tourism and the potential to generate revenues to offset operating costs, an appropriately designed 8-lane facility could also accommodate training and regional/ provincial short-course meets.

## RECOMMENDATIONS

F 15. Investigate increasing operating hours and coordinating program schedules between the LRC and Forbert Memorial Pool Facilities to maximize use of all available time.

F 16. As part of the recommended Recreation Facility Master Plan prepare a facility needs/feasibility assessment for redeveloping and expanding the Forbert Memorial Pool to include a 25m, 8-lane facility with a leisure component to serve long-term need for aquatic facilities.

## 5.4.8 Multi-purpose Rooms

### Assessment Variables

- Relative to facilities that are not available, community interest in an increased supply of multi-purpose program rooms is moderate (when requests for gyms and full-service multi-purpose recreation complexes are excluded).
- There are 26 municipally owned community rooms in Kawartha Lakes or 1:3,123 population, which is high compared to the municipalities reviewed.
- Municipal supply is supplemented by facilities belonging to private, not-for-profit organizations in at least ten locations throughout the municipality.
- Information on levels of use is not available for every facility.
- Detailed building condition assessments for municipal facilities are to be prepared within the next five years.

### Facility Supply Requirements

Appendix F contains inventory information on municipal community and meeting rooms in Kawartha Lakes that are part of Parks and Recreation's portfolio. This information is summarized here:

- Spaces comprise 17 large community rooms (>100 capacity) and nine (9) smaller rooms (<100 capacity), which are located in 17 communities throughout the municipality.
- In most communities - Lindsay, Fenelon Falls, Omemee, Manvers, Bobcaygeon, Little Britain and Oakwood - these rooms are part of the arena building and the remainder are either located in smaller community centres or are free standing.
- The bulk of spaces comprise aged infrastructure. Of the 18 facilities for which age was available, the largest proportion (39% or 7) are between 40 and 50 years old. Two facilities (11%) are less than 15 years old, six (33%) range from 51 to 80 years old, and the remaining three (17%) are over 100 years old.
- From the perspective of features, the halls and rooms are comparable. Almost all have a kitchen, bar, stage and sound system, and most are air conditioned. Most also have accessible access and washrooms, with a few remaining to be upgraded in the near future.

### Municipal Community Rooms

Table 5-7 summarizes available information on the use of municipal halls and meeting rooms in 2023, and notes on users/uses that were accommodated. It is important to note that the information shown here is limited to rooms for which the municipality has a record. Information on total use of most spaces is not available, and for some there are no data. Volunteer Management Committees are responsible for the day-to-day operations of nine (9) local community centres, for which no hours of use were recorded in available information. In some cases, the hours shown combine rentals (including leases) and programming, which obscures the use levels, costs, revenues, etc. associated with each type of use.

## Table 5-7: Use of Municipal Community and Meeting Rooms 2023

| Facility | 2023 Total Hours Used | Average Weekly Use | Notes on Users/Uses |
|---|---|---|---|
| **Victoria Park Armoury** | 2,024 (full-time lease)<br>836.5 | 38.9<br>16.1 | seniors club lease<br>fitness programming |
| **Lindsay LRC** | 1,243 | 23.9 | small private parties; day camps |
| **Fenelon Falls CC (hall)** | 1,037 | 19.9 | pickleball |
| **Omemee (arena)** | 268.5 | 5.2 | |
| **Oakwood (arena)** | 238 | 4.6 | |
| **Coronation Hall** | 215 | 4.1 | small private parties |
| **Fenelon Township CC** | 195.5 | 3.8 | |
| **Little Britain (arena)** | 164 | 3.2 | |
| **Bobcaygeon (arena)** | 143.5 | 2.8 | |
| **Bethany/Manvers (arena)** | 128.5 | 2.5 | |
| **Woodville Town Hall** | 130.5 | 2.5 | event rentals |
| **Coboconk Lions Hall** | 0 | 0 | under construction in 2023 |
| **Totals** | **6,624** | **127.4** | |

Collectively, the above information on hours reported for 2023 indicate low use relative to time that could be scheduled. If is it assumed, for example, that each location represents the potential to host a conservative minimum of 48 weekly hours of use (or the equivalent of Saturdays and Sundays from noon to midnight), only Victoria Park Armoury represents this level of activity at an average of 55 hours per week. All other halls used average between 5% and 50% of 48 hours. Moreover, 48 hours per week is a conservative estimate of time that could be used in community rooms during a typical week, especially if they were heavily used for community programs in addition to rentals.

Over three-quarters (78%) of total use is accommodated at three facilities: Victoria Park Armoury, Lindsay Recreation Complex (LRC) and Fenelon Falls Community Centre. The 2,024 hours at the Victoria Park Armoury, comprise the time (Monday to Friday from 9am-4pm) covered by a lease with the Lindsay Seniors Association for a grant-supported Seniors Active Living Centre. The Centre operates year-round. These hours are for the exclusive use of the Club and, therefore, actual use may be less than the total leased. The LRC hall, which is operated by the municipality, is the second most used facility.

Kawartha Lakes' rooms are in older arena-community centres or as stand-alone facilities that are still best suited to hosting social functions and/or meetings associated with organized sports/ recreation groups or rentals for private parties/celebrations. Although some new and different uses have occupied these spaces over time, they are not comparable to current purpose-built, multi-function facilities. This typically limits their usability for the range of programs/activities requiring intentionally designed multi-purpose space and often results in their underuse relative to current interest in maximizing the 'return on investment' in municipal assets.

Consultation revealed community interest in a range of facilities that are either not provided in Kawartha Lakes or are in limited supply, and which the many community rooms in the municipality (either as they stand or through repurposing) could be used to provide. These include a youth centre, deliberately designed multi-purpose program space, fitness studios and arts facilities. Improved facilities will also be needed to facilitate growing a wider diversity of programs/activities as recommended in Section 4.0 of the Strategic Plan.

**Future Facility Provision**

Effective planning for the future of these facilities will require complete and comparable information, documented on an annual basis for at least a full year to first determine how spaces are being used and to what extent. This work will require the participation of the Volunteer Management Committees, as discussed further below in section 5.6 on facility agreements. The information collected will inform both programming potential and priority assignment to capital investment decisions. From a facility/space perspective, the future of community rooms that are part of the arenas will be tied to decisions regarding the relevant recreation hub. As discussed above (Section 5.4.10), recommendations to redevelop existing and build new

recreation hubs include gyms and multi-purpose spaces, which would replace some of the limited-purpose, traditional arena halls. For all community rooms, however, the upcoming building condition assessments should include a functional evaluation of current and potential use of these spaces to inform what can be done to optimize their use for a range of community programs/activities now and in the forseeable future. With respect to facilities that may be redeveloped, this may identify limitations to improving their program function in the years leading up to project planning and design, which could address these deficiencies.

Determining the need for stand-alone community halls and how to optimize their use for various activities will require a coordinated assessment that integrates several variables to arrive at a potential short-list of facilities in which to invest. These include:

- indicators that existing facilities are nearing the end of their lifecycle
- building condition (from systems and functional perspectives) and their potential to function in new ways, as per program/activity requirements
- their role as gathering/social spaces and its importance to community cohesiveness
- the extent of investment that would be required to upgrade/repurpose the space to provide multiple, needed/new functions
- opportunities to decommission existing facilities by focusing on a limited number of community hubs, including arena-based facilities that serve/will serve the same local market
- current or potential operating practices that minimize costs to the municipality (e.g., volunteer management boards, service club operated, etc.)
- accessing non-municipal facilities in local communities that are better designed/equipped to meet program/activity requirements through collaborations with other parties

The objective of the assessment is to arrive at a sustainable number of municipally owned multi-use spaces across Kawartha Lakes to serve as local hubs to host a range of programs/activities. At the same time, these should complement facilities in arena-based hubs and those of other providers that can be accessed for community use.

**Not-for-Profit Community Rooms**

Appendix F notes not-for-profit and municipal community halls and meeting rooms in Kawartha Lakes, which may not represent a comprehensive list. In addition to four Lions' Club halls, and facilities associated with five curling rinks, there are two volunteer owned and operated community centres in Pontypool and Dunsford. Web-based information notes that the 10,000 sq. ft. Dunsford Community Centre has served as a community hub for 27 years, with no paid staff. Although considerably smaller, the Pontypool Community Centre is also owned and operated by volunteers. These facilities supplement the supply of municipally owned assets and deliver additional community programs and services. Table 5.8 totals all municipal halls, and known not-for-profit community and meeting rooms in Kawartha Lakes for which information was readily available.

**Table 5-8: Municipal and Not-for-Profit Community and Meeting Rooms[1]**

| Location | Existing Facility Supply | | | Totals |
|---|---|---|---|---|
| | Municipal | | Not-for-Profit | |
| | Small | Large | Small and Large | |
| **Lindsay** | 1 | 2 | 2 | 5 |
| **Northwest** | 6 | 5 | 3 | 14 |
| **Northeast** | 2 | 2 | - | 4 |
| **Southeast** | 0 | 5 | 8 | 13 |
| **Southwest** | 0 | 3 | - | 3 |
| **Totals** | **9** | **17** | **13** | **39** |

1 These numbers do not assume a complete total for not-for-profit spaces.

Collectively, there are over 30 small and large community rooms in the municipality, which are unevenly distributed across the urban core (Lindsay) and rural areas delineated for the study. In addition to verifying the use and potential functionality of municipal community rooms/spaces to provide needed programs/activities, opportunities to access facilities belonging to other providers that are underused and could offset deficiencies in municipal supply should be investigated, as appropriate.

As noted above, for example, interest in a senior's centre emerged in consultation. There are currently four locally based seniors' groups in Kawartha Lakes. In addition to the group that uses municipal space in Victoria Park Armoury there are three seniors' organizations that operate out of their own facilities - the Southview-Cameron New Horizons Seniors Club[1], Fenelon Falls Seniors Club, and the Bobcaygeon Senior Centre.

Given the large geographic area of the municipality, seniors' centres are likely best provided in local communities versus a central, municipal facility that would require considerable travel for many. Other local serving seniors' centres, if needed, might also be provided in existing facilities belonging to others (e.g., curling club community rooms) that could accommodate this type of use while enhancing that of the club. The municipality can investigate reported interest in seniors' centres and assist these residents in organizing and accessing local facilities. In some cases, securing access to spaces belonging to other providers may require formal agreements, which is discussed in Section 5-6.

1 The municipality provides a tax rebate to the Southview-Cameron in recognition of its community service function.

**Facility Management and Operations**

As noted above, Volunteer Management Committees are responsible for the day-to-day operations of nine local community centres, with responsibility for the following general activities:

- managing and operating the facility including building and grounds maintenance, bookings, invoicing and collections, promotions and programming.

- preparing and submitting update reports to the liaison Department by the end of each quarter to outline the facility utilization, including rental/ program details.

- preparing and submitting an annual report to Council

The Terms of Reference for each Committee also note that "management should be conducted in an efficient and effective manner while maximizing community use of the facility and surrounding property. Where viable, self-sustainability will be an ultimate goal of the Committee. The Committee shall ensure full access to the community centre by all residents of the City of Kawartha Lakes, subject to facility availability and rental policies."

Major capital expenditures are the responsibility of the municipality and operations support is provided by Parks and Recreation Division of the Community Services Department, largely in the form of advice, ideas, and policy/ procedures. The Committee may receive an annual operating grant to maintain the facility.

Planning for the future of volunteer managed municipal facilities will require greater coordination and communication between the Committees and the municipality. Effective decisions on capital investment as well as program/service planning need to be based on information that verifies demand. The Committee's Terms of Reference calls for quarterly reports to the municipality on facility use, which should be designed to provide all the information needed for program/ service planning. Ideally, the form and content of reporting on Committee-managed spaces aligns with that for community rooms operated by the municipality to allow direct comparison across all municipally owned facilities. Section 7.0 of the Strategic Plan discusses service planning in more detail.

With respect to capital planning and investment, major capital expenditures are the municipality's responsibility. For example, the Norland Recreation Centre was transferred from municipal to Committee management within the last five years. Since then, the municipality has committed over $1m to upgrade the building envelope, the interior activity space, and to install accessible washrooms. The Committees contribute to small capital improvement projects to varying degrees - depending on their fundraising capabilities. The Burnt River Community Centre, for example, is the home of the Bullies ball team, which is a strong fundraiser that shares costs (50/50) for small projects with the municipality.

The recommended Recreation Facility Master Plan should be used to confirm future needs for municipal community rooms and their recommended function(s) as multi-purpose spaces. With this information, the municipality can better use its building condition assessments to optimize the benefits of any future capital investment in volunteer managed facilities, and to coordinate municipal and Committee contributions to specific projects. Each Committee, local community and municipal staff can jointly determine needed and desired capital improvements by location. With the help of relevant professionals, the outcomes of this process can be developed into a plan to implement the work over time as budgets and fundraising allow. As appropriate, plans for both indoor and outdoor facilities on the site should be coordinated. Working to an approved plan prepared by all relevant stakeholders will help ensure that municipal budgets and fundraised contributions together are effectively spent and that existing facilities are optimally used in meeting community needs before adding new space.

**Summary**

The above discussion provides a framework for rationalizing the future supply and distribution of multi-purpose community rooms in Kawartha Lakes by:

- establishing a complete and comparable information based on the use of all municipally owned facilities, compiling the data required to effectively assess use by type in relation to capacity and costs/ revenues.

- using the results of the recommended Recreation Facility Master Plan to confirm facility needs.

- using upcoming building condition assessments to inform potential investment needed to improve the multi-function capability of facilities and to upgrade building systems

- preparing plans to implement and prioritize intended work at each facility over time in a coordinated manner to help ensure municipal budgets and fundraised contributions together are effectively spent

- as appropriate, identifying opportunities to potentially access the facilities of not-for-profit groups to provide new or optional spaces for community use in mutually beneficial collaborations

These initiatives will require the municipality to lead all relevant stakeholders - local community residents, Volunteer Management Committees, not-for-profit facility owners - in a joint planning process for each community facility.

## RECOMMENDATIONS

F 17. For all municipally owned community rooms, implement a data collection system that documents needed information for planning purposes and is comparable and consistent across all facilities.

F 18. As part of the recommended Recreation Facility Master Plan, confirm the future of municipally-owned stand alone community rooms.

F 19. Engage Volunteer Management Committees in ongoing data collection and reporting activities.

F 20. Use upcoming building condition assessments to inform the cost-related implications for building systems and space planning to enhance the multi-purpose function of stand-alone facilities.

F 21. Prepare a prioritized program to implement capital upgrades to municipal facilities.

F 22. Where possible, maximize use of Volunteer Committee managed community rooms to satisfy demand for programming/rentals, using all existing facilities before adding new space.

F 23. As appropriate, work to facilitate community access to not-for-profit space.

# 5.5 Outdoor Facilities Assessment

## 5.5.1 Overview of Supply, Distribution and Community Interest

Existing outdoor facilities in Kawartha Lakes that are - or could be - scheduled include ball diamonds, athletic fields, tennis courts, pickleball courts, disc golf, and an informal cricket field.

Table 5-9 summarizes information on the current population-based supply of municipal outdoor recreation facilities and indicators of interest that emerged through the consultation program. As with indoor facilities, a low, moderate or high rating has been used to consolidate reported need among the different community interests consulted for improvements or additions to supply.

## Table 5-9: Municipal Outdoor Facility Supply and Community Interest

| | Existing Supply | | | New Facility of Interest to Community | Comparison Supply Range (From Appendix D) | Notes |
|---|---|---|---|---|---|---|
| | # Locations (Facilities) | Population Based Provision Ratio (81,200) | Improve/ Increase[1] | | | |
| **Ball Diamonds** | 39 (15 lit / 23 unlit) | 1:5,413 (lit) 1:3,530 (unlit) | low | - | 1:5,173 to 1:2,600 | • scheduled by either City or Volunteer Management Committees, respectively[2] |
| **Athletic Fields** | 16 (4 lit /12 unlit) | 1:20,300 (lit) 1:6,766 (unlit) | moderate | - | 1:5,192 to 1:2,217 | • in addition to municipal facilities there are 2 unlit high school fields used for organized soccer |
| **Tennis/ Pickleball Courts Tennis Only Pickleball Only** | 8 tennis 12 pickleball 4 shared/dual use | 1:10,150 (tennis) 1:6,765 (pickleball) 1:20,300 (shared/ dual use) | high: pickleball moderate: tennis | - | 1:11,640 to 1:4,150 (t) 1:23,280 to 1:6.749 (p) | • 4 lit tennis courts are on school board property<br>• includes courts that are under construction now or budgeted for provision |
| **Cricket Field** | 1 informal | - | - | low | - | |

1 7 interest sources: open houses, Jump In consultation page, online resident household survey (1,101 respondents), random resi dent household survey (750 respondents), user group survey (23 respondents), interested/affected community groups, Parks Advisory Committee

2 One municipal diamond is not used, based on available information.

The following sections assess the need for each of these types of facilities to meet current and future needs over the life of the Strategic Plan.

It is noted that weekend use is not addressed, since weekends provide many additional hours that could be scheduled. Consequently, this makes total use in relation to potentially available prime time for weeknights and weekends combined very low, and ranges from 10% to 34%. It is also noted that the use of peak month to estimate available prime time is a conservative approach, given the availability of more hours in non-peak months that could be used to more evenly distribute scheduling.

Figure 5.3 shows that, although there is a wide variation in use levels, all diamonds accommodated all scheduled use on weeknights with room for additional use if the objective is to achieve 100% capacity prime time use. The graph shows that, for the most part, there is less difference between overall seasonal use and peak month use at the diamonds achieving higher peak capacities - Wilson Fields, Bobcaygeon and Fenelon Falls. This means that these diamonds are more heavily used than others throughout the season and that scheduling additional prime time use would be more difficult here than at diamonds that are less busy overall. This would be particularly difficult in rescheduling rainouts if the postponed games need to be played on these fields, as opposed to other that have more unused time.

While use information show Wilson Fields in Lindsay to be an especially active location, diamonds in other population centres including Bobcaygeon and Fenelon Falls are also very well used. User groups indicated they draw participants from a variety of communities in Kawartha Lakes (e.g. including Fenelon Falls, Oakwood, Omemee, Dunsford, Cameron, Lindsay) and from other jurisdictions (e.g., Peterborough, Trent Lakes, Durham Region).

Consultation indicated that diamonds with lower use are less attractive to user groups due to either their distance from where participants live or service level classification, and that preference is for locations with multiple fields, in or near Lindsay. Within this context, demand for time is focused on the same fields on weekday evening (Monday through Thursday after 6pm) at the larger parks, especially Wilson Fields. While it is not unusual for demand to exceed prime time available on a community's best diamonds, this does not automatically equate to an undersupply of facilities in terms of number.

Staff noted increasing interest in baseball in the past few years. Minor baseball groups are growing and there is a relatively new minor girls' team that wants more weeknight time at the same diamonds preferred by other users. User group survey respondents indicated they will need additional access to baseball diamonds over the next 5-10 years, and requested improved safety features and amenities.

This overview of supply and collective use of scheduled fields, in combination with information gathered through consultation activities, suggests an approach to assessing future facility needs that encompasses factors beyond a simple determination of actual use versus demand-based preferences including:

- the need to retain an appropriate level of distribution across the community
- practical considerations that require prime time beyond that which is scheduled (e.g., rescheduling rainouts, short-term facility unavailability due to upgrading work, etc.)
- accommodating new organized users' interest in prime time allocations
- co-locating diamonds in 2+ configurations, to the extent possible
- optimizing use of all municipal fields through upgrades and new scheduling opportunities
- working with other, non-municipal providers to access their facilities to meet needs, where appropriate (e.g., facility location, quality, mutually beneficial, etc.)

With these considerations in mind, all ball diamonds in Kawartha Lakes were initially organized geographically according to their physical location by driving time (less than 15 to 20 minutes) in relation to each other, and their function as part of a group in accommodating organized regular users. This exercise identified eight (8) groups of diamonds, each of which was given an 'area number and name' for the purposes of the following assessments. Figure 5-4 shows the groups.

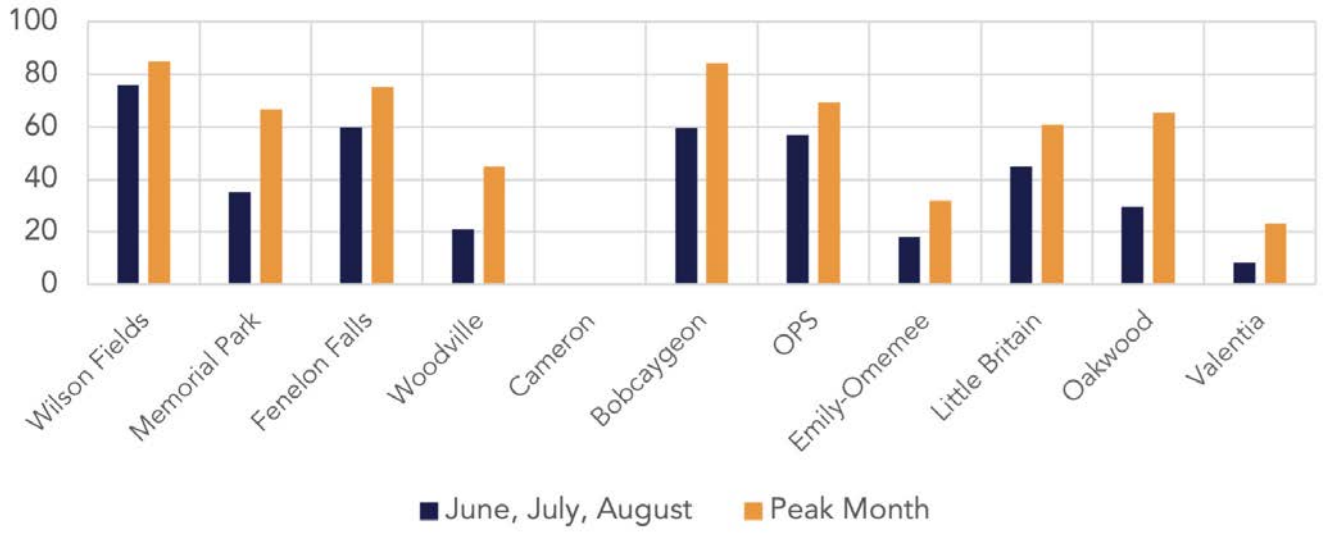



**Figure 5-3: Percent Weeknight Prime Time Ball Diamond Use 2024 by Location**

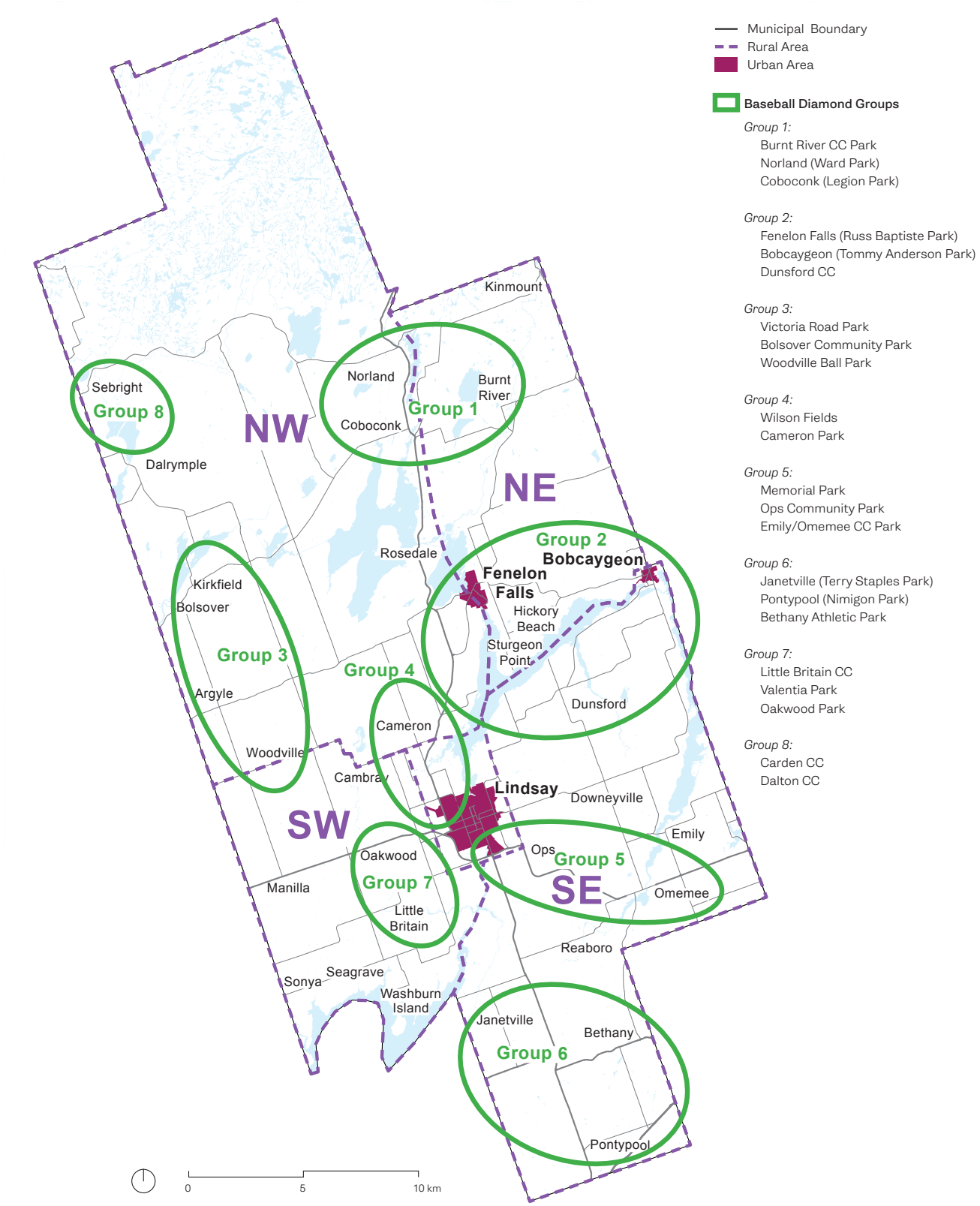



Figure 5-4: Ball Diamond Groupings for Assessment

### Group 1: Coboconk and Area

This group comprises five (5) diamonds, of which one (1) is lit and four (4) are unlit, and all are managed and booked by their associated Volunteer Management Committee (Table 5-10).

Research and consultation for the Strategic Plan noted that Burnt River CC Park functions as a tournament centre. At the same time, only one diamond is fully fenced and others have backstops only. Legion Park in Coboconk is used both by the local community and groups from Fenelon Falls, which is about a 16-minute drive distance. This location is currently under development but the diamonds will remain.

It is reasonable to suggest that these diamonds be added to the municipal scheduling system, while continuing to serve local community activity. This change will contribute to optimizing use of available prime time on these diamonds, as well as incorporating this use as part of tracking all municipal facilities. The municipality should consult with each of the three Volunteer Management Committees to determine hours to be allocated to each of the municipal scheduling system and Committee booking. The Committee managed use of ball diamonds should also be tracked and reported to the municipality to provide a complete picture of use in relation to capacity, and to allow direct comparisons across all municipally owned facilities.

Both diamonds at Legion Park have just been refurbished. The need to provide additional upgrades to existing diamonds or more facilities to serve this area during the term of the Strategic Plan will depend on demand in relation to use, as documented through monitoring activities over time.

**Table 5-10: Ball Diamond Group 1 - Coboconk and Area**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/Use Variables |
|---|---|---|---|---|
| **Burnt River CC Park** | 0 | 2 | Burnt River Volunteer Management Committee | could be moved into KL scheduling system |
| **Norland (Ward Park)** | | 1 | Norland Volunteer Management Committee | could be moved into KL scheduling system |
| **Coboconk (Legion Park)** | 1 | 1 | Coboconk Volunteer Management Committee | could be moved into KL scheduling system |
| **Totals** | **1** | **4** | | |

## Group 2: Fenelon Falls and Bobcaygeon Area

This group comprises five (5) municipal diamonds, of which two (2) are lit and three (3) are unlit (Table 5-11). The Dunsford Community Centre, which is a not-for-profit organization, has one lit diamond on its property. The Centre receives a tax rebate from the municipality for contributing to community recreation.

**Table 5-11: Ball Diamond Group 2 - Fenelon Falls and Bobcaygeon Area**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Fenelon Falls (Russ Baptiste Park)** | 1 | 2 | municipality | class: 1 A+ & 2 A | 75% | 94% |
| **Bobcaygeon (Tommy Anderson Park)** | 1 | 1 | municipality | class: 1 A+ & 1 A | 84% | 84% |
| **Dunsford Community Centre** | 1 | | community centre | not-for-profit | | |
| **Totals** | **3** | **3** | | | | |

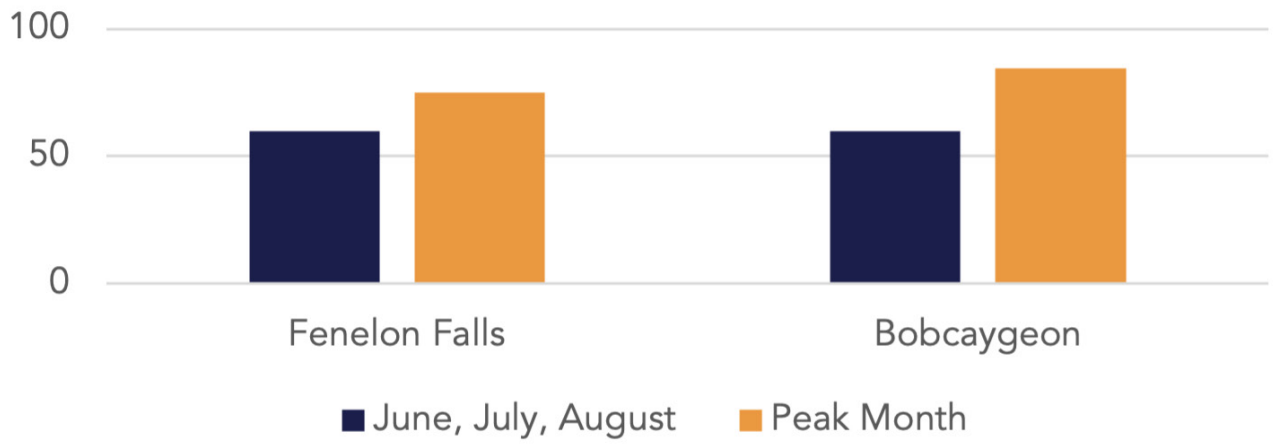



**Figure 5-5: Group 2 - Percent Weeknight Prime Time Ball Diamond Use 2024**

Five of the six diamonds in this group are owned and scheduled by the municipality, and their relatively high use is likely a reflection of both their urban locations and A to A+ classifications. Staff notes that there is demand for use that cannot be accommodated at Russ Baptiste Park diamonds. The inclusion of Friday evening in the calculation, travel to Coboconk to use diamonds, and the need to leave additional time for rescheduling rainouts, etc., suggests that these diamonds are close to capacity use (see Figure 5-5).

For the purposes of estimating future facility requirements, one lit diamond equals two unlit diamonds given the former can accommodate two bookings per evening. Group 2, therefore, totals the equivalent of (7) unlit municipal diamonds. At a current population of 6,800,[1] a population-based service level of diamonds in Bobcaygeon and Fenelon Falls is 1 for every 971 people. This is an extremely high level of service when compared to the community wide figure of 1:1,376. It also suggests that future population growth in these settlement areas to 12,573[2] will generate demand for the equivalent of a total of 13 unlit diamonds or six (6) more than existing supply. These findings very likely overestimate future need, which emphasizes the importance of ongoing accurate tracking of use of all municipally owned facilities to identify ways to collectively improve their use before considering new builds.

Neither Russ Baptiste nor Tommy Anderson Parks have large open spaces available to add diamonds but the existing facilities in both locations could be considered for lighting to add capacity, as demand for more time materializes. Currently, Legion Park in Coboconk appears to be used as a 'backup' for use that cannot be accommodated at Russ Baptiste and Tommy Anderson Parks. Subject to working with the Coboconk Volunteer Committee, the Legion Park diamonds can be added to municipality scheduled diamonds to create a 'new' seven-diamond group for this area. Upgrading and lighting the smaller diamond at Legion Park should be considered and adding another diamond here is a possibility, if needed.

Alternatively, providing an additional diamond through an agreement with the Dunsford Community Centre for access to its facility could be considered to serve unmet demand for time in Bobcaygeon, which is a 13-minute drive from the Centre. This type of arrangement, depending on upgrading requirements to the Dunsford diamond, might prove more cost-effective than adding a new municipal facility. Opportunities to secure guaranteed access to School Board diamonds could also be investigated, depending on the quality and suitability of the facilities.

1 Dillon Consulting. 2025 Growth Management Strategy Projected Growth for Fenelon Falls, Bobcaygeon, Omemee, and Lindsay (2021-2040)
2 Ibid.

## Group 3: Kirkfield and Area

This group comprises four (4) diamonds, of which two (2) are lit and two (2) are unlit (Table 5-12).

**Table 5-12: Ball Diamond Group 3 - Kirkfield and Area**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Victoria Road Park** | 1 | | Volunteer group | scheduled by the volunteers for use by local leagues; could be moved into KL scheduling system | | |
| **Bolsover Community Park** | | 1 | Bolsover Volunteer Management Committee | small; for neighbourhood and hall use | NA | NA |
| **Woodville Ball Park** | 1 | 1 | municipality | class: 1 A & 1 C; canteen/washroom | 45% | 54% |
| **Totals** | **2** | **2** | | | | |

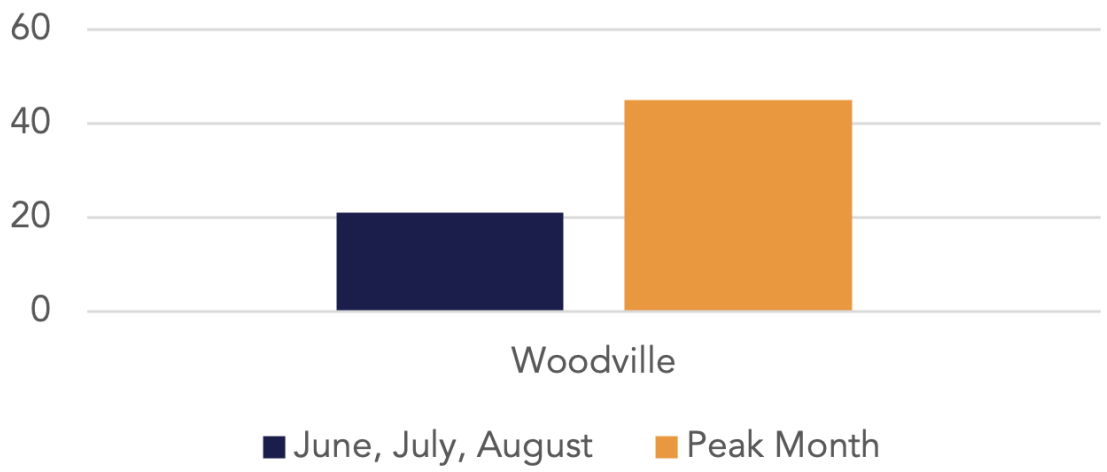



**Figure 5-6: Group 3 - Percent Weeknight Prime Time Ball Diamond Use 2024**

The two (2) diamonds at Woodville Ball Park are scheduled by the municipality. The Bolsover Community Park diamond is booked by the associated Volunteer Management Committee. Use appears to comprise either casual pick-up play or part of hall rentals for social events. The extent to which Victoria Road Park diamond could be used for additional organized activity will depend on the amount of time that is not used by local leagues.

Figure 5-6 shows relatively low prime time use of the Woodville diamonds. The existing canteen/washroom is to be refurbished as part of an objective to create an outdoor recreation hub at this Park. These improvements will support increased organized use of prime time here. The Victoria Road Park diamond can also be improved, as needed, to provide access and add to the area's supply of municipally scheduled facilities. The drive time from Woodville to the Victoria Road Park diamond in Kirkfield is approximately 18 minutes.

Given the potential to accommodate increased use at these diamonds, and while subject to ongoing monitoring to confirm use levels, no additional diamonds should be required in this area during the term of the Strategic Plan.

**Woodville Baseball Diamond**

## Group 4: Northwest Lindsay

This group comprises eight (8) diamonds, of which four (4) are lit and four (4) are unlit (Table 5-13). The scrub diamond at George Street Park will also be removed as a master plan for its development is implemented.

**Table 5-13: Ball Diamond Group 4 - Northwest Lindsay**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Wilson Fields** | 3 | 4 | municipality | class: 3 A+ & 4 A | 85% | 54% |
| **Cameron** | 1 | | municipality | upgraded from B to A+ for 2025 season | 0 | NA |
| **George Street Park** | | 1 | | scrub diamond to be removed | NA | NA |
| **Fenelon Township CC** | 1 | | | class C | minimal use | |
| **Totals** | **4** | **4** | | | | |

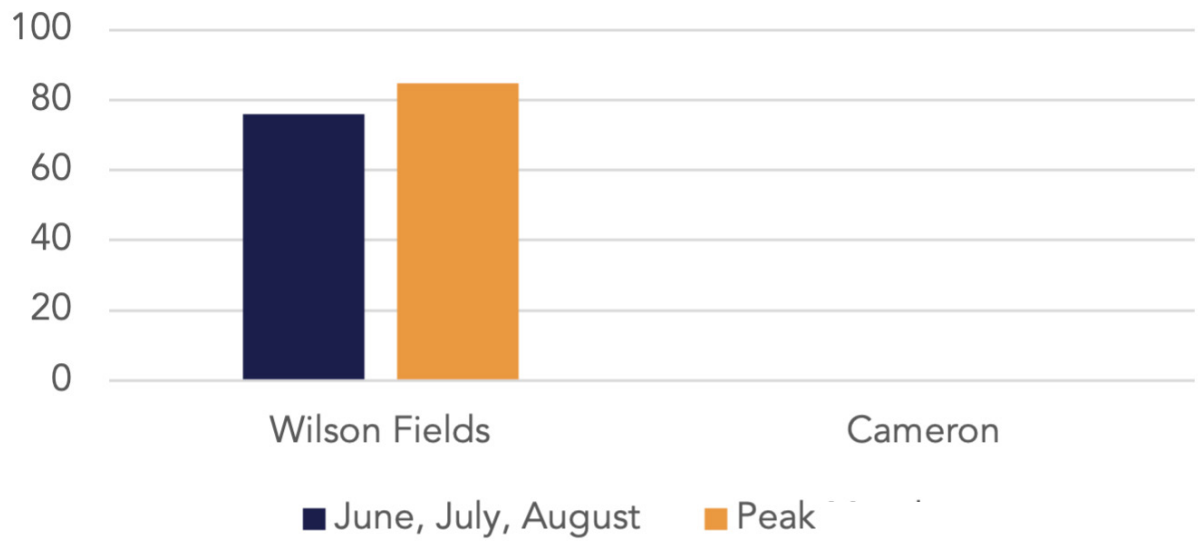



**Figure 5-7: Group 4 - Percent Weeknight Prime Time Ball Diamond Use 2024**

All eight (8) diamonds in this group are scheduled by the municipality. As with Group 2, high use of Wilson Fields reflects both its location in an urban area and the diamonds' A to A+ classifications. The Cameron diamond is an 8-minute drive from Wilson Fields. Although Figure 5-7 shows it has not been used in recent years, it has just been upgraded to an A+ class in anticipation of growth in minor baseball in Lindsay. As such, it is now comparable to those at Wilson Fields and will add one full diamond of prime time to supply.

**Wilson Fields Baseball Diamond**

## Group 5: Southeast Lindsay

This group comprises five (5) diamonds, of which three (3) are lit and two (2) are unlit (Table 5-14). A plan for the redevelopment of Ops Park will be implemented and will include the replacement of the existing diamonds with no change in the number or type of facilities. The small diamond, however, will be upgraded to a higher quality facility. Current scheduled use, which is limited to Monday through Thursday evenings, reflects relatively high levels in relation to capacity. As shown below, however, including Friday evening prime time allows each location to accommodate increased use.

**Table 5-14: Ball Diamond Group 5 - Southeast Lindsay**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Memorial Park** | | 1 | municipality | class: B | 67% | 100% |
| **Ops** | 2 | 1 | municipality | class: 1 A+, 1 A & 1 C | 69% | 66% |
| **Emily/Omemee CC Park** | **1** | | municipality | class: A+ | 32% | 100% |
| **Totals** | **3** | **2** | | | | |

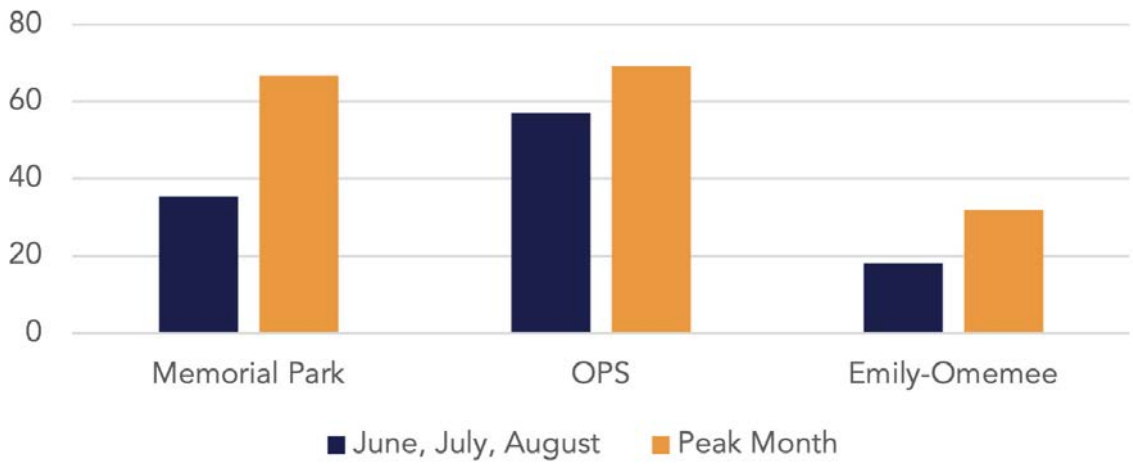



**Figure 5-8: Group 5 - Percent Weeknight Prime Time Ball Diamond Use 2024**

Drive time between each of these locations supports joint scheduling as a group to optimize their use. The farthest drive distance is between Emily-Omemee CC and Memorial Park at 18 minutes, followed by 12 minutes between Emily-Omemee and Ops, and 6 minutes from Ops to Memorial Park.

The redevelopment concept for Ops Park will replace the existing diamonds and will also add new athletic fields. The unlit diamond is currently used for youth ball and the replacement diamond will be designed and upgraded for minor use. These facilities will be part of a major indoor-outdoor recreation hub that is recommended to include a twin pad arena, as discussed in section 5.4.

Emily-Omemee serves minor use that cannot be accommodated at Ops and should continue to do so in the early evening hours, while the two lit diamonds at Ops and the later hours at Emily-Omemee should be designated for older minor and adult activity. As shown in Figure 5-8, use at Emily-Omemee is especially low since no late-night activity requiring lights occurs now. Memorial Park is a minor diamond with no room to enlarge. It will continue to accommodate minor use and should be upgraded to compare to the replacement diamond at Ops.

For the purposes of estimating future facility requirements, Groups 4 and 5 total the equivalent of 20 unlit diamonds. At a current population of 25,700,[1] a population-based service level of diamonds in Lindsay and Omemee is 1 for every 1,285 people. This is a slightly higher level of service than the community-wide figure of 1:1,376. Future population growth in the Lindsay-Omemee area to 48,854[2] will generate demand for the equivalent of a total of 38 unlit diamonds or 18 more than existing supply.

Given that the area is anticipated to almost double its population, a projection based on number of fields in relation to number of people inevitably produces an equivalent increase in supply. Aligning future provision with actual need, therefore, will depend on ongoing, accurate tracking of use of all municipally owned facilities to identify ways to collectively improve their use and adjust additions to supply in response. For example, if each of the diamonds in Group 5 is assumed to be able to accommodate 80% capacity using a Monday through Friday evening prime-time definition and allowing time for rainouts to be rescheduled, Memorial, Ops and Emily-Omemee could accommodate 13%, 11%, and 42% more use, respectively. Expanding the use of these diamonds as population grows, therefore, will accordingly reduce the need for more capacity to translate into new diamonds.

1 Dillon Consulting. 2025 Growth Management Strategy Projected Growth for Fenelon Falls, Bobcaygeon, Omemee, and Lindsay (2021-2040), as shown above on p. XX of the Strategic Plan.
2 Ibid.

## Group 6: Pontypool and Area

This group comprises two (2) municipal diamonds - one (1) lit and one (1) unlit - and a diamond owned, maintained and operated by the Bethany Athletic Society (Table 5-15). The Society is a not-for-profit organization that receives a tax rebate from the municipality for contributing to community recreation.

Like Group 1, the two municipally owned fields - in collaboration with the Janetville Management Committee and the Pontypool Park Board - should be moved into the municipal scheduling system for access to some portion of prime time. As part of this initiative, all use would become part of ongoing monitoring and tracking to provide a complete picture of use in relation to capacity and to allow direct comparisons across all municipally owned facilities.

Required capital expenditures to upgrade these diamonds for organized use should be completed by the municipality. If demand for additional facility access should emerge after capital and operating improvements to municipal diamonds are implemented and use is evaluated, an agreement with the Bethany Athletic Society for access to its facility could be considered before adding another diamond to municipal supply.

**Table 5-15: Ball Diamond Group 6 - Pontypool and Area**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/Use Variables |
|---|---|---|---|---|
| | | | | |
| **Janetville (Terry Staples Park)** | | 1 | Janetville Volunteer Management Committee | could be moved into KL scheduling system |
| **Pontypool (Nimigon Park)** | 1 | | Pontypool Park Board | could be moved into KL scheduling system |
| **Bethany** | | 1 | Bethany Athletic Society | not for profit |
| **Totals** | **1** | **2** | | |

### Group 6: Little Britain and Area

This group comprises six (6) municipal diamonds, of which two (2) are lit and four (4) are unlit (Table 5-16). As with Group 5 diamonds, if use on these facilities was increased to 80% capacity on a Monday through Friday prime time definition, Little Britain, Oakwood and Valentia could accommodate an additional 19%, 14% and 57%, respectively. Although only a 7-minute drive from Little Britain, Valentia is a single facility in a neighbourhood park. The use shown above is minor baseball, which can be monitored to determine if the diamond will be needed over the long term or if it should be considered for removal.

**Table 5-16: Ball Diamond Group 7 - Little Britain and Area**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Little Britain CC** | 1 | 2 | municipality | class: 1 A+ & 2 A; lit is hardball; 1 clay and 2 screenings | 61% | 60% |
| **Valentia** | | 1 | municipality | C | 23% | 100% |
| **Oakwood Park** | 1 | 1 | municipality | class: 1 A+ & 2 A; lit diamond is used; unlit is not used | 66% | 83% |
| **Totals** | **2** | **4** | | | | |

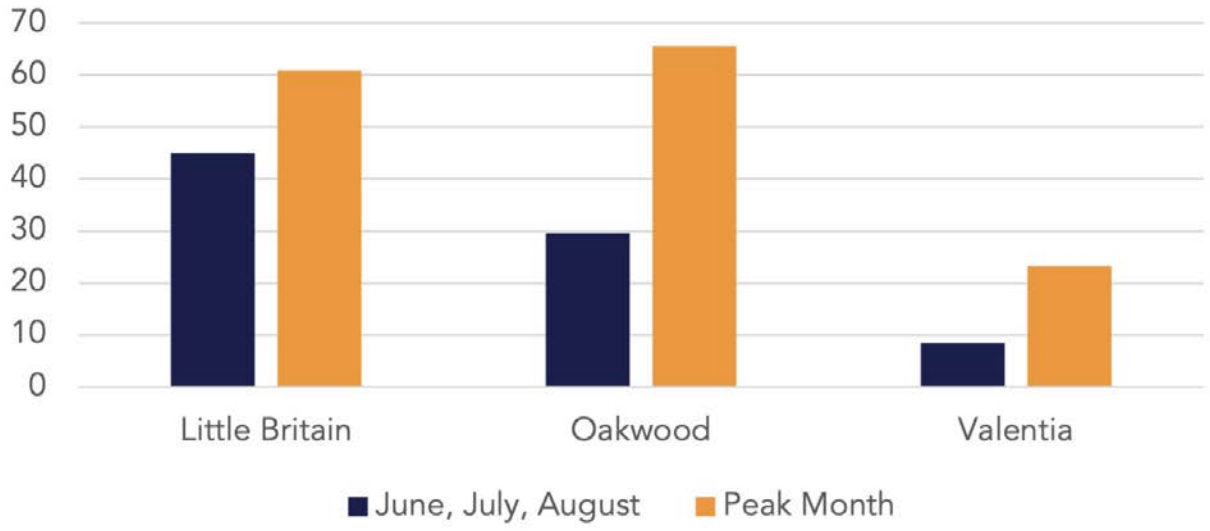



**Figure 5-9: Group 7 - Percent Weeknight Prime Time Ball Diamond Use 2024**

### Group 8 - Sebright

This group comprises three (3) unlit municipal diamonds (Table 5-17).

**Table 5-17: Ball Diamond Group 8 - Sebright**

| Location | # Lit | # Unlit | Scheduled by | Known or Possible Supply/Use Variables |
|---|---|---|---|---|
| **Carden CC** | | 2 | Carden Volunteer Management Committee | no information on use; not close to other areas ; one diamond is for community pick-up play |
| **Dalton CC** | | 1 | Dalton Volunteer Management Committee | no information on use; not close to other areas; neighbourhood facility |
| **Totals** | **0** | **3** | | |

### Operations to Optimize Use of All Diamonds

The above discussions addressed groups of ball diamonds that generally function together in providing needed access to facilities throughout Kawartha Lakes. There are several approaches to optimizing use on all facilities that should be considered as a more integrated system of scheduling and monitoring activity is implemented. This section looks at prime-time definitions and fees charged for use. Section 5-6 considers facility allocation for both scheduled and unscheduled facilities.

### Prime-time

As noted above, weeknight prime time is now driven by user groups' preferences for Monday through Thursday evenings. This definition of prime time has endured as a tradition in many Ontario communities. Increasingly, however, municipalities are incorporating Friday evenings in regular scheduling to make better use of existing facilities. This is especially important to optimize investment in meeting needs that now comprise both replacing aging infrastructure and providing new facilities to serve population growth. While one evening a week per diamond can seem like a minimal amount of additional time, collectively it can expand use considerably. The foregoing calculations included a Monday through Friday definition of evening prime time to illustrate the effect on scheduled use in relation to capacity by distributing it over five instead of four evenings. For these reasons, the formal definition of prime time discussed above should be adopted: Monday through Friday evenings, from 6 to 11pm on lit diamonds, and from 6 to 9pm on unlit diamonds.

Moreover, comparing seasonal and peak month use to estimate available prime time supports working towards a more even distribution of activity across the season. Shifting seasonal use away from long-established patterns will likely not be easy. Working with users over time, however, to make overall better use

of facilities in June, July and August may prove mutually beneficial to the municipality and user groups.

Alongside extending weeknight use of diamonds, the potential to increase weekend use is considerable. Theoretically, weekends can also be considered 'prime-time' but to do so in calculating overall use of diamonds in relation to capacity would reduce it significantly. A cursory look at total use of weekly prime time that includes five weeknights, Saturdays and Sundays results in a range of 10% (Valentia) to 35% at (Wilson Fields) use in relation to capacity during the peak month.

**User Fees**

Along with a formal definition of prime time, the fee structure for diamonds should be revised. The municipality's current fees are for 2-hour bookings, based on the expectation that a game requires two hours. User groups sometimes book 3 hours for two games or practices. Users are charged fees for 2 blocks of time, and the 3rd hour is pro-rated. A simpler approach may be to charge an hourly[1] fee for each hour scheduled, which may free up time for additional bookings. While the fee may be the same for both prime and non-prime time, a per hour charge will also help relate scheduling directly to use during high demand times.

1 Excludes Cameron, which was not used.

## RECOMMENDATIONS

F 24. Adopt a collective 'group' approach (using the eight groups described herein) to the function of ball diamonds to better serve communities throughout Kawartha Lakes and optimize municipal investment in facility provision.

F 25. Incorporate Friday evenings into prime time diamond scheduling.

F 26. Formalize definition of prime time to 6pm to 9pm and 6pm to 11pm Monday through Friday on unlit and lit diamonds, respectively.

F 27. Revise rates to charge an hourly fee for each hour scheduled.

F 28. Working with Volunteer Management Committees, integrate 'bookable' municipal diamonds into the scheduling and use tracking system and allocate agreed-upon prime times for organized use.

F 29. Complete required capital upgrades on volunteer managed diamonds to be used for expanded organized use.

F 30. Increase weekend use of diamonds to the extent possible.

F 31. Work with organized users to investigate options to better distribute diamond use throughout June, July and August.

F 32. With prime time definitions, additional bookable diamonds, and revised fee structure in place, continue to track use of all municipal ball diamonds to verify unmet demand for additional access to facilities due to population growth and participation.

F 33. Prior to building new facilities consider ways to optimize the use of existing diamonds through capital improvements (e.g., lighting), and agreements to access not-for-profit and school diamonds.

F 34. If the Valentia diamond is not needed over the long term consider it for removal from supply.

## 5.5.3 Athletic Fields

Athletic fields in Kawartha Lakes that are used for organized sport include municipal fields and fields belonging to the Public and Catholic School Boards. I.E. Weldon Secondary School and St. Thomas Aquinas Catholic Secondary School each have a full size, unlit field. These school fields are scheduled by the Kawartha Lakes Soccer Club through the Boards. Fenelon Falls Secondary School also has an unlit field, which is not scheduled. Figure 5-9 illustrates the prime time use of scheduled municipal fields by location for 2024 using the same parameters as for ball diamonds:

- the three (3) busiest months of June, July and August, and the peak month among these three.
- prime time totals five (5) hours for lit fields and three (3) hours for unlit fields from Monday through Friday evenings, and calculations include all scheduled use in prime time weeknight hours to compare total use to weeknight capacity that includes one additional evening.
- weekend use is not included, since the availability of many additional weekend hours that could be scheduled reflects very low use in relation to capacity, ranging from 1% to 30% during the peak month.

"The COKL (City of Kawartha Lakes) currently has fewer soccer fields than we require to run our soccer programs. We already have to negotiate with other local soccer organizations every year to share the fields, since we all want to use them primarily on weeknights. With every soccer program expanding over the past few years, and the city's population projected to skyrocket due to new development, the field situation is going to get worse. The addition of two new soccer fields (Plan A) would have a significant impact for the hundreds of children and adults that play soccer in our community. In addition, people that play other sports like football, baseball, cricket, etc... will also benefit from using the new fields."

Source: Open letter to community from Kawartha Lakes Soccer Club

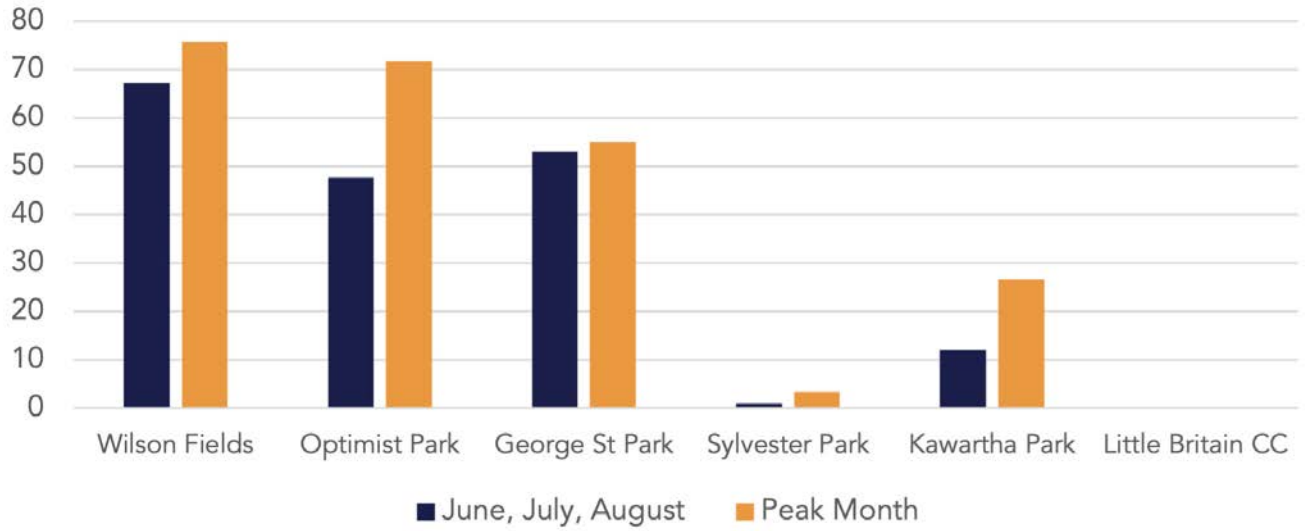



**Figure 5-10: Group 7 - Percent Weeknight Prime Time Ball Diamond Use 2024**

Figure 5-10 shows that use is concentrated at Wilson Fields and Optimist Park. At Wilson Fields, in particular, there is less difference between overall seasonal use and peak month use. This means that the fields here are more heavily used than others throughout the season and that scheduling additional prime time use would be more difficult here than at those that are less busy overall. At the same time, if the objective is to achieve 100% capacity use of prime time, there is time available on all fields - and particularly at Sylvester Park and Little Britain CC. The field at Little Britain CC is surrounded by a track and limited in the types of play it can accommodate due to size. Redevelopment at Sylvester Park started mid-season in 2024, which restricted its use for the remainder of the season. As with ball diamonds, however, rescheduling rainouts at the most heavily used fields would be difficult unless they can be transferred to the least used locations.

User groups highlighted a need for more lit soccer fields to enable evening games. Nearly all interests consulted noted a need for more soccer fields to meet current and future demand, with a particular need for additional pitches in the municipality's northern areas. Staff noted that although the BGC uses school facilities in Fenelon Falls, Omemee, and Bobcaygeon for its soccer program, and that a local group makes informal use of Norland Ward Park, organized soccer for all age groups occurs in Lindsay.

The approach to assessing future facility needs that works to balance supply with demand based on use versus preferences includes most of the same factors as those considered for ball diamonds:

- practical considerations that require prime time beyond that which is scheduled (e.g., rescheduling rainouts, short-term facility unavailability due to upgrading work, etc.)

- accommodating new organized users' interest in prime time allocations
- optimizing use of all municipal fields through upgrades and new scheduling opportunities
- improving distribution across the community
- co-locating fields in 2+ configurations, to the extent possible

Unlike ball diamonds, the current distribution and use levels of athletic fields present limits to improving the last two variables, while balancing supply and demand based on use. As shown in Table 5-18, the five locations depicted in Figure 5-9 are largely concentrated in Lindsay and the immediate area - either in the City's north end, south side or relatively close by at Little Britain and Oakwood CCs. Except for Wilson Fields, Optimist Park, and the proposed development at Ops, all other locations comprise a single field. Moreover, most of these are either not, or minimally, used for scheduled activity. The existing geographic configuration and use levels, therefore, precludes opportunities to improve distribution and co-locate fields without creating an oversupply of facilities if existing field use is to be optimized.

Table 5-18 lists the athletic fields in Kawartha Lakes that are used, or potentially available for, organized activity. They are grouped by locations that generally align with those used for ball diamonds. It is understood, however, that the Kawartha Lakes Soccer Club is the primary soccer organization in the municipality and uses fields throughout Lindsay. George Street Park is used by Boys and Girls Club and another soccer program for young children.

Projects under development projects will provide two new fields at Ops and an improved facility at Sylvester Park, two of which will be lit. An assembly sized field will be added to George Street Park as part of the site's redevelopment.

## Table 5-18: Municipal and School Board Athletic Fields Municipal and School Board Athletic Fields

| | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **Lindsay North** | | | | | | |
| **Wilson Fields (Wilson Fields West)** | 2 | 1 | municipality | class: 2 A+ and 1A<br>Field 1: full size with lights<br>Field 2: U11/U12 rep | 76% June | 54% |
| **Optimist Park (Wilson Fields East)** | | 3 | municipality | class: 3 A; 3 fields split for concurrent use<br>Field 4A & 4B: U9/U10 rep<br>Field 5C: U11/U12 rep | 72% June | 44% |
| **Auden Park** | | 1 | municipal; not scheduled | informally used as three mini-fields for small children | | |
| **George Street Park** | | 1 | municipality | class: A | 55% July | 100% |
| **Sylvester Park** | 1 | | municipality | A; U9/U10 rep; will be scheduling play 2027 | 3% June | 100% |
| **Elgin Park** | | 1 | municipal; not scheduled | would need to be improved to be scheduled | 0 | 0 |
| **Kawartha Park (joint with Lindsay Collegiate and Vocational Institute)** | | 1 | municipality | class: A; full size | 27% June | 83% |
| **St. Thomas Aquinas CSS** | | 1 | KLSC through Board | class: full size | - | - |
| **Lindsay South** | | | | | | |
| **Ops** | 1 | 1 | municipality | class: 1 A+ and 1A; natural turf & 1 artificial turf (lit) | - | - |
| **Weldon Secondary School** | | 1 | KLSC through Board | full size | - | - |
| **West** | | | | | | |
| **Little Britain CC** | | 1 | municipal; not scheduled | class: B; track | 0 | 0 |
| **Oakwood CC Park** | | 1 | municipal; not scheduled | class: B<br>would need to be improved to be scheduled. | 0 | 0 |

## Table 5.19 Continued: Municipal and School Board Athletic Fields Municipal and School Board Athletic Fields

| | # Lit | # Unlit | Scheduled by | Known or Possible Supply/ Use Variables | Prime Time Use Peak Month | |
|---|---|---|---|---|---|---|
| | | | | | % Weekday Evenings (M-F) | % Minor |
| **North** | | | | | | |
| **Coboconk (Legion Park)** | | 1 | municipal; not scheduled | green space informally used for mini/minor soccer, not a formal pitch | 0 | 0 |
| **Fenelon Falls Secondary School** | | 1 | Board owned; not scheduled | | 0 | 0 |
| **Municipal Totals** | 4 | 12 | | | | |
| **Municipal + School Totals** | 4 | 15 | | | | |

The equivalent of 11 unlit fields are meeting demand now based on municipally scheduled and School Board fields noted in Table 5-18: eight (8) at Wilson Fields and Optimist Park, one (1) that combines use at George Street and Kawartha Park, and the two (2) high school fields in Lindsay. As with ball diamonds, less than 100% capacity use of prime time allows for time to reschedule rainouts, etc. This excludes all municipal fields that are not currently scheduled (Elgin, Oakwood, Little Britain and Auden Parks) and the Fenelon Falls Secondary School field. The space used at Legion Park is not a formal field but included in the total since it functions as an athletic (soccer) field.

A current population-based supply level, therefore, is the equivalent of one unlit field for every 7,382 people (1:7,382). Growth to 2040 will generate demand for the equivalent of 15 unlit fields or four (4) more fields than existing supply (111,650/7,832). Since essentially all soccer activity occurs in Lindsay, it is reasonable to suggest that these facilities are needed in Lindsay and the immediate area. Additional fields, therefore, will be needed to serve population growth areas outside of Lindsay. Overall athletic field requirements are discussed by area below.

**Lindsay North and South**

Wilson Fields (Wilson Fields West) and Optimist Park (Wilson Fields East) are essentially the same location and collectively comprise a major soccer centre for Kawartha Lakes. These six (6) athletic fields (2 lit and 4 unlit) are noticeably the most heavily used of all municipal athletic fields.

It was indicated by staff that there is some competition for early evening access (6 to 8pm) to the unlit field at Wilson Fields in the spring. Once operational, the new field at nearby Sylvester Park can be used to shift some of the early evening use from Wilson Fields, which will reduce pressure on these facilities.

Auden Park is very close to Wilson Fields/Optimist Park. It is currently not scheduled and used informally as three small fields for young children. There are no mini-fields in municipal supply, and existing use here suggests that formal mini-fields are needed for very young players and should be provided in a central location elsewhere in Kawartha Lakes with parking that cannot be provided at Auden Park.

As noted above, user groups are interested in additional lit fields. Sylvester Park is undergoing redevelopment as part of an expansion due to residential development in the area served by the Park. The field is currently unlit but will be lit as part of this master plan project, which will include a parking lot, spectator seating, and a washroom. This field will be ready for use in 2027. The Ops site will be developed with two additional athletic fields: one lit artificial turf and one natural

turf field. Monitoring the performance of these new additions to lit fields will confirm the need for more than four total. If required, lighting the natural turf field at Ops should be considered to provide two lit facilities and contribute to this location's major recreation hub function.

There is interest among groups to use fields prior to the 'official' May 15 start of the season. Using natural fields in early spring increases the risk of significant damage and would require seasonal grooming to take place much earlier when the fields are still wet. Once the artificial turf field at Ops is operating, access prior to May 15 may be possible and can be piloted in the first year.

Kawartha Park field is municipally owned and available for organized community activity on evening and weekends, and is used by the school during academic hours (along with the track). It is an irrigated field with parking. It was noted that with the development of facilities at the Lindsay Rugby Football Club, use at Kawartha Park has declined. As noted in Table 5-18, there is considerable potential for increased scheduling here. Maintenance has recently been increased at Kawartha Park and, in response, one user group has shifted from Wilson fields to this location since its preferred time is available here. Elgin Park has a soccer field that is not used now but could be improved to allow scheduling for minor use.

With respect to the two high school fields used by KLSC, if they continue to be needed after additions and improvements to municipal fields are in place and monitored, and they require upgrades to do so, the City should consider entering agreements with one or both School Boards to improve the facilities in exchange for guaranteed community access to these facilities outside academic use.

In summary, potential improvements to existing municipal fields and new development can add the equivalent of seven (7) unlit fields: Sylvester (2), Elgin (1), Ops (3) and George Street (1). It is noted that the lit, artificial turf field at Ops will provide more time than a natural turf field, although prime time demand will likely be the same as for other fields. These facilities either will be or could be operational soon, which will considerably increase field capacity in Lindsay. This assumes that high school fields will also continue to be used and can be more formally incorporated in supply through agreements, if required.

As current development projects/plans, Ops, George Street and Sylvester Parks will add the equivalent of six (6) fields to supply, which will more than satisfy the population-based projection for Lindsay. Sylvester Park can be used to reduce pressure on Wilson Fields. Potential improvements to Elgin Park field can be considered for increasing capacity once these new fields are operational and monitored to evaluate their impact on use of all fields. The level of supply anticipated suggests there may be opportunity to also accommodate mini fields within new field footprints at locations that can meet parking requirements.

**West**

The fields at Little Britain CC and Oakwood CC Park are not scheduled, although the former is used by the adjacent school. The collective impact on the use of all facilities of the fields being built or planned now in Lindsay will be known after several years of operations. The need for additional fields can be verified after this point, and the potential to provide future athletic fields at outdoor recreation hubs in, for example, Little Britain or Woodville can be determined.

**North**

The 'field' noted in Legion Park in Coboconk is a municipal green space that provides an informal field. Although Coboconk is an appropriate location for facilities to serve the north end of Kawartha Lakes and the Legion Park might be a location to provide a formal field in the long-term, there remains a large 'gap' between here and Lindsay.

Fenelon Falls is a more central location for fields in areas north, east and west of Sturgeon Point. As noted above, population growth in Fenelon Falls/ Bobcaygeon is projected to increase by 85% (from 6,800 to 12,573) to 2040. As with agreements with the School Board on facilities in Lindsay, accessing the field at Fenelon Falls Secondary School to accommodate organized users in the north would be a preferred approach to meeting need that may emerge with population growth. Should demand beyond the use of this field materialize two A class municipal fields could be provided in Fenelon Falls. A possible location for development is the Fenelon Falls Community Centre property, which would contribute to creating a 'soccer hub' in the north end of Kawartha Lakes. This would require an amendment to the current agreement the City has with the Agricultural Society for use of the property to develop these facilities.

**Operations to Optimize Use of All Athletic Fields**

The open letter to the community from the Kawartha Lakes Soccer Club noted that "people that play other sports like football, baseball, cricket, etc....will also benefit from using [the] new fields." At this point, it appears that athletic fields are being used exclusively for soccer. Potential growth in other field sports, however, may require the municipality to accommodate new uses/groups on these fields if demand materializes through monitoring activities. In the short to medium term, planned additions and recommended improvements to supply should provide access to fields by new user groups. This will enhance the multi-function potential of athletic fields for a variety of uses beyond soccer.

Many of the considerations discussed with respect to ball diamonds also apply to athletic fields including formalizing the 'definition' of weeknight prime time and including Monday through Friday evenings, increasing use of fields on weekends, working to schedule seasonal activity more evenly across the season to increase the use of fields in 'non-peak' months, revising the fee structure to hourly rates and allocation practices (discussed in Section 5.6).

## RECOMMENDATIONS

F 35. Incorporate Friday evenings into prime time athletic field scheduling.

F 36. Formalize definition of prime time to 6pm to 9pm and 6pm to 11pm Monday through Friday on unlit and lit fields, respectively.

F 37. Revise rates to charge an hourly fee for each hour scheduled.

F 38. Increase weekend use of fields to the extent possible.

F 39. Work with organized users to investigate options to better distribute field use throughout June, July and August and to schedule games times to minimize competition for the same allocations.

F 40. With prime time definitions and revised fee structure, and potential increased use on weekends and in non-peak months, continue to track use of all municipal athletic fields to verify unmet demand for additional access to facilities due to population growth and participation in soccer and other field sports.

F 41. Once operational, use the new field at Sylvester Park to shift some of the early evening use from Wilson Fields to this location.

F 42. The completion of Ops, George Street and Sylvester Parks development will add the equivalent of six (6) unlit fields to supply, which will satisfy the population-based facility need projection for Lindsay.

F 43. Once the artificial turf field at Ops is operating, pilot access prior to May 15 during its first year for interested groups.

F 44. Monitor the performance of new additions to lit fields to confirm the need for more than four (4) total based on trends in participation that increase need beyond population growth.

F 45. If improvements are needed to sustain use of high school athletic fields for organized users, consider entering agreements with one or both School Boards to improve the facilities in exchange for guaranteed community access.

F 46. If required later, light the natural turf field at Ops to provide two (2) lit facilities and to contribute to this location's major recreation hub function.

F 47. If required later, upgrade Elgin Park field to accommodate organized use.

F 48. Working with the Agricultural Society to amend its agreement for use of the property, provide two (2) A class athletic fields in Fenelon Falls to anticipate area population growth.

## 5.5.4 Cricket Field

There are no formal cricket fields in Kawartha Lakes. Although the Optimist Club has been working to create a designated cricket space, play to date has comprised very casual use of available park space in different locations. Staff indicated that there is room in Optimist Park for a cricket field and informal use occurs here now. Although cricket games are now typically held on weekends and may not impact weekday use, should cricket use that occupies a portion of space on the athletic fields increase, it could create difficulties in scheduling both types of uses in a particularly busy park. Moreover, casual use of open spaces and other facilities such as ball diamonds does not provide the needed infrastructure to fully support cricket as an emerging sport in view of growth in participation.

Current trends suggest growth in cricket is exploding across the country and facilities fall short of demand. Ontario municipalities that are now providing/ planning cricket fields include the Town of Caledon, the Municipality of Clarington, and the City of Stratford. The City of Toronto and the Cities of Cambridge, Kitchener and Waterloo have developed formal cricket strategies. Growth in participation is being driven by an increasingly multicultural national population and shortened versions of the game. The Twenty20 (T20) format, for example, has shortened the time to complete a match from the traditional six to eight hours to three. [1]

The increasing interest in cricket has resulted in more facilities, leagues, and tournaments across the country. Canada's National Men's Team played its first-ever International Cricket Council T20 World Cup in 2024 and Canada hosted its first international series since 2015 with the debut of the No Frills T20 Cup in King City, Ontario in the same year - both of which have increased the profile of the game in Canada and underscore cricket's rising prominence in country's sports landscape.[2]

Cricket Canada's Strategic Plan 2022-2026[3] suggests a continuing focus on developmental programming through the following initiatives:

- increasing participation growth through school programs, training and education and infrastructure
- implementing Cricket Canada Kids (schools and community) in all provinces
- finalizing the national officials and coach certification program

A strategic alliance known as Boundaries North (announced April 2023) will lead a series of new initiatives across Canadian cricket. Boundaries North includes Women's, Emerging, Inclusive and Community (WEIC) Sports, formerly known as Teams Canada, and Cricket Canada, which will work with all relevant public and private stakeholders to support and grow the sport. "The longterm initiative with Cricket Canada will be focused on growing cricket participation for men and women. This includes establishing a supporting infrastructure and investing

1 https://media.cricheroes.in/your_web/canada/cricket_canada_strategy_plan_2022_2026.pdf
2 https://financialpost.com/pmn/business-wire-news-releases-pmn/cricket-in-canada-celebrates-a-historic-year-of-international-success-record-partnerships-and-growing-fanbase
3 Ibid.

in opportunities for all cricketers in Canada - grassroots, community, amateur, professional and national team programs."[4]

"Boundaries North expects participation rates to double in the next 10 years, growing to more than 500,000 players across the country, based on data collected by Cricket Canada, government forecasts on immigration and research on Canada sport. That optimism is partly fuelled by the more than five million Canadians who have immigrated from the world's top cricket-playing countries. It's also aided by the country's record levels of population growth. Canada is currently the fastest-growing country in the G7 and welcomed more than 430,000 international migrants last year."[5]

While the strongest indicator of need for a cricket pitch in Kawartha Lakes is use of existing spaces, the above-noted trends suggest considerable potential to grow the sport at the community level - including club development with existing, interested participants. Moreover, if a municipal field is provided in a timely manner, it may be one of a limited number of facilities to serve a larger geographic area. The nearest facility is in the City of Peterborough. A new field in Kawartha Lakes could draw participants to a Kawartha Lakes-based club or provide facilities for clubs based elsewhere. It could also serve Fleming College's intramural and varsity sports programs. More generally, responding to Canadians' shifts in participation through facility provision will contribute to building a more diverse sport community.

Given the community's current interest in cricket and population growth that will very likely generate additional demand for participation, and the disadvantages to using existing spaces for play, the municipality should plan to develop a formal cricket field. A review of readily available online information indicates that providing the maximum required diameter of a pitch for men's play (140m to 150m), will accommodate all other levels within the same area with roped 'boundaries' that delineate the perimeter of the field. Pitch diameters for junior boys and girls (U9 to U15) range from 60m to 120m, and for women from 110m to 130m.[6] Parking and amenities to serve users would also be required. Depending on the extent of the market to be accommodated (i.e., beyond local and including tournaments), amenities would likely include a building for washrooms, changerooms, food services, an office and storage.

Providing a cricket field in Lindsay would be central to most potential users - including Kawartha Lakes residents, Fleming College students and other population centres. Given the lack of a formal field in the community now, and interest among residents to provide one, its development should be a relatively high priority. Despite the need to also increase access to ball diamonds and athletic fields for soccer, etc., there are many of both in existing supply. Both local interest and broader trends in sport diversification that includes cricket support its reflection in Kawartha Lakes facility supply. A possible location is the Fleming College property, and the option to develop a municipal field with a long-term land lease or to jointly build and operate a facility with the College should be investigated.

4 https://www.businesswire.com/news/home/20230421005096/en/Canadian-Sports-Investment-Group- Launches-'Boundaries-North'-to-Drive-Growth-for-Cricket-in-Canada
5 https://www.theglobeandmail.com/sports/article-boundaries-north-looks-to-expand-cricket-in-canada-as-countrymakes/
6 https://www.theglobeandmail.com/sports/article-boundaries-north-looks-to-expand-cricket-in-canada-as-countrymakes/

## RECOMMENDATIONS

F 49. Prior to developing a formal cricket field, continue to schedule cricket activity at Optimist Park on weekends to distribute use of this space throughout the week, and to confirm demand for a formal field in view of the Optimist Club's interest in providing one at this location.

F 50. Consider locating a cricket field on Fleming College property through a long-term lease for a municipal facility or a joint development and operating agreement with the College.

## 5.5.5 Tennis and Pickleball Courts

Table 5-19 lists tennis and pickleball courts in Kawartha Lakes, showing location and ownership, existing supply and planned changes that will affect supply in the short term. Supply figures show single use, dedicated courts by type and shared courts that accommodate both tennis and pickleball.

**Table 5-19: Existing Tennis and Pickleball Courts and Planned Changes**

| Location & Ownership | Existing Supply and Planned Changes | | Resulting Supply | Notes |
|---|---|---|---|---|
| **Municipal** | **Existing** | **Plans** | | |
| **Memorial Park** | shared (2 tennis/4 pickleball) | to become dedicated pickleball courts | 8 dedicated pickleball courts | lit |
| **Little Britain CC** | 4 dedicated pickleball | no change | 4 dedicated pickleball courts | |
| **Optimist Park** | shared (2 tennis/2 pickleball) | to become dedicated tennis courts | 4 dedicated tennis courts | |
| **Coboconk (Legion Park)** | shared (2 tennis/4 pickleball) | no change | 2 shared courts | lit; lined courts |
| **Burnt River CC Park** | shared (1 tennis/2 pickleball) | no change | 1 shared court | used by KLPA; casual use |
| **Bobcaygeon (Tommy Anderson Park)** | shared (1 tennis/2 pickleball) | no change | 1 shared court | used by KLPA; casual use |
| **Municipal Totals** | **4 dedicated pickleball; 0 dedicated tennis; 8 shared courts*** | | **4 dedicated tennis courts; 12 dedicated pickleball courts; 4 shared courts*** | |
| **Non-municipal** | | | | |
| **Fenelon Falls** | 4 dedicated tennis | no change | 4 dedicated tennis courts | lit; on TLDSB property; operated by the Fenelon Falls Tennis Club |
| **Total Courts** | **4 dedicated tennis, 4 dedicated pickleball & 8 shared courts** | | **8 dedicated tennis, 12 dedicated pickleball courts & 4 shared courts** | |

*for shared courts 1 tennis = 2 pickleball, unless otherwise noted.

The four lit (4) tennis courts adjacent to Fenelon Falls Community Centre are on Trillium Lakes District School Board (TLDSB) property, and the Fenelon Falls Tennis Club operates and programs these full time (8am to 9pm daily) through a facility use agreement with the School Board. The agreement has been in place since 1997. For the purposes of the assessment, it is assumed that these courts will remain part of supply and will continue to serve their share of community demand.

As with other community sports, providing an appropriate supply of both types of courts should be based on use levels in relation to capacity. With shared courts, and especially those that are not scheduled, it is difficult to establish the extent of facility use for tennis versus pickleball and, therefore, if supply is meeting need for both types of use. Both nationally and beyond, broader trends in recent years have shifted community demand almost entirely to pickleball and accommodating this activity. In many communities, using the same courts for both pickleball and tennis has generated conflicts between users and difficulties for municipalities to balance access.

Consultation for the Strategic Plan revealed that Kawartha Lakes is facing the same concerns. In keeping with broader trends, strong demand exists for more outdoor pickleball courts. At the same time, the community expressed the need to retain existing tennis courts for tennis only or increase the supply of designated tennis courts, and to implement a booking procedure to reduce conflicts between court users.

Currently, the majority of courts in Kawartha Lakes are shared use, as the municipality has tried to respond quickly to spikes in demand for pickleball.

The municipality is now working to improve the balance of dedicated tennis and pickleball courts. As shown in Table 5.20, current plans will produce the following changes:

- The existing four (4) dedicated tennis courts in the community will increase to eight (8);
- The existing four (4) dedicated pickleball courts in the community will increase to twelve (12);
- The existing eight (8) shared tennis/ pickleball courts will decrease to four (4).

The courts at Optimist Park will provide a second four-court tennis facility in the south portion of the municipality, with the potential to act as a base for a club in Kawartha Lakes should interest emerge in forming one.

The courts at Memorial Park will serve as a hub for pickleball activity in Lindsay with a total of eight at this location, and these will be supplemented with the four at Little Britain. Funds that have been allocated for pickleball court development at Fenelon Township CC should be reallocated to provide these courts to repurposing and upgrading these existing facilities prior to building new courts in other locations.

The remaining courts throughout the municipality will continue to function as shared facilities for casual activity.

## Future Facility Provision

Without information on the use of courts, and the effect the above-noted changes will have on use, it is difficult to project required additions to supply during the term of the Strategic Plan. The Resulting Supply column figures from Table 5-19 are used to represent existing supply for calculating projections to 2040 for dedicated tennis, dedicated pickleball and shared courts. The results are shown in Table 5-20.

These population-based provision levels require verification through monitoring the use of courts, which will support a judicious approach to adding facilities. required to serve population growth alone.

As demand for these facilities is verified, potential location considerations can include:

- for tennis courts, adding more at Optimist Park including the option to light courts to provide additional time rather than adding to the footprint, and depending on user needs;
- for pickleball courts, adding to those at Memorial Park
- for shared courts, meeting need with planned courts at Ops (1) in the near term, and Pioneer Park (1).

**Table 5-20: Projected Tennis and Pickleball Court Requirements to 2040**

| Existing supply | Population-based ratio at 81,200 | Population-based ratio at 111,650: total supply to 2040 | Additional supply needed |
|---|---|---|---|
| **Tennis: 8 dedicated** | 81,200/8 = 1:10,150 | 111,650/1:10,150 = 11 | 3 |
| **Pickleball: 12 dedicated** | 81,200/12 = 1:6,765 | 111,650/6,765 = 16.5 (17) | 5 |
| **Shared: 4** | 81,200/4 = 1:20,300 | 111,650/20,650 = 5.4 (6) | 2 |

## RECOMMENDATIONS

F 51. Repurpose the two shared tennis/pickleball courts at Optimist Park to tennis only and add two more for a total of four (4) dedicated tennis courts.

F 52. Repurpose lit shared courts to create eight (8) dedicated pickleball courts, for a total of 12 pickleball courts including existing facilities at Little Britain.

F 53. Reallocate 2026 funding for developing four (4) new pickleball courts at Fenelon Township CC to repurpose and/or upgrade the courts at Memorial Park and Little Britain as dedicated pickleball courts.

F 54. Confirm projections to add an estimated three (3) tennis courts and five (5) pickleball courts, all single use, and two (2) shared courts to total supply by 2040, beyond those included in near term shared court addition at Ops.

F 55. For future needed facilities, consider adding pickleball courts to those at Memorial Park, adding tennis courts or lights at Optimist Park, and meeting shared court requirements with a court at each of Ops and Pioneer Park.

## 5.6 Facility Allocation

Facility allocation policies are designed to arrive at equitable, optimal and efficient use of municipal facilities, in view of both supply and demand. They provide a consistent, transparent process for allocating facility time among various users. Allocation policy is particularly important to achieving these objectives when demand exceeds supply and compromises are required to ensure users are fairly treated in allocating available time - and particularly prime-time, which is limited.

Community based volunteer organizations are typically the second priority in allocating facility time, after municipally run programs, events and activities. To qualify to use municipal facilities for their programs and events, these organizations are usually required to 'affiliate' with the municipality, based on criteria that legitimizes their community-serving function and accountability.

Table 5-21 summarizes several key components of the facility allocation process as it relates to volunteer community sport and recreation organizations. Key overarching points are reproduced from the City of Barrie's policy,[1] which combines both Group Affiliation requirements and Allocation policy and procedures to show how the two work together. The following provides information only for developing policy specific to Kawartha Lakes, with the City's own categories, definitions, needs and resource limits to be integrated, as appropriate. Kawartha Lakes has an Ice Facility Allocation Management Directive, for example, which may differ from these examples.

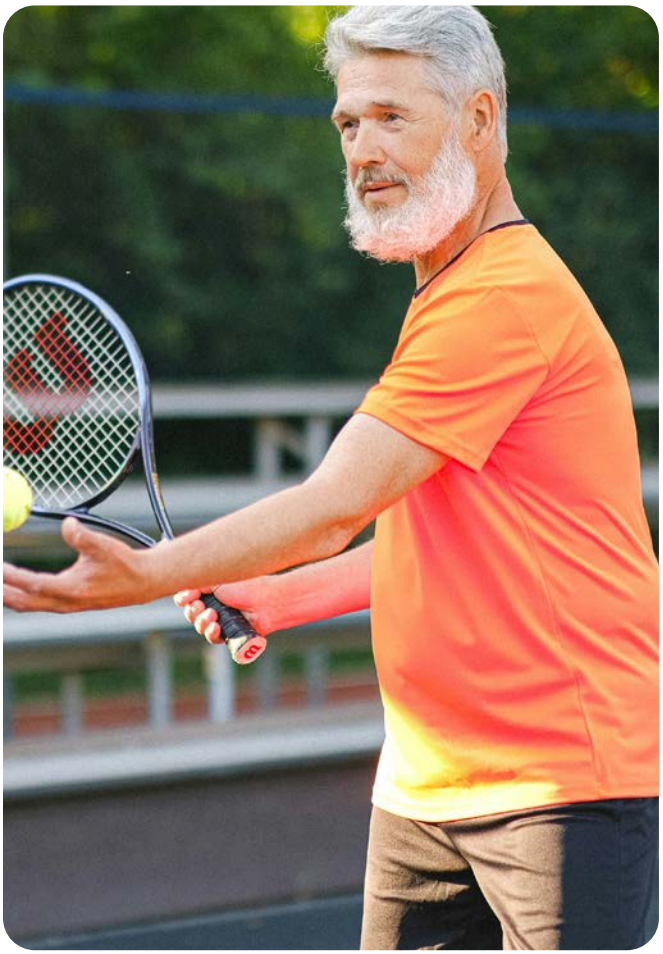
1 https://www.barrie.ca/Facility-Allocation-and-Affiliation-Policy.pdf (35 pages). Municipalities may differ in relevant definitions and minimum allocations. The City of Mississauga, for example, has a detailed formula that is applied to distribute time for a large population across many facilities (outdoor: https://www.mississauga.ca/wp-content/uploads/2022/07/12090153/08-03-07-Sports-Field-Management-Policy.pdf; ice and floor: https://www.mississauga.ca/wp-content/uploads/2020/03/17105902/08-03-03-Arena-Ice-Allocation-Policy-1.pdf).

## Table 5-21: Key Components of Facility Allocation Priorities Athletic Fields

| Components: Purpose | Sample Definitions/Descriptions |
|---|---|
| **Allocation Priorities: Allocates Use of Facilities on a User Priority Ranking** | 1) municipal recreation programs, events and activities<br>**2) affiliated youth organization**<br>**3) affiliated adult organizations**<br>4) School Boards<br>5) occasional resident / private casual users<br>6) commercial and non-resident users |
| **Affiliation Requirements: Specifies Eligibility Criteria for User Ranking for Youth and Adult Affiliates** | **2) affiliated youth organization:**<br>• is a not-for-profit youth organization with a minimum of (e.g., 80%) registered members residing in the municipality<br>• is operated by a volunteer board of directors/executive<br>• is an established provider of programs primarily for youth, comprising athletics, recreation, or structured social activities<br>• its members/participants must be 18 years of age or younger before December 31 of the current year's season and/or in the age categories of the provincial or national governing body; some may have limited adult participants<br>• youth programs will be charged a youth rate; mixed age competitive time will be charged an adult rate; complete levels/teams within an organization comprising players over the age of 20 will be prioritized and charged as adults.<br>• is a member of good standing in a Canadian national and provincial sport organization (NSO, PSO) as its governing body.<br>• for an organization that is the main provider of its program/activity in the municipality, the residency requirement may be waived.<br><br>**3) affiliated adult organization:**<br>• is a not-for-profit organization with active membership comprising a minimum of (e.g., 80%) registered members residing in the municipality.<br>• is operated by a volunteer board of directors/executive<br>• its primary purpose is to provide programs for adults in athletics, recreation or social activities.<br>• its members/participants are older than those of organizations that qualify as a youth organization. |

Affiliation status requires application for renewal on a regular basis (e.g., annually or every two years), and previous approval is not guaranteed with renewal.

Indoor and outdoor facility allocations are separate procedures, implemented by type within each category. Ball diamond and ice allocation guidelines are discussed below, using material from the Cities of Barrie and Mississauga as examples.



### 5.6.1 Ball Diamond Allocation

Continuing with examples, for all facilities there is:

- a regular season date range from May 1 to September 30 inclusive, weather permitting
- a time request date and a municipal confirmation date for each of regular season and tournament scheduling

All operating hours are categorized as prime or non-prime time (e.g.):

- prime time Monday to Friday 6pm to 11pm; Saturday and Sunday 8am to 11pm
- non-prime time Monday to Friday 8am to 6pm

Tables 5-22 and 5-23 provide examples of ball diamond time allocation guidelines, from the Cities of Barrie and Mississauga Ontario, respectively.

## Table 5-22: Annual Outdoor Facility Time Allocation Guideline for Baseball/Softball, Example 1 (Barrie Ontario)

| Sport/Activity | Age Group or Number of Participants | Min. Hourly Allocation per Team per Week (Guidelines) | Max. # Per Team |
|---|---|---|---|
| **Baseball - Developmental** | 4U Rally Cap | 1.50 | 8 |
| | 5U T-Ball | 1.50 | 10 |
| | 6U Coach Pitch, 7U Jr. Rookie Ball | 2.00 | 12 |
| **Baseball - House League/Recreational** | 8U-11U | 2.00 | 13 |
| **Softball** | Minor Mite (up to 8), Mite, Squirt, Pee Wee | 4.00 | 14 |
| | Bantam, Midget (17-21) | 6.00 | 14 |
| | Adult | 1.25 | 14 |
| **Rep & Select Minor Baseball** | 8U-13U | 5.50 | 13 |
| | 14U-18U | 7.00 | 14-15 |
| **Rep Fastball** | Mite to squirt (9-12) | 4.00 | 15 |
| | Pee Wee to Midget (13-18) | 6.00 | 15 |

The City of Mississauga's ball diamond allocation is set up as a work sheet in its policy and includes breakdowns that are not used in Barrie (Table 5-23). The values to be calculated seasonally are numbered in the blank columns and described here:

- 1 - number of players registered
- 2 - actual # of teams
- 3 - total hours per week
- 4 - rainout allotment (15%)
- 5 - total hours per week

The first row in Table 5-23 shows how these variables would allocate hours to six teams of U4-7 players.

**Table 5-23: Annual Outdoor Facility Time Allocation Guideline for Baseball/Softball, Example 2 (Mississauga Ontario)**

| Age of Team Players | 1 | Base Level # of Players per Team | 2 | # of Practices per Team per Week | Teams per Practice Field | # of Games per Team per Week | Total Hours per Team per Week | Softball or Multi-purpose Field Required | Hardball Field Required | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **U4 - 7** | 36 | 6 | 6 | 1 (2.5 x. 5) | 2 | 2 (2.5 x .5 x2) | 3.75 | X | | 22.4 | 3.4 | 25.9 |
| **8 - 9** | | 12 | | 1 (2.5 x. 5) | 1 | 1* (2.5 x .5) | 3.75 or 5* | X | | | | |
| **10 - 11** | | 12 | | 1 (2.5 x. 5) | 1 | 1* (2.5 x .5) | 3.75 or 5* | X | | | | |
| **12 -13** | | 12 | | 1 (2.5 x. 5) | 1 | 2 (2.5 x .5 x2) | 5.0 | X | | | | |
| **14 -15** | | 12 | | 1 (2.5 x. 5) | 1 | 2 (2.5 x .5 x2) | 5.0 | | X | | | |
| **16 - 18** | | 12 | | 1 (2.5 x. 5) | 1 | 2 (2.5 x .5 x2) | 5.0 | | X | | | |
| **Total** | | | | | | | | | | | | |

* City will allocate for 2 games if Provincial or National Sports Organization governing bodies sanctioned the one additional game or if required for Long Term Athlete Development (LTAD).

The process for allocation is typically guided by documented principles and comprises several steps, which are outlined in the policy. An important consideration in distributing limited time is providing a mechanism for new users to access desirable time(s) for their programs. For this reason, allocation requests are grouped and defined as follows:

- Existing Programs - organization/group allocated regular time in the previous season requests the same time again
- Existing Program Expansion - organization/group requests time in addition to its entitlement to expand a core/primary/basic service
- New Programs - organization/group not allocated regular time in the previous season, to provide program or service that meets an unmet need that has been municipally evaluated and confirmed. With respect to these programs, the municipality uses unallocated time first to avoid adversely impacting existing users but will reserve the right to reallocate hours from these organizations if warranted.

As the above examples show, formulas for allocation time on ball diamonds to user groups combine variables related to governing sports organization guidelines and the specific community context in terms of resources and local types/levels of play. Kawartha Lakes can consider these policy designs and formulas to create allocation processes for its diamonds with the objective of providing an equitable distribution of available prime time to all user groups.

### 5.6.2 Ice

As with ball diamonds, the following outlines definitions that are required (based on examples):

Season of play:

- Dates of ice-in season: September 1 through to May 31 inclusive
- Dates of ice-out (floor) season: June 1 through August 31 inclusive
- All operating hours are categorized as prime or non-prime time:
- prime time Monday to Friday 6pm to 11pm; Saturday and Sunday 7am to 11pm
- non-prime time Monday to Friday 7am to 6pm

Prime and non-prime time is determined by facility use patterns:

- prime time is when a facility is permitted and used on a consistent basis as it relates to the day of the week and time of day.
- non-prime is when a facility is consistently not permitted for use as it relates to the day of the week and time of day.

As with ball diamonds, the policy's process for allocation includes a mechanism for new users to access desirable time(s) for their programs within the overall distribution (see 5.6.1).

Table 5-24: Annual Ice Time Allocation Guideline for Ice Pads

| Sport/Activity | Age Group or Number of Participants | Minimum Hourly Allocation per Team* per Week (Guidelines) |
|---|---|---|
| **Minor Hockey & Minor Lacrosse**** | U7 and U8 | 1.0 |
| | U9 through U18 | 1.5 |
| | Adult | 0.75 |
| **AAA Hockey** | U7 to U10 | 2.0 |
| | U11 to U13 | 2.5 |
| | U14 to U18 | 2.75 |
| | Men's/Women's Adult Hockey | 0.75 |
| **Figure Skating** | Per 14 to 18 skaters | 1.0 |
| **Ringette**** | U7 and U8 | 1.0 |
| | U9 to U19 | 1.5 |
| | 18+ (open) | 1.5 |

*numbers of participants per team are according to governing sport organizations
**lacrosse allocation is for floor time; ringette not played in Kawartha Lakes

### 5.6.3 Casual-Use Outdoor Facilities

Allocation for casual use of outdoor facilities typically applies to tennis and pickleball courts, and particularly dual-use courts. Use management approaches generally rely on an honour system whereby users abide by posted rules that aim to ensure fair access to facilities in high demand.

Key components of these protocols include:

- which activities and groups the courts are intended to accommodate: tennis, pickleball or both; drop-in only or a combination of drop-in and group reservations.
- 'open' hours to which the above apply: as an example, 8am to 8pm on unlit courts and 8am to 10pm on lit courts, by days of the week, the actual extent of which would be determined by proximity to residents that may be negatively impacted by noise later at night.
- time allocations, within open hours: if a combination of drop-in and user group reservations are relevant, specifying the hours during which user groups can make reservations, with the balance of time being allocated to drop-ins; if no reservations are made, group time defaults to drop-ins.
- shared tennis/pickleball courts: the municipality may choose to designate blocks of time for each across the week, comprising both high demand and low demand time periods.
- specifying the length time allocated to each game/practice to accommodate queued drop-ins when all courts are full (e.g., 45 minutes from the time the queue starts and the newcomers have indicated their desire to use a court).

Relevant protocols should be posted online and on signs at each court, according to type. The Township of South Frontenac has a very well developed Net Sport Court Allocation Process (2024)[1] that includes a section on communicating information on court use and etiquette. It notes that on-site signs may contain only basic information and directs users to the Township's website for comprehensive protocols and up-to-date information.

#### RECOMMENDATIONS

F 56. Create a formula-based seasonal allocation process for Kawartha Lakes ball diamonds with the objective of providing an equitable distribution of available prime time among all user groups.

F 57. Create a formula-based allocation process for ice to ensure optimal use and distribution of available prime time among all user groups.

F 58. Develop honour system protocols for shared use of all casual use courts, detailed by type.

F 59. Post basic court use protocols at all municipal tennis and pickleball courts and supplement with additional required details/ explanations regarding rules and etiquette on the City's website.

1 https://southfrontenac-006-ca.govstack.com/media/kkvkm0k4/2024-net-sport-court-allocation-process.pdf

## 5.7 Facility Agreements

### 5.7.1 Tennis and Pickleball Clubs

There is one community-based tennis club in Kawartha Lakes. The Fenelon Falls Tennis Club operates and programs the four lit courts on TLDSB property at Fenelon Falls Secondary School. The original agreement, which allowed the club to construct and operate tennis courts on school property was executed in 1997 and has been renewed since that time. The current agreement allocates 194 school days from 7am to 6pm during which the Board has use of the facilities.

The Kawartha Lakes Pickleball Association currently uses outdoor courts and indoor spaces throughout the community for its activities.

Community-based clubs that use municipal courts, should be covered by agreements with the relevant group(s) to govern the operation and use of municipal courts. Key items to be included are:

- the division of responsibility for court (and clubhouse, if appropriate) operations, capital improvements, etc. between the club and the municipality
- designated weekly time periods during which the public (i.e., non-members) can access the courts for casual use; hours for public use should comprise both prime and non-prime hours
- the club's responsibilities for providing instruction/play for all age groups, including children and youth
- mechanisms for regular reports to the municipality on facility use in a form that aligns with the data collection variables for all municipal courts

Regular completion of these tasks will be important for the municipality to be able to work towards optimizing use of all facilities for programming purposes and to accommodate organized sports and recreation groups. If this is not happening how, the City and the VMCs should work together to implement a process whereby all the Committees can monitor and regularly report on required use data.

Capital investment to improve facilities operated by the VMCs should be directed by agreed upon plans to meet needs for both their respective communities and non-local facility users, where appropriate (e.g., access to ball diamonds for organized activity). While capital maintenance and repairs expenditures must be addressed as they arise, project such as upgrading/repurposing interior spaces and outdoor facilities can be implemented incrementally as finances permit.

### 5.7.3 Fleming College

The indoor facilities assessment encourages the municipality to take responsibility for managing/programming the Frost Fieldhouse. Depending on the nature of the arrangement, an agreement with the College could take the form of a management agreement for full time municipal operation. Presumably, the municipality will continue to provide services to Fleming's students. How this is done could also be included in the type of agreement negotiated. For example, the College could make an annual contribution to operating costs based on proportionate use/access. Capital expenditures to expand or improve the fieldhouse would require a joint agreement to cover each party's contributions to costs.

### 5.7.4 School Boards

As noted in the facilities discussion, there are 31 schools in Kawartha Lakes, 15 of which are in Lindsay and the remainder are distributed throughout the municipality. Access to school facilities could benefit recreation service delivery in Kawartha Lakes, especially for gym-based activities in non-urban locations and to bridge need for program time until new/redeveloped municipal facilities are provided.

Reciprocal use agreements outline the exchange of each party's access to the other's facilities. The Boards would be able to use municipal facilities, and the municipality and volunteer groups would be granted access to school spaces via the agreement. Specific facilities and times of use exchange are covered in the agreement (e.g., arena ice time for students during academic hours in exchange for gymnasium time for the community during non-academic hours). The exchange can be no-fee or a formula-based rate to cover cost differentials where they occur.

## RECOMMENDATIONS

F 60. Consider options to determine the preferred model for access to/ use of pickleball courts by organized users.

F 61. Agreements between the municipality and the VMCs should ensure a process is implemented whereby the Committees monitor and report on required use data for planning purposes.

F 62. Capital investment to improve facilities operated by the VMCs should be directed by agreed upon plans to meet needs for their respective communities and other groups they may serve.

F 63. The potential for the municipality to take responsibility for managing/programming the Fleming College Fieldhouse should be supported by a formal agreement that is mutually beneficial to both parties.

F 64. Consider investigating the possibility of entering reciprocal use agreements with the School Boards for access to facilities for community recreation at select schools throughout the municipality, and especially in non-urban locations.

## 5.8 Inclusive Facility Design

The municipality has a made-for City of Kawartha Lakes Facility Accessibility Design Standards (FADS) that provides an innovative and detailed approach for the design of barrier free and accessible facilities. Its use is mandatory for all construction projects at City facilities including new construction, additions, renovations and capital replacements, and is intended:

> ...to provide an inclusive, user friendly and accommodating built environment through design and the careful use of materials and equipment. It reconciles legislative changes with respect to accessibility under the Ontario Building Code and the Accessibility for Ontarians with Disabilities Act (AODA). It also incorporates recent ergonomic research from the United States and best practices from other municipalities and organizations. All of the design requirements use universal design principles as the core principle.[1]

When planning new or renewing existing facilities, opportunities to provide those that are deliberately designed to be inclusive, and exceed legislated standards, should be investigated. Keeping abreast of constantly evolving facility design is important to being current about possibilities. Three examples of facilities designed to be inclusive are multi-use sports courts, ball fields and para hockey ice rinks.

### 5.8.1 Inclusive Multi-sport Courts

These facilities provide users of all abilities to participate in both organized sport and casual play. They are designed for a variety of sports and allows accessible programming for all ages. Features include:

- adjustable basketball nets
- high-contrast four-square court and hopscotch play area
- contrasting colours to support visual impairment
- shaded double-wide benches for improved accessibility
- wheelchair-accessible seating and tables
- shaded accessible bleachers
- cushion-comfort Plus Laykold acrylic surfacing system
- court lighting

At 13,200 square feet, the Town of Uxbridge's inclusive multi-sport court[2] is configured to enable users to play a variety of sports and para-sports.

1 Kawartha Lakes Facility Accessibility Design Standards. (no date). p.5.
2 https://www.uxbridge.ca/en/explore-and-play/inclusive-multi-sport-court.aspx

Supported sports including:

- pickleball
- sitting volleyball
- tennis
- volleyball
- wheelchair basketball
- wheelchair tennis
- ball hockey
- badminton
- basketball

**JUMPSTART INCLUSIVE PLAY SPACES**

As part of our commitment to helping kids of all abilities access sport and play, Jumpstart is working with municipalities across the country to build inclusive play spaces. These include multi-sport courts, playgrounds, baseball fields, hockey ice rinks. Multi-sport courts and playgrounds are designed to meet the specific needs of the community it serves.

Source: https://jumpstart.canadiantire.ca/pages/inclusive-play-spaces

## 5.8.2 Inclusive Ball Fields

Any player can get in the game on these inclusive baseball fields. At 100,000 square feet, they feature a rubberized surfacing and high-contrast colours. The dugouts are deeper than standard to allow for easy access for those using mobility devices. Seating areas and restrooms are accessible, pathways are clear and even, and there are rest and quiet areas.

## 5.8.3 Para Hockey Ice Rinks

These rinks are designed to ensure ease of access and a seamless experience for players of all abilities. Ice, bench, and change areas are at the same grade, allowing individuals using mobility devices to move through the facility with ease. Benches and the penalty box are deeper than standard and surfaced with ice to accommodate sledge access. By replacing the traditional rink boards with plexi-glass, players can engage with their peers on the ice without any barriers. The space can accommodate additional equipment and lines to allow for other uses outside of the winter months.

**FIELD OF DREAMS DIAMONDS**

Jays Care grant program provides funding to design, refurbish and build local baseball diamonds in communities. In the past 10 years, 163 diamonds have been built across Canada.

Field Of Dreams diamonds are created to be safe and inclusive spaces. Municipalities are eligible to apply through an annual intake. The 2025 application cycle is now open. Other eligibility criteria include:

- Must have the project complete within 12-18 months of receiving funding approval
- Must be dealing with infrastructure that directly supports children and youth facing barriers
- Must be able to provide audited financial statements from the past year, or most recent
- Must be able to provide detailed quotes for all aspects of the project (required for the second phase)

Source: https://www.mlb.com/bluejays/community/jays-care/field-of-dreams

## RECOMMENDATIONS

F 65. When planning new or renewing existing facilities, investigate opportunities to provide those that are designed to be inclusive.

# 6.0 Parks

## 6.1 Introduction

The parks assessment includes the following topics:

- Classification, distribution, and provision of parks and natural areas
- Unscheduled recreation amenities (e.g., playgrounds, skateparks, splash pads, open space, waterfront, etc.)
- Safety and comfort amenities (seating, shade, lighting, washrooms etc.)
- Accessibility
- Cemeteries

The parks assessment does not discuss scheduled outdoor facilities (i.e., ball diamonds, sport fields, courts) or trails in depth. These topics are discussed at length in section 5.0 Facilities and in the 2023 Trails Master Plan Update, respectively.

Given the expansive size of Kawartha Lakes, and geographic barriers presented by the many water bodies, it was determined that it would be helpful to divide the municipality into sections for the assessment. The result is three urban areas and four rural areas, summarized in Table 6-1, and illustrated in Figure 6-1. The urban areas align with the Official Plan urban areas, and the rural areas were demarcated roughly along geographic features (specifically water bodies). Omemee is sometimes considered an urban area in planning documents, however as it is not expected to experience significant growth (unlike Bobcaygeon, Fenelon Falls, and Lindsay), we have included it within a rural area. Different considerations need to be made for park provision in rural areas versus urban areas, so the assessment looks at these areas separately.

Table 6-1: Community segments used for the parks assessment

| Area | Communities Included |
|---|---|
| **Northwest** | Argyle<br>Bolsover<br>Cameron<br>Coboconk<br>Dalrymple<br>Kirkfield<br>Norland<br>Rosedale<br>Sebright<br>Woodville |
| **Northeast** | Burnt River<br>Sturgeon Point<br>Hickory Beach<br>Kinmount |
| **Southwest** | Cambray<br>Manilla<br>Oakwood<br>Little Britain<br>Seagrave<br>Sonya<br>Washburn Island<br>Valentia |
| **Southeast** | Dunsford<br>Downeyville<br>Emily<br>Omemee (see below)<br>Janetville<br>Bethany<br>Pontypool<br>Reaboro |
| **Lindsay (urban area)** | - |
| **Bobcaygeon (urban area)** | - |
| **Fenelon Falls (urban area)** | - |
| **Omemee (urban area)** | note: while Omemee is considered an urban area in the Official Plan, for our analysis we have included it as part of the Southeast quadrant, as it is not anticipated to see significant growth during the term of the plan. |

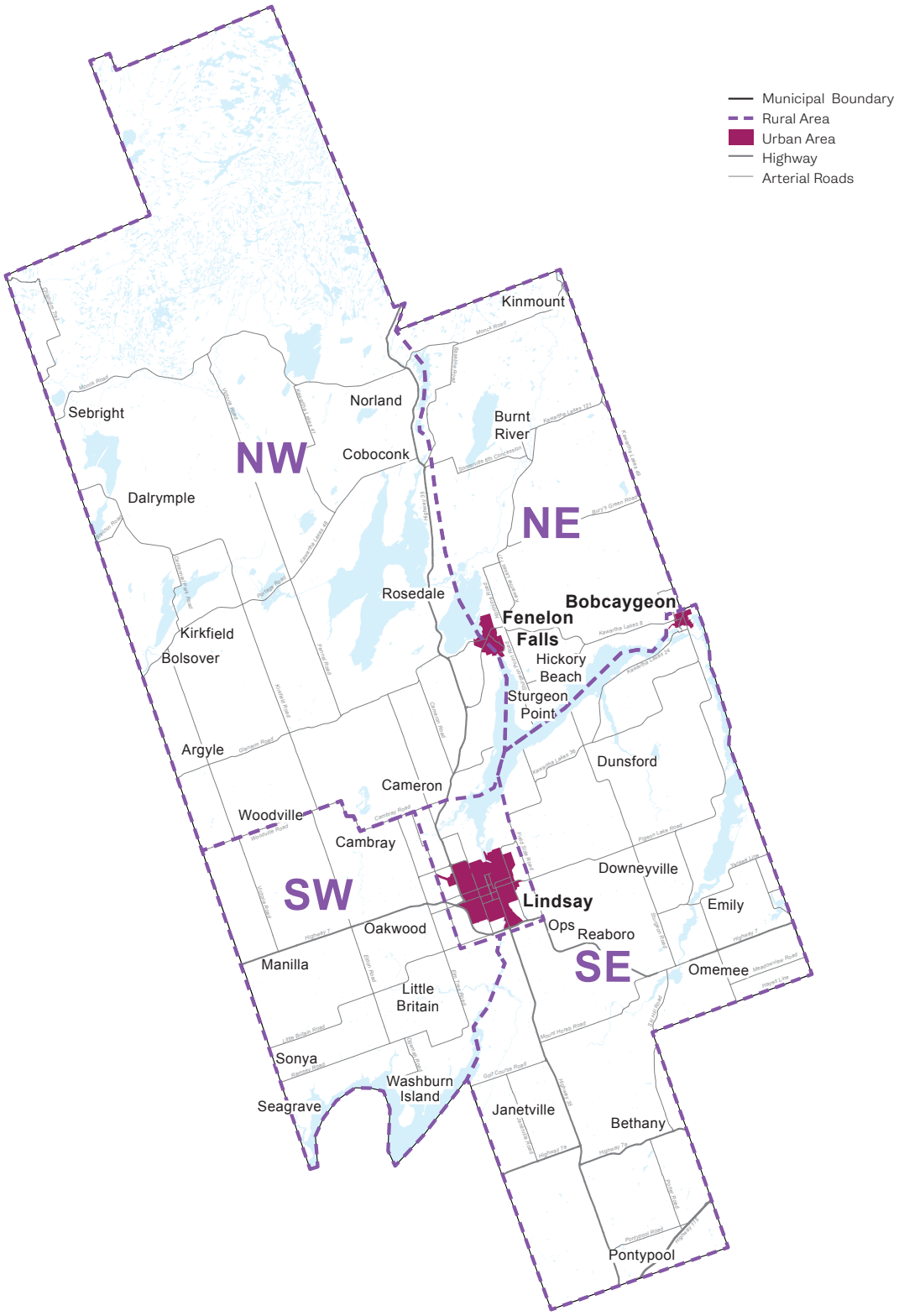



**Figure 6-1: Map of Kawartha Lakes showing the three urban areas and four rural areas used for the parks assessment.**

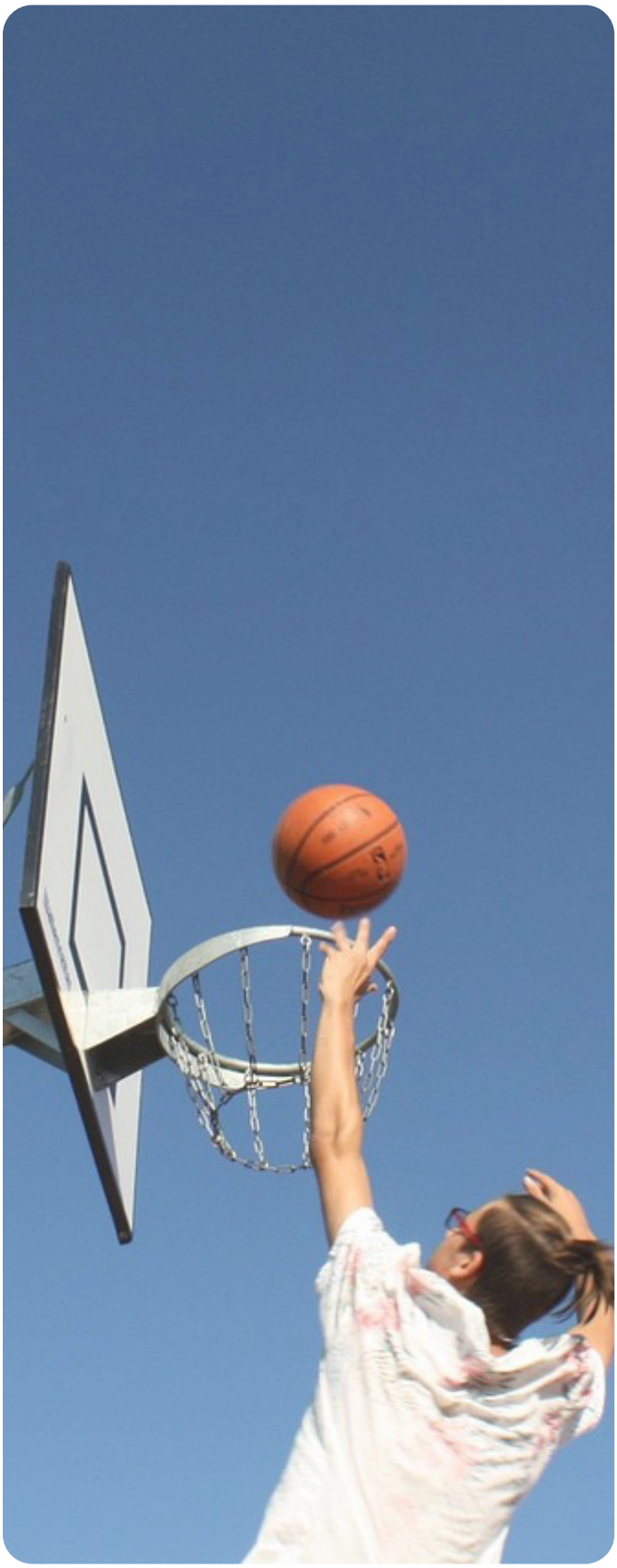
## 6.2 What We Heard

Feedback from consultation was provided in more detail in the Background and Community Consultation Report. The following highlights the main takeaways from consultation related to parks:

- The majority of telephone survey respondents (70% or 528 respondents) said they do not think improvements to Kawartha Lakes' parks and outdoor amenities are needed
- New neighbourhoods will likely require additional parks, but overall, the municipality has a very strong inventory of parks and open space
- A desire for more parks/amenities in rural areas and other areas outside of Lindsay
- A desire for improved amenities in well-used parks, such as washrooms, parking, more shaded areas and seating
- Online survey:
    - 47% (or 509 respondents) indicated they would like more options for adults and seniors in Kawartha Lakes' parks and facilities
    - 42% (or 456 respondents) indicated they would like more options for youth in Kawartha Lakes' parks and facilities
    - 37% (or 402 respondents) indicated they would like more shade and seating in the municipality's parks and facilities
    - 40% (or 437 respondents) indicated they would like improvements to be made to the municipality's waterfronts, beaches, and boat launches
- Three-quarters of respondents (752 respondents) indicated enhancements are needed to particular parks/areas in Kawartha Lakes, with the most frequently noted parks including:
    - Lindsay Memorial Park (50 mentions - approximately half of which related to requests for additional pickleball courts
    - Old Mill Park (23 mentions)
    - Optimist Park/Wilson Fields (22 mentions - approximately half of which related to requests for additional pickleball courts)
    - Ops Park (20 mentions)
    - Garnet Graham Beach Park (20 mentions)
- General feedback across all consultation activities:
    - Washrooms, shade, seating, improved playgrounds, more options for tweens and seniors
    - Mixed feedback on maintenance - some praised maintenance, and others claimed improvements were needed to maintenance (specifically garbage and washrooms)
    - Staff face challenges maintaining parks due to the long distances between locations
    - Quality of amenities is great
    - A desire for more waterfront access and improvements/development of Scugog waterfront in Lindsay
    - Need to expand tree canopy
- From community group:  Desire for a

new destination park to be developed in Fenelon Falls to serve individuals of all ages and abilities in the northwest portion of the municipality, which could support the development of youth services for the community through a partnership with the BGC (Kawarthas)

- Interest in including elements such as a skatepark, pump track, basketball courts, and/or indoor space for programs to serve the needs of youth



## 6.3 Key Considerations for Parks

Recalling the Strategy's key considerations from section 3.0. Table 6-2 outlines how these considerations apply to parks planning.

**Table 6-2: Summary of Strategy Key Considerations Impacting Parks in Kawartha Lakes**

| Strategy Key Considerations (outlined in section 3.1) | Impact to Parks |
|---|---|
| **Expansive Geography and Dispersed Population/ Staffing Constraints** | With a dispersed rural area, some residents do not have local access to an indoor recreation facility. There is also no public transit outside of Lindsay, further impacting the accessibility of recreation opportunities. Parks are more numerous and dispersed than indoor recreation facilities and therefore can be an important contributor to recreation access in more rural areas. |
| **Aging Demographic** | Accessibility is always a top priority as municipalities are continually updating public spaces. With a growing seniors population, accessibility is even more important to support healthy aging. |
| **Abundant Outdoor Recreation Assets** | Since the pandemic there has been a lasting increase in interest and participation in outdoor recreation in all seasons. This is beneficial for public health, as research has shown many positive impacts on mental and physical health when recreating outdoors. With its many natural areas and water bodies, Kawartha Lakes has many opportunities to support this. Outdoor recreation needs and interests were discussed further in the Programs section and Appendix C. The recommendations of this section support outdoor recreation programming by providing and improving parks and amenities. Given the reliance more rural areas have on outdoor spaces for nearby recreation, supporting outdoor activities year round is important. |

In addition to those listed above, the assessment identifies a few additional considerations pertinent for parks:

- **Trails and Pathways**: Interest in trails remains high in the community, as indicated in consultations for this Plan. The municipality recently completed an in-depth Trail Master Plan Update (2023). The scope of the Trails Master Plan did not include parks, so there is no overlap between that plan and this plan to account for - with the exception of one recommendation for a pump track in Pontypool, which is considered in this assessment.

- **Tourism:** Kawartha Lakes is a considerable tourism destination with the main attraction being its natural spaces - trails, waterbodies, and parks. It would be remiss to not take into consideration visitor needs and interests along with residents', as well as the environmental impacts of tourism and how to protect the very assets visitors come to see. The 2020 tourism destination Plan outlines five Strategic Directions, with #1 being specifically park related: Establish Kawartha Lakes as a leader in outdoor experiences.

- **High Demand Amenities:** With the broad range of consultation activities and hundreds of comments received through various methods, the following park amenities/facilities were requested the most: all-ages play equipment; waterfront access; and comfort (e.g., shade, seating) and accessibility upgrades.

## 6.4 Assessment: Parkland Hierarchy, Supply, and Staffing

The parks assessment begins by looking at the park system as a whole:

- Parkland Hierarchy: this outlines different park types, their general characteristics, catchment, size, and provision; and,

- Supply: this looks at the amount of total parkland in the municipality, and compares this provision to similar municipalities

### 6.4.1 Parkland Hierarchy

The Official Plan provides a hierarchy of parkland, the general size of those parks, and relevant planning policy for each park class (Table 6-3). It is worth noting that the Official Plan specifies that this hierarchy is applicable only to parks within settlement areas (e.g., Lindsay, Bobcaygeon and Fenelon Falls).

Table 6-3 presents the hierarchy with suggested improvements and additions shown in blue. Further details concerning these additions are provided below.

- Destination Parks and Waterfront Parks: The additions reinforce the fact that these parks have key facilities/ amenities/attractions that draw people from around the municipality as well as visitors. Given people will likely spend longer periods of time at these parks, and given the importance of tourism for the municipality, these visits should be encouraged and supported through the provision of parking, washrooms, shade, drinking water, etc.

- Community Parks: The additions offer

more description of this park type. It is similar to a city park, but with less amenities (i.e. only one keystone facility as opposed to multiple) and not typically a tourist attraction. We also recommend that the Official Plan wording around co-locating these parks with school sites be loosened so that it is not a requirement in case it does not fit the specific context of a new development.

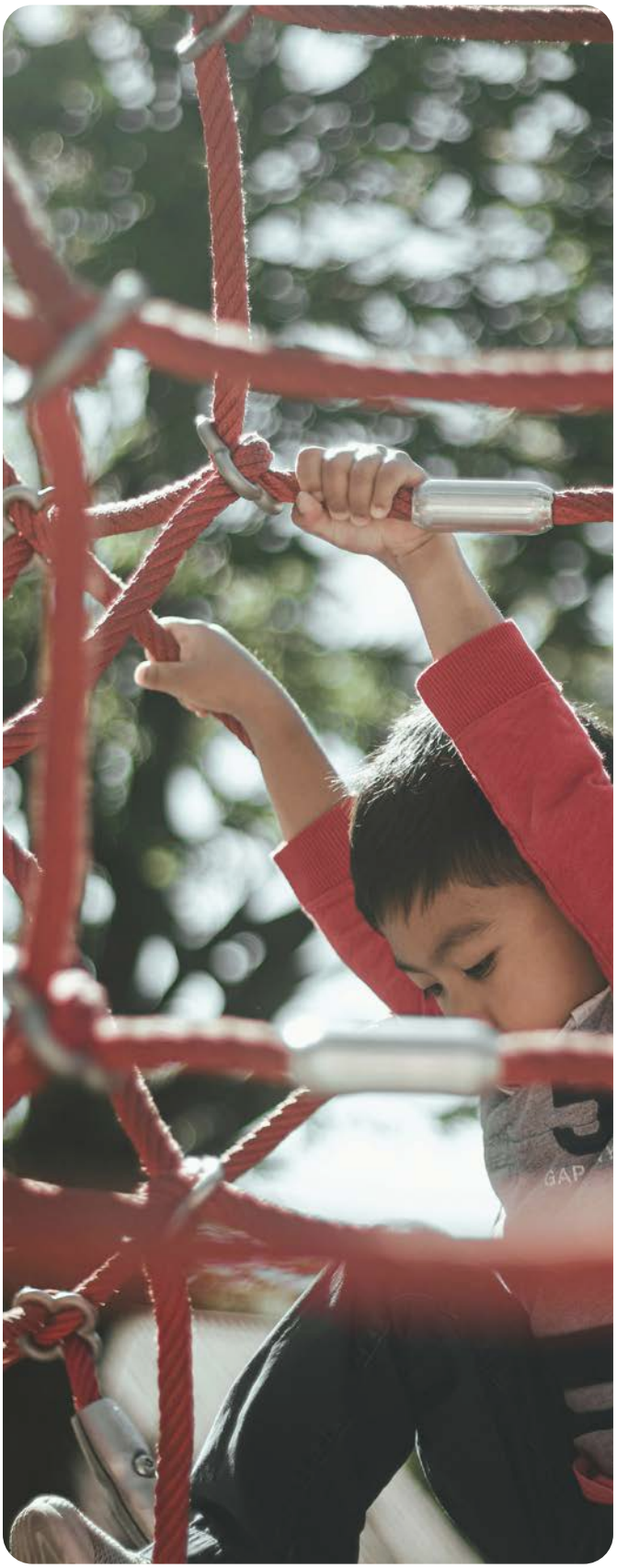
- Pavilions, shade structures and/or tree plantings are added to Destination and Community Parks to help support potential outdoor programming, events, camps, and general use, as outlined in the Programs assessment (section 4.4.1)

- Neighbourhood Parks: Changed the general size range to 1.8 to 5.9 ha to close the gap between Neighbourhood Parks and Community Parks, which are typically 6.0 ha or greater.

- Parkettes: Additions aim to improve the quality and recreation value of these spaces, and reduce the instances of small, awkward, empty pieces of land, especially in isolated areas.

- Natural Areas: A new category is proposed that applies to natural areas (e.g., forests, meadows, waterways) that may or may not be maintained for conservation purposes, recreation, and harvesting of timber.

- Urban area service radius guidelines are provided for each park type. For rural areas, the goal is to focus resources on providing high-quality parks with a variety of amenities in rural areas and avoid many small parks spread across large distances. This is discussed further in section 6.4.2 Supply.



## Table 6-3: Kawartha Lakes Official Plan Parkland Hierarchy with recommended alterations (in bold)

| Park Type | Characteristics | Size and Provision |
|---|---|---|
| **Destination Parks and Waterfront Parks** | Where parks are located along the settlement area waterfronts, they should be managed for the enjoyment of a diverse population. Opportunities exist at these parks for both active and passive recreation, social and cultural activities.<br><br>Additions:<br>• **Often tourism and/or event supportive (not in all cases)**<br>• **Typically feature more than one keystone park feature such as splash pads or skate parks, large/feature playgrounds and/or significant natural heritage features**<br>• **Sports facilities for league (and possibly tournament) play**<br>• **Trail connections and connectivity within the park**<br>• **Pavilion/shade structure(s)**<br>• **Parking**<br>• **Washrooms, change rooms, drinking water** | For both urban and rural areas:<br><br>General size and provision is variable depending on the site and landscape conditions. |
| **Community Parks** | Intended to accommodate the social, cultural, educational and physical activities of particular interest to several neighbourhoods. These parks should be coordinated with secondary school sites where possible and developed as focal points.<br><br>Additions:<br>• **Sports facilities for league play**<br>• **May contain one keystone park feature, such as a splash pad or skate park, large/feature playground**<br>• **Pavilion/shade structure(s)**<br>• **Parking**<br>• **Washrooms, change rooms, and drinking water**<br>• **Do not necessarily need to be adjacent to school sites if the community needs a park in another area. Suggest changing wording to "could be" rather than "should be" coordinated with school sites.** | General size of 6.0 to 10.0 hectares<br><br>For urban areas:<br>Should occur in highly visible locations and within an optimal service radius of 1.6 km. |

**Table 6.3 continued: Kawartha Lakes Official Plan Parkland Hierarchy with recommended alterations (in bold)**

| | | |
|---|---|---|
| **Neighbourhood Parks** | Anticipated to accommodate the recreational needs of local residents. Facilities should be tailored to residents and centrally located within a safe and convenient walking distance of the majority of residents.<br><br>Should be of a sufficient size to accommodate a variety of recreational facilities such as sports fields, outdoor rinks, multipurpose courts, playground equipment, outdoor fitness equipment etc. | General size of 1.8 to 4.0 hectares<br><br>Urban areas: Optimal service radius is 800m (or 10 minute walk)<br><br>**Additions:**<br>**Update general size to 1.8 to 5.9 ha** |
| **Parkettes** | An adequate supply shall be provided where appropriate.<br><br>**Additions:**<br>• **Gardens, plantings**<br>• **Seating**<br>• **Shade**<br>• **Small play or exercise equipment** | General size varies depending on the neighbourhood, but typically smaller than a Neighbourhood Park (>1.8 ha).<br><br>**Additions:**<br>• **Small parks with few/no amenities should be avoided in isolated areas.**<br>• **Parkettes are suitable for dense urban areas where both land and parks are limited.**<br>• **Traffic circles, road medians etc., should not be accepted as a Parkette** |
| **Addition:**<br><br>**Natural/Undeveloped Areas** | **Parks that remain close to their natural state (e.g., forest, meadows, etc.), with recreation uses allowed within the limits of the land, and can include hiking, cycling, motorized uses, etc. This also includes sustainable, controlled harvesting of goods such as timber.**<br><br>**This category includes small water access points not suitable for development as a park due to size, environment, or proximity to neighbours.**<br><br>**Not all of these spaces need to be maintained for recreation, some may stay in their natural state.** | **No size or provision standards, dependent on the local environment.** |

## 6.4.2 Supply

An analysis was conducted of the amount of parkland (total) in Kawartha Lakes and in comparable communities: Norfolk County, Greater Sudbury Area, Chatham-Kent and Quinte West (see Appendix D for data). The comparators were chosen in discussion with staff and based on the following factors:

- single-tier municipality
- large land mass
- similar population/number of households
- some mix of growth pressure/ waterfront resource/tourism

Based on Table 6-4, Kawartha Lakes is well supplied with parkland overall, compared to the other municipalities, in terms of number of parks and amount of hectares, with a park provision rate of 3.2 ha per 1,000 people. Beyond this comparative analysis, over 3.0 ha is considered a good park supply, with 4.0 ha per 1,000 often being a target amount.  However, with policy changes reducing the amount of parkland that can be acquired through development, many municipalities would now struggle to meet 4.0 ha per 1,000 people.

This comparative analysis includes only municipally owned parkland, excluding the Centennial Trailer Park and the approximately 4,000 ha of municipal forests. Including the municipal forests, the parkland provision soars to 53 ha per 1,000 people. Considering this significant amount of additional green space, we are recommending that the municipality focus on maintaining the 3.2 ha per 1,000 people provision rate.

## Table 6-4: Analysis of parkland provision in Kawartha Lakes and comparable municipalities

| | Kawartha Lakes | | Norfolk County | | Greater Sudbury Area | | Chatham-Kent | | Quinte West | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Population (2021 Census)** | 81,200 | | 67,490 | | 166,004 | | 103,988 | | 46,560 | |
| **Population Density (people/km2)** | 26.1 | | 42.2 | | 52.1 | | 42.4 | | 94 | |
| **Land Area (Km2)** | 3,033.7 | | 1,597.7 | | 3,186.3 | | 2,451.9 | | 495.5 | |
| **Number of Parks** | 154 | | 83 | | 157 | | 166 | | 64 | |
| **Amount of Parkland[1] (Hectares, people per 1,000 ha)** | 262.0[2] | 3.2:1,000 | 135.7 | 2:1,000 | 1,212.8 | 7.3:1,000 | 250 | 2.4:1,000 | 144.0 | 3.1:1,000 |

1 In collecting the data from the comparators, it was requested that only municipally-owned parkland be included; however, understanding that different municipalities categorize and track parkland differently, there may be some variation in the data.

2 This does not include the approximately 4,000 ha of municipal forests

## Park Supply in Urban Areas

Parkland provision is not uniform across the municipality. Table 6-5 break down the provision by urban and rural areas:

- Bobcaygeon and Lindsay are well supplied, with park provision rates at or close to 4 ha per 1,000 (4.0:1,000)
- Fenelon Falls is under-supplied at 2.6:1,000

If the municipality wishes to reach/ maintain a park provision rate of 3.2:1,000, parkland will need to be acquired with new developments (see Table 6-5 for additional parkland needed). However, it should be noted that non-municipal parkland (e.g. schools, conservation areas etc.) is not counted here. The proposed Parks Master Plan will examine this at a detailed scale and refine the actual amounts of parkland needed in each community to maintain 3.2:1,000 ha, as well as in consideration of non-municipal parkland.

**Table 6-5: Park provision rate in Kawartha Lakes urban areas**

| Urban Area | Ha of parkland | Population (2021) | Current Provision ratio (2021) (# ha: 1,000 residents) | Population (2040) | Provision ratio (2040), if no new parks added (# ha: 1,000 residents) | Additional Ha needed to maintain/reach 3.2 ha:1,000 ratio to 2040 |
|---|---|---|---|---|---|---|
| **Lindsay (land area 15.6 km2)** | 89.5 | 22,367 | 4.0:1,000 | 47,220 | 1.9:1,000 | 61.6 (151.1 total) |
| **Bobcaygeon (land area 5.2 km2)** | 13.9 | 3,576 | 3.9:1,000 | 6,616 | 2.1:1,000 | 7.3 (21.2 total) |
| **Fenelon Falls (land area 4.0 km2)** | 6.3 | 2,464 | 2.6:1,000 | 5,213 | 1.2:1,000 | 10.4 (16.7 total) |

### Supply in Rural Areas

As noted earlier, the expansive geography of Kawartha Lakes and low population density requires a context-sensitive approach to provision standards for the municipality's rural areas. As there will be no significant development in the rural areas, additional parks will not be needed. Instead, the focus should be on improving parks to provide increased recreation opportunities to those in the rural areas. This is the topic of discussion in section 6.7 Recommendations for Rural Areas.

### Park Disposal

There was an indication that some in the municipality feel there is a surplus of parks, in Lindsay in particular. Based on the analysis above, the municipality does not appear to be "over-supplied" with parks in Lindsay or elsewhere. However, from an efficiency perspective, as well as from a recreation value perspective, there may be parks that could be disposed of - for example, if they are isolated, rarely visited, and/or offer few opportunities for residents. Proceeds from sales could then be reinvested in improving other parks. Other options include leasing out the land, or converting unused parcels to Natural/Undeveloped Areas (a new park classification type). Disposal of land is governed by two By-Laws, which are discussed further, with recommendations, in section 6.9 Park Policy.

### Acquiring New Parkland

The municipality is currently challenged in a) maintaining many parks spread across a great distance, and b) affording the cost required for maintenance and upgrades to park amenities and facilities. New parkland acquired in urban areas should be consolidated as much as possible to provide fewer, larger parcels, rather than numerous smaller parcels to improve efficiency, as well as optimize recreation opportunities.

Based on parkland provision needs as discussed above, the municipality should:

- Prioritize parkland over cash-in-lieu for new developments in Fenelon Falls
- Prioritize parkland over cash-in-lieu for new developments where the area is outside an 800m radius of another municipal park in Lindsay and Bobcaygeon

In cases that fall outside of these parameters, the municipality should consider accepting cash-in-lieu. Dedicated parkland should be of sufficient size to act as a Neighbourhood Park (at minimum), or linear parcels should be given to accommodate pathways and trails. Where neither of these options is possible, smaller parcels from adjacent developments should be assembled together or placed adjacent to other community use space (e.g., schools, commercial areas, parks or recreation centres etc.).

## RECOMMENDATIONS

P 1. Adopt the updated/expanded Parkland Hierarchy system provided herein, and categorize parks accordingly.

P 2. In urban areas, aim to reach or maintain a parkland provision ratio of 3.2 ha per 1,000 people and/or provide parks within an 800m catchment area to all households.

P 3. In rural areas, focus on providing and improving Destination and Community Parks.

P 4. Avoid accepting Parkettes as parkland dedication. Parks should be of sufficient size to act as a Neighbourhood Park (at minimum), or linear parcels should be given to accommodate pathways and trails. Where neither of these options is possible, smaller parcels from adjacent developments should be assembled together or adjacent to other community use space (e.g., schools, commercial areas, parks or recreation centres etc.).

P 5. Any land given to the municipality should fit one of the classifications in the hierarchy, and be assigned a level of service to assist staff in determining what resources will be needed to maintain and/or develop the parcel.

### 6.4.3 Levels of Service

The municipality identifies four levels of service (LOS) for parks, from Level 1 to Level 4. These LOS currently only refer to turf maintenance, which does not fully encompass the maintenance tasks required for parks. We recommend expanding the definitions of the LOS to include more tasks to give greater clarity on maintenance requirements, as well as the staff time needed. As mentioned previously, new parks acquired by the municipality should be assigned a park classification and a LOS to determine how much staff time will be required to maintain the new park.[1] Table 6-6 outlines the four LOS, the frequency of turf maintenance (current practice), additional tasks to be added, and considerations for assigning a LOS to a given park. The LOS and their associated tasks should be formalized by including them, with detailed descriptions of the tasks and frequency of maintenance, in staff's internal Parks Manual.

1 Note, the levels of service do not correlate exactly with the parkland hierarchy. Levels of service are determined primarily by the level of use and location of a park. For example, a Neighbourhood Park in a more rural residential area with low use will not require the same level of service as a Neighbourhood Park located next to a school or community centre with higher levels of use. For this reason, each park should be assigned a classification as well as a level of service.

## Table 6-6: Recommended expanded descriptions of Parks Levels of Service (LOS)

| Maintenance level | Frequency of turf maintenance (by staff or contractor) | Additional maintenance tasks to be added | Considerations for assigning LOS |
|---|---|---|---|
| **Level 1** | • 15-22 cuts per season<br>• maximum 3.5 inches for turf<br>• 7-10 day cutting cycle[1] | • litter pick up: 1 - 3 time per week<br>• garden/horticulture maintenance: weekly<br>• tree maintenance: annual arborist inspection, post-storm inspections<br>• sport facilities: weekly<br>• play equipment and furnishing: annual certified inspection, regular visual inspection<br>• water equipment (e.g., splash pads): pre-season start up inspection, daily visual check during operation<br>• lighting: quarterly checks | • high use parks<br>• parks with facilities used for league play and tournaments<br>• Level 1 parks typically are Destination and Community Parks, urban parkettes |
| **Level 2** | • 8-10 cuts per season<br>• maximum of 4 inches for turf<br>• 7-10 day cutting cycle | • litter pick up: biweekly<br>• garden/horticulture maintenance: biweekly<br>• tree maintenance: annual arborist inspection, post-storm inspections<br>• sport facilities: biweekly<br>• play equipment and furnishing: annual certified inspection, regular visual inspection<br>• water equipment (e.g., splash pads): pre-season start up inspection, daily during operation<br>• lighting: quarterly checks | • high use parks<br>• parks with facilities used for league play and tournaments<br>• May include parks from all classifications |
| **Level 3** | • maximum of 3 cuts per season<br>• 1st cut May 25-June 12, second July 6 -13, third September 15-22 | • tree maintenance: annual arborist inspection, post-storm inspections<br>• litter pick up: prior to cutting<br>• garden/horticulture maintenance: N/A<br>• facility and amenity inspections: N/A | • lower use parks<br>• few/no amenities<br>• Level 3 parks typically natural areas/ undeveloped water access points<br>• similar to level 4 areas, though these may require that additional maintenance due to infrastructure access, invasive species management, etc. |
| **Level 4** | • maximum of 2 cuts per season<br>• first cut May 25-July 12, second when requested by City | • tree maintenance: annual arborist inspection, post-storm inspections<br>• litter pick up: prior to cutting<br>• garden/horticulture maintenance: N/A<br>• facility and amenity inspections: N/A | • lower use parks<br>• no amenities<br>• Level 4 parks typically natural areas/ undeveloped water access points |

1 cutting cycle is responsive to drought conditions for all levels of service

Of the 139 parks in Kawartha Lakes, the vast majority are currently classified as L1 and L2 (128 parks). As the municipality struggles to maintain a large portfolio of parks over a very large geographic area, the parks' currently assigned LOS should be reviewed to determine if there are any parks that can be reassigned to L3 or L4.

Section 7.0 Service Delivery builds on this to consider the amount of staff hours required per hectare of parkland, based on these LOS, and provides a calculation to determine staff needs.

### RECOMMENDATIONS

P 6. Update the descriptions of each level of service, and include them in the Parks Manual.

P 7. Review to determine if currently applied LOS is appropriate to each park.

## 6.5 Assessment: Park Amenity Quantities

This section reviews the current supply of key park amenities and assesses the level of service and needs for the next 15 years as it relates to specific amenities. This is done by considering what other municipalities provide (comparative analysis), demand based on consultation data, population/ demographic considerations, and broader trends or contextual considerations. This analysis was completed for the following amenities:

- Playgrounds
- Splash Pads
- Dog Parks
- Basketball Courts
- Skateparks and Pump Tracks
- Other amenities for consideration

### 6.5.1 Playgrounds

Community Demand: **Low to moderate**

- Small number of requests for improvements to existing playgrounds from the resident telephone and online surveys, and user group survey.
- Staff noted that exciting/high-quality playgrounds drive park usage.

Demographic Demand: **Low**

- Children make up a small percentage of the population, and their share is expected to decline slightly throughout the term of the Plan.

Comparable Provision: **Moderate**

- In comparison to other municipalities (Table 6-7), playground provision in Kawartha Lakes is at the median and very close to the average, based on the current population.
- Considering an estimated 2040 population of 112,265, the playground provision rate decreases to 1 playground per 1,675 people.

Trend/Contextual Considerations:

- Movement towards play structures that appeal to a wider age range, for example, challenging obstacle course-type equipment, group hammock swings and zip lines, etc.
- Staff typically replace 3 - 4 playgrounds per year as they reach their end of life, and upon replacement, new features that appeal to broader age ranges should be incorporated.
- As best practices, playgrounds should be paired with other amenities such as at sport fields, or with picnic pavilions.
- Playgrounds offer close-to-home recreation opportunities to many across Kawartha Lakes and are an important amenity for Neighbourhood, Community and Destination Parks.

**Table 6-7: Playground Provision in Kawartha Lakes and Four Comparable Municipalities**

| Municipality and Population | Total # of Playgrounds | Number of Residents per Playground |
|---|---|---|
| **Kawartha Lakes 81,200** | 67 | 1,212 |
| **Norfolk County 67,490** | 32 | 2,109 |
| **Greater Sudbury Area 166,004** | 181 | 917 |
| **Chatham-Kent 103,988** | 164 | 634 |
| **Quinte West 46,560** | 40 | 1,164 |
| **Average** | **96.8** | **1,207.2** |
| **Median** | **67** | **1,164** |

## RECOMMENDATIONS

P 8. Invest in upgrading existing playgrounds to include a greater variety of equipment, themed playgrounds specific to different locations, activities for broader age groups etc., as playgrounds reach the end of their life.

P 9. Playgrounds should be paired with other facilities or amenities where possible.

## 6.5.2 Splash Pads

Community Demand: **Low**

- Minor interest reported from the community and staff for an additional splash pad. Community interest was focused on adding a splash pad to Omemee Beach Park.

Demographic Demand: **Low**

- As noted under playgrounds, the key demographic group for splash pads (preschoolers and children) makes up a small percentage of the population, and will decline slightly over the term of the Plan.

Comparable Provision: **Low to moderate**

- In comparison to other municipalities (Table 6-8), splash pad provision in Kawartha Lakes is at the median and less than average, based on the current population.

- Considering an estimated 2040 population of 112,265, the splash pad provision rate decreases to 1 splash pad per 28,066 people.

Trend/Contextual Considerations:

- Splash pads are generally a high-demand facility, and it is likely the low demand seen in consultations is due to the relatively low number of children in the municipality and the existence of four splash pads currently. Demand is likely to grow as more families move to the community.

- Splash pads are a costly facility to provide, however, they offer high recreation value for families, schools, summer camps, etc., where many users stay at parks with splash pads for longer than they would at a park with only a playground. In this way, splash pads are considered an anchor amenity that could be used as a key attractor in a Community or Destination Park.

- There have been ongoing discussions on adding a splash pad to Omemee Beach Park.

**Table 6-8: Splash Pad Provision in Kawartha Lakes and Four Comparable Municipalities**

| Municipality and population | Total # of Splash Pads | Number of Residents per Splash Pad |
|---|---|---|
| **Kawartha Lakes**<br>**81,200** | 4 | 20,300 |
| **Norfolk County**<br>**67,490** | 2 | 33,745 |
| **Greater Sudbury Area**<br>**166,004** | 17 | 9,765 |
| **Chatham-Kent**<br>**103,988** | 10 | 10,399 |
| **Quinte West**<br>**46,560** | 2 | 23,280 |
| **Average** | **7** | **19,498** |
| **Median** | **4** | **20,300** |

## RECOMMENDATIONS

P 10. Consider adding two more splash pads to supply if, first, demand is sufficient and confirmed (i.e. through community consultation during the park design process), and secondly, if the municipality is seeking to develop a Community or Destination Park and needs an anchor facility.

P 11. The preferred model is a location that has municipal infrastructure but other may options may be considered.

### 6.5.3 Dog Parks

Community Demand: **Very Low**

- Very minor interest reported from the community and Council for dog parks.

Demographic Demand: NA

Comparable Provision: **Low to moderate**

- Kawartha Lakes has one dog park at Pinewood Park in Pontypool, and another is planned to be added to Pioneer Park in 2029. All other comparator municipalities (Table 6-9) have at least two dog parks, with the majority providing three.

Trend/Contextual Considerations:

- Dog parks are typically in high demand in many municipalities over the past few years. The low demand in Kawartha Lakes is likely due to there being many parks and natural areas where people are running their dogs off leash already, and/or that given the extensive rural area in the municipality, many people have enough private land to run their dog.
- Ken Reid Conservation Area (not municipally owned) also has a dog park.
- Dog parks are typically most successful in communities where they can be accessed by walking or a short drive.
- If demand grows for dog parks, it will likely be from residents in the urban areas, and it should be supplied in or near urban areas.

**Table 6-9: Dog Park Provision in Kawartha Lakes and Four Comparable Municipalities**

| Municipality and Population | Total # of Dog Parks | Number of Residents per Dog Park |
|---|---|---|
| **Kawartha Lakes** **81,200** | 1 (plus 1 in 2029) | 81,200 |
| **Norfolk County** **67,490** | 3 | 22,497 |
| **Greater Sudbury Area** **166,004** | 3 | 55,335 |
| **Chatham-Kent** **103,988** | 3 | 34,663 |
| **Quinte West** **46,560** | 2 | 23,280 |
| **Average** | **2.4** | **43,395** |
| **Median** | **3** | **34,663** |

## RECOMMENDATION

P 12. As part of the Parks Master Plan, assess need and potential future locations for dog parks in or near Lindsay, Bobcaygeon and Fenelon Falls.

### 6.5.4 Basketball Courts

Community Demand: **High**

- Basketball courts were mentioned quite frequently in consultations with residents, staff, Council, and community groups. It should be noted that some of the mentions were for indoor basketball courts as well.

Demographic Demand: **High**

- Basketball courts are used by all ages, and as such would serve many segments of the population as it grows.

Comparable Provision: **High**

- In comparison to other municipalities (Table 6-10), Kawartha Lakes is above average in the both the number of basketballs courts and the provision rate basketball courts.

Trend/Contextual Considerations:

- Basketball parks are a facility that offers significant rewards for relatively little input. They are relatively inexpensive to provide/maintain (e.g. compared to skateparks or splash pads), they serve all ages from kids to adults, and there is very little barrier to play - only a ball is required.

**Table 6-10: Basketball Court Provision in Kawartha Lakes and Four Comparable Municipalities**

| Municipality and Population | Total # of Basketball Courts[1] | Number of Residents per Basketball Court |
|---|---|---|
| **Kawartha Lakes**<br>**81,200** | 21 | 3,867 |
| **Norfolk County**<br>**67,490** | 8 | 8,436 |
| **Greater Sudbury Area**<br>**166,004** | 36 | 4,611 |
| **Chatham-Kent**<br>**103,988** | No Data | |
| **Quinte West**<br>**46,560** | 6 | 7,760 |
| **Average** | **17.8** | **6,186** |
| **Median** | **14.5** | **6,186** |

1 the numbers represent a mix of full and half courts, but they have been counted equally for simplicity

## RECOMMENDATION

P 13. The municipality is relatively well supplied with basketball courts. However, given the high demand from residents, the municipality should consider adding basketball courts to parks undergoing revitalization or when seeking to add diversity to the types of amenities in parks.

### 6.5.5 Skateparks and Pump Tracks

Community Demand: **Moderate**

- While not extremely high, of all amenities discussed here (playgrounds, dog parks, splash pads, basketball), skateparks and pump tracks had the second strongest demand in consultations with mentions from residents, staff, Council, community groups, and recreation committees.
- Community feedback noted a need to improve (e.g., renew, make more extensive, higher quality) existing skatepark equipment.

Demographic Demand: **Moderate to high**

- Skateparks and pump tracks appeal to a wide age range from young children to adults. They can be built with varying levels of difficulty, and can be used with various pieces of equipment (roller blades, scooters, bikes, skateboards etc.), which further expands their appeal.

Comparable Provision: **Low to moderate**

- In comparison to other municipalities (Table 6-11), skatepark/pump track provision in Kawartha Lakes is at the median and less than average, based on the current population. All four are skateparks; there are no pump tracks currently in Kawartha Lakes.
- Considering an estimated 2040 population of 112,265, the provision rate decreases to 1 skatepark/pump track per 28,066 people.

Trend/Contextual Considerations:

- Skateparks and pump tracks are typically a high demand facility that are growing in popularity, largely due to the wide age and activity range they serve, along with being flexible in size and design.
- Skateparks and pump tracks are also appealing to youth, an age group that is traditionally difficult to engage in recreation.
- Like splash pads, skateparks and pump tracks can serve as an anchor facility for a Community or Destination park.
- BGC developed a high-quality skatepark recently in Lindsay. The municipally-owned skateparks are relatively rudimentary.
- The municipality already has plans to add three pump tracks to supply in Pinewood Park, Pontypool Forest Tract, Sylvester Park. With these additions, the municipality will be well supplied.

Table 6-11: Skatepark and Pump Track Provision in Kawartha Lakes and Four Comparable Municipalities

| Municipality and Population | Total # of Skate Parks and Pump Tracks | Number of Residents per Skate Park/ Pump Track |
|---|---|---|
| **Kawartha Lakes**<br>**81,200** | 4[1] | 20,300 |
| **Norfolk County**<br>**67,490** | 2.5 | 26,996 |
| **Greater Sudbury Area**<br>**166,004** | 10 | 16,600 |
| **Chatham-Kent**<br>**103,988** | 10 | 10,399 |
| **Quinte West**<br>**46,560** | 3 | 15,520 |
| **Average** | **5.9** | **17,963** |
| **Median** | **4** | **16,600** |

## RECOMMENDATIONS

P 14. Continue with plans to add three pump tracks to supply.

P 15. Update and improve existing skate parks in the municipality.

1 all four locations are skateparks, does not include the additional three pump tracks planned.

## 6.5.6 Other Amenities for Consideration

Based on community consultation, the expected growth in the seniors demographic, and broader recreation trends, the following are park amenities the municipality should consider adding to supply or improving quantity and quality of existing supply:

- Mini putt: Should be located at a Destination or Community Park, and requires a club house (for staff and equipment) and washroom on site. Summer students can staff the rentals. The Town of Petawawa has a municipal mini-putt course, and the City of Sault Ste. Marie recently adopted a Parks and Recreation Master Plan that recommends adding a mini putt course.

- Outdoor exercise equipment: Outdoor exercise equipment is becoming a common feature of municipal parks and trails systems. Equipment is generally laid out along a trail or pathway to create a circuit, or set up as a station near a playground to facilitate adult exercise while supervising children.

- Table and seated games: this can include chess tables or table tennis for example.

- Obstacle courses: Obstacle courses are play equipment that feature various ropes courses, ramps, zip lines, etc. with varying difficulty levels to serve all ages.

- Beaches: With the vast number of water bodies in the municipality, many residents expressed the desire for more formalized public beaches for swimming.

- Winter activities: This can include skating, snow shoeing, skiing, walking/hiking, fat biking, etc. See sidebar for discussion on lending libraries to support these activities.

- Comfort/support amenities: There were many requests for washrooms, shade, and drinking fountains/bottle fillers. Shade should be provided at all parks, at a minimum through the strategic planting of trees. However water and washrooms are more difficult to provide (i.e., in terms of cost, and limited by servicing). Effort should be made to provide washrooms and water at all Destination and Community Parks especially where there are athletic facilities.

The Kawartha Lakes Public Library offers equipment rentals for outdoor activities through their Library of Things. Their "Active Living Collection" includes badminton sets, bird watching kits, disc golf sets, kid's adventure kits, pickleball sets, lawn games, soccer set, and spikeball.The Parks and Recreation Department has teamed with the Library this past summer to offer sport related equipment such as life jackets, and should continue to seek opportunities to work with the library to expand this service to more items and locations.

Community consultation indicated a need/interest in more opportunities for seniors and youth, two age groups that typically have diverging interests. Many of the facilities/amenities listed above have the benefit of appealing to all ages, and the municipality should consider prioritizing all-ages amenities (when the need for another specific amenity has not been identified).

## RECOMMENDATION

P 16. Where possible, prioritize new facilities/amenities that appeal to all ages/multiple age groups (e.g., table tennis, multi-sport courts, outdoor fitness equipment, trail activities etc.).

## 6.6 Assessment: Park Recommendations for Urban Hubs

Lindsay is functionally a small town within the larger Kawartha Lakes, and while Bobcaygeon and Fenelon Falls are much smaller, with their higher density relative to the rural areas, and the growth they are expecting, they too function as smaller 'urban' hubs within the greater Kawartha Lakes. Omemee is considered an urban area in the Official Plan, however for our analysis we have focused on urban areas expecting significant growth. Table 6-12 summarizes socio-demographic changes, planned development, what we heard, and existing parks for each community.

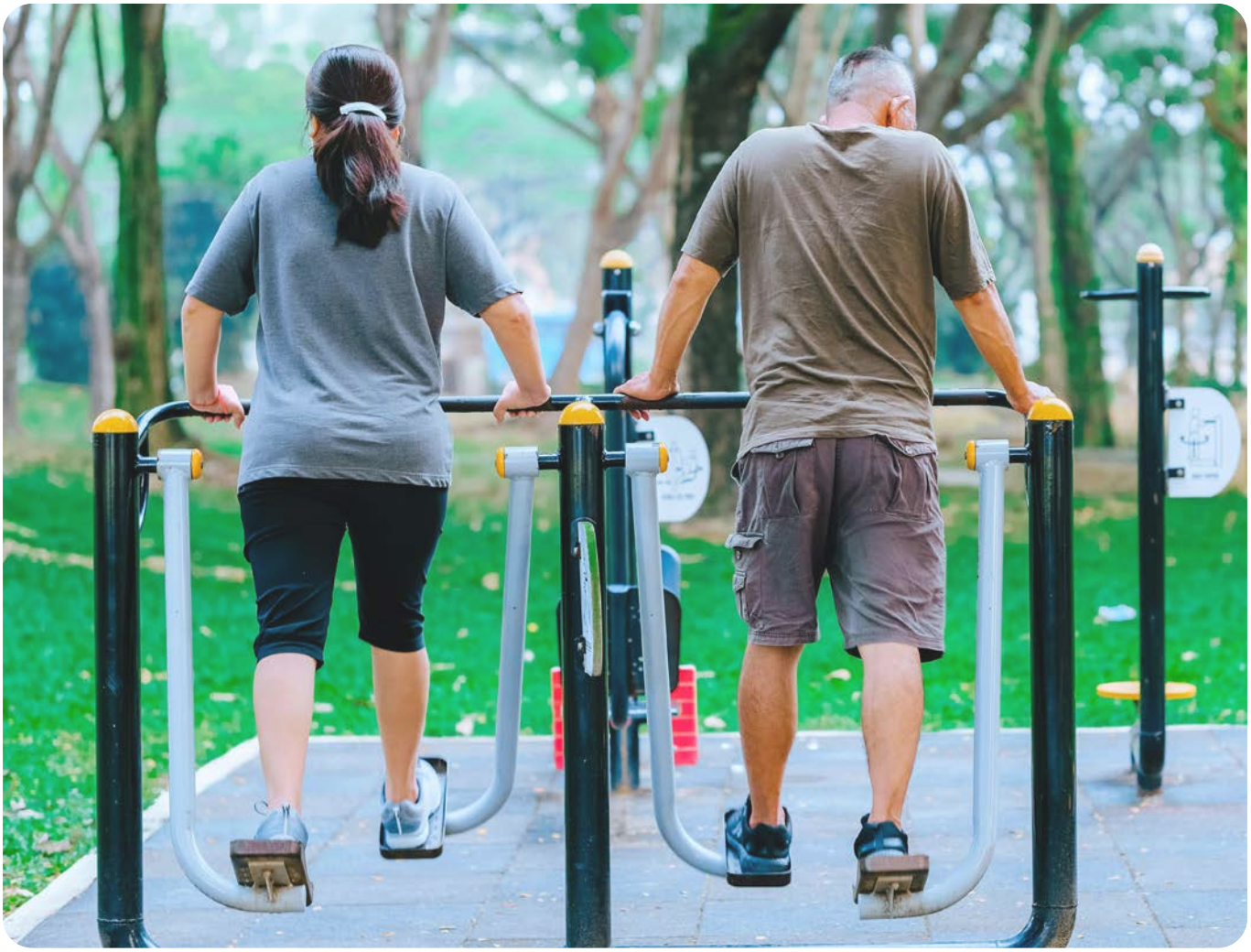


**Table 6-12: Summary of key considerations for parks in Lindsay, Fenelon Falls, and Bobcaygeon**

| Area | Lindsay | Bobcaygeon | Fenelon Falls |
|---|---|---|---|
| **Demographics** | Population of 22,367 expected to more than double by 2040 | Population of 3,576 expected to almost double by 2040 | Population of 2,464 expected to more than double by 2040 |
| **Contextual Factors** | Lindsay Secondary Plan (2017) and Trail Master plan (2023) both have directives to develop trails connectivity and waterfront | Key tourism destination<br><br>Bobcaygeon Secondary Plan (2017) (under appeal) has directions for trail and waterfront development, and specific recommendations for Bobcaygeon Beach Park, Riverview Park, Tommy Anderson Park, and Henderson Park. | Key tourism destination<br><br>Fenelon Falls Secondary Plan (2023) has directions to improve the shorelines of Cameron Lake, Sturgeon Lake, Fenelon River, and the Trent-Severn Waterway for recreational purposes. |
| **Key Amenities Available** | Basketball<br>Beaches<br>Boat launches<br>Docks<br>Outdoor rinks<br>Playgrounds<br>Skatepark<br>Splash pads | Basketball<br>Beaches<br>Boat launches<br>Docks<br>Outdoor rink<br>Playgrounds<br>Skatepark<br>Splash pad | Beach Volleyball<br>Beaches<br>Boat launch<br>Playgrounds<br>Splash Pad<br>Adult Fitness equipment<br>Playground |
| **Key Consultation Requests/Comments** | Upgrade/develop waterfront (high demand); Improvements to Lindsay Memorial Park (particularly pickleball courts) (moderate demand) | Henderson and Bobcaygeon Beach Parks well-liked by residents | Desire for development of a Destination or Community Park in Fenelon Falls (with basketball courts and skatepark or pump track); more programming/activity options (moderate-high demand) |

The earlier Table 6-5 showed the amount of additional parkland that would be required in each urban hub to accommodate population growth, and Table 6-12 above provides further insight on considerations for each hub. However, in order to provide recommendations for specific parks, and/or for locations for specific amenities, a more detailed assessment is required. This should be the focus of a Parks Master Plan. All of the early phase 'leg-work' has been done while preparing this Parks and Recreation Strategic Plan (e.g., preliminary mapping, document review, consultation etc.), as well as establishing high level recommendations for the parks system as a whole. The Parks Master Plan will conduct a more granular analysis of parks, and will provide further mapping, consideration of new development plans and MZOs, and undertake a closer analysis of the three urban areas to develop detailed recommendations for specific parks.

## RECOMMENDATION

P 17. Complete the Parks Master Plan

## 6.7 Assessment: Park Recommendations for Rural Areas

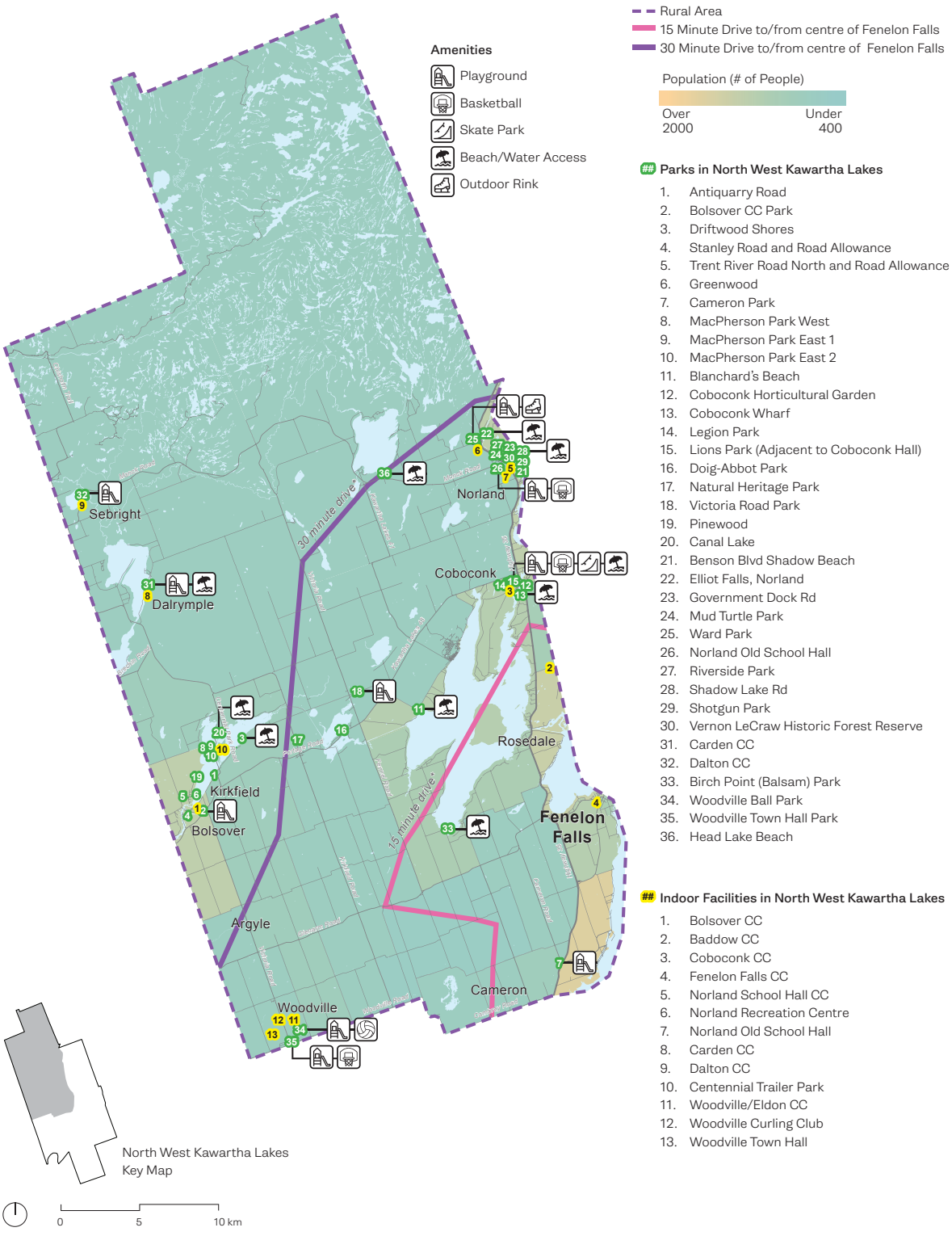
Kawartha Lakes is over 3,000 square kilometres, and for the purposes of this strategy is divided into sections that roughly follow geographic barriers (i.e. water bodies) to facilitate analysis of the distribution of parks and amenities. The parks assessment for rural areas considers the following:

- consultation data
- the park amenity quantity assessment (section 6.5)
- population density
- drive times to urban centres (where recreation facilities and amenities are concentrated)
- distribution of parks and amenities
- broader trends in recreation

The approach considered what is available and where in each rural area, then assessed the improvements or additions needed to parks and unstructured recreation amenities. While providing the same amenities spread across the municipality (i.e., particularly indoor facilities) is not financially feasible, local recreation needs can be partially met by providing high-quality, interesting park spaces, ideally with year-round opportunities.

## 6.7.1 Northwest Kawartha Lakes

### Figure 6-2: Parks and amenities in Northwest Kawartha Lakes




**## Parks in North West Kawartha Lakes**

1. Antiquarry Road
2. Bolsover CC Park
3. Driftwood Shores
4. Stanley Road and Road Allowance
5. Trent River Road North and Road Allowance
6. Greenwood
7. Cameron Park
8. MacPherson Park West
9. MacPherson Park East 1
10. MacPherson Park East 2
11. Blanchard's Beach
12. Coboconk Horticultural Garden
13. Coboconk Wharf
14. Legion Park
15. Lions Park (Adjacent to Coboconk Hall)
16. Doig-Abbot Park
17. Natural Heritage Park
18. Victoria Road Park
19. Pinewood
20. Canal Lake
21. Benson Blvd Shadow Beach
22. Elliot Falls, Norland
23. Government Dock Rd
24. Mud Turtle Park
25. Ward Park
26. Norland Old School Hall
27. Riverside Park
28. Shadow Lake Rd
29. Shotgun Park
30. Vernon LeCraw Historic Forest Reserve
31. Carden CC
32. Dalton CC
33. Birch Point (Balsam) Park
34. Woodville Ball Park
35. Woodville Town Hall Park
36. Head Lake Beach

**## Indoor Facilities in North West Kawartha Lakes**

1. Bolsover CC
2. Baddow CC
3. Coboconk CC
4. Fenelon Falls CC
5. Norland School Hall CC
6. Norland Recreation Centre
7. Norland Old School Hall
8. Carden CC
9. Dalton CC
10. Centennial Trailer Park
11. Woodville/Eldon CC
12. Woodville Curling Club
13. Woodville Town Hall

Table 6-13: Park Types in Northwest Kawartha Lakes

| Park Type | Total Quantity and Hectares | Park Names and Location |
|---|---|---|
| **Destination Parks** | 3 parks<br>47.9 ha | Coboconk Wharf, Coboconk<br>Legion Park, Coboconk<br>Lions Park, Coboconk |
| **Community Parks** | 8 parks<br>19.1 ha | Bolsover Community Centre Park, Bolsover<br>Victoria Road Park, Kirkfield<br>Ward Park, Norland<br>Old School Hall, Norland<br>Carden Community Centre Park, Sebright<br>Dalton Community Centre Park, Sebright<br>Woodville Town Hall, Woodville<br>Woodville Ball Park, Woodville |
| **Neighbourhood Parks** | 2 parks<br><br>3.2 ha | Driftwood Shores, Bolsover<br>Cameron Park, Cameron |
| **Parkettes** | 8 parks<br><br>2.5 ha | Coboconk Horticultural Garden, Coboconk<br>Mud Turtle Park, Norland<br>Birch Point Park<br>Mix small parcels and water access points (see inventory for full list) |
| **Natural Areas** | 15 parcels<br><br>10.5 ha | Mix of road allowances and water access points (see inventory for list) |

**Observations:**

- Population density is low throughout most of this area, with a higher population density in Kirkfield/ Bolsover, Cobobonk, and around Balsam, Cameron, and Sturgeon Lakes.

- Sebright, Dalrymple, Kirkfield and Bolsover fall outside of the 30-minute drive time radii to Lindsay or Fenelon Falls. There are also fewer parks and fewer facilities in this area. This area would benefit from modest investments/additions to park amenities/facilities to improve the level of service for residents in this area of Kawartha Lakes.

- Coboconk and Norland areas are well served by Ward Park, Legion Park, and Lions Park.

- Cameron and Woodville have three parks with playgrounds and ball diamonds, and are within a 15 to 30 minute drive of Lindsay. This area would benefit from a greater variety of amenities, rather than the same amenities repeated at each park.

- If the site allows, Woodville Ball Park would be a suitable location for a second splash pad, and the City should consult with the Lions Club to gauge if they are interested in helping to fundraise for the project.

- There are several undeveloped parks, and small scattered parcels (i.e. Natural Areas and Parkettes as noted in Table 6-14), which are burdensome to maintain, while offering limited recreation value to the community. Some of these parcels provide water access, which current policy does not allow to be sold. We recommend some changes to this policy to be more flexible (see 6.9 Park Policy). If policy changes are approved, staff should identify parcels that can be sold, with the funds reinvested in improving the recommended Community Parks. Where the sale is not approved, investigate other options such as naturalization or, approach neighbouring properties or community groups to gauge their interest in leasing the land.

- Swimming lessons are held at Birch Point Park. A picnic pavilion would support programming and casual use of the park.

## RECOMMENDATIONS

P 18. Enhance Dalton or Carden Community Centre Park by adding additional amenities (e.g., outdoor fitness equipment, basketball courts, etc.). Consult with the community to determine specific amenities and facilities of interest.

P 19. Enhance Bolsover Community Centre Park by adding additional amenities (e.g., outdoor fitness equipment, basketball courts, etc.). Consult with the community to determine specific amenities and facilities of interest.

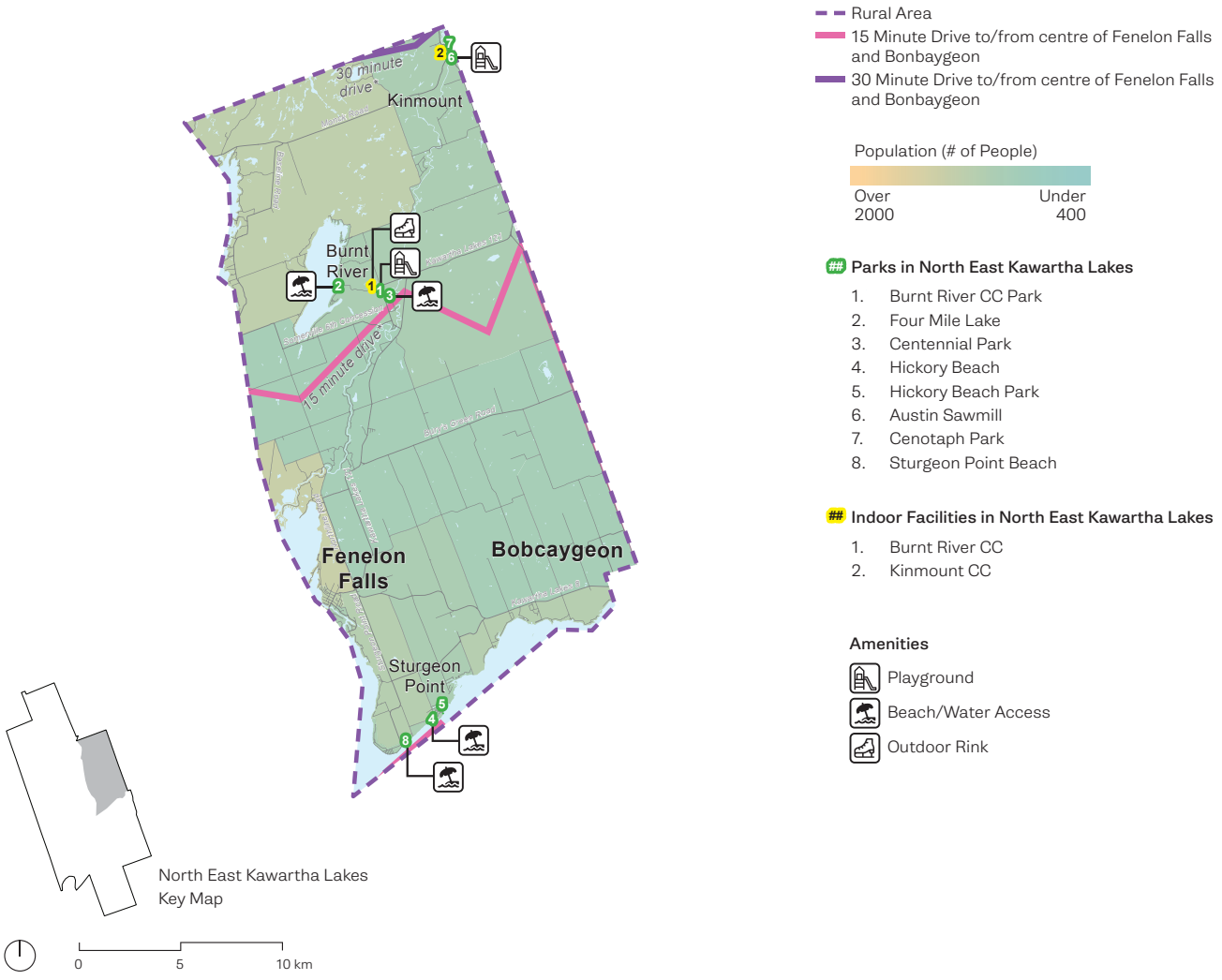
P 20. Add a splash pad to Woodville Ball Park, and seek opportunities to work with the community to fundraise for the project.

P 21. If policy allows, consider disposing of the following parcels (see inventory/GIS for exact locations):

- Stanley Road Allowance
- Three parcels on MacPherson Crescent
- Trent River Road North Road Allowance
- Natural Heritage Park
- Pinewood Blvd., Bolsover
- Doig-Abbot Park

## 6.7.2 Northeast Kawartha Lakes

### Figure 6-3: Parks and amenities in Northeast Kawartha Lakes



## Table 6-14: Park Types in Northeast Kawartha Lakes

| Park Type | Total Quantity and Hectares | Park Names and Location |
|---|---|---|
| **Destination Parks** | 1 park<br>2.9 ha | Austin Sawmill Park, Kinmount |
| **Community Parks** | 1 park<br>6.4 ha | Burnt River Community Centre Park |
| **Neighbourhood Parks** | 2 parks<br>0.7 ha | Centennial Park, Burnt River<br>Four Mile Lake, Burnt River |
| **Parkettes** | 2 parks<br>0.008 ha | Cenotaph Park, Kinmount<br>Sturgeon Point Beach, Sturgeon Point (open to public, but not municipally owned) |
| **Natural Areas** | 2 parcels<br>1.9 ha | Hickory Beach, Hickory Beach<br>Hickory Beach Park, Hickory Beach |

**Observations:**

- There are no gaps in terms of the distribution of parks or amenities. The entire area is within a 15-minute drive to good quality Community and Destination Parks (i.e. Austin Sawmill, Burnt River Community Centre, and parks in Bobcaygeon, Coboconk, and Fenelon Falls).

- Burnt River Community Centre is a key recreation location for Northeast Kawartha Lakes that is well used and cared for by residents. This site should continue to act as a community focal point, and the municipality should work with residents to determine the types of improvements and additions that would best serve the community.

- There are a number of good swimming areas in Northeast Kawartha Lakes, but most lack amenities. Given the high demand for more swimming areas, the municipality should look for opportunities for improvements. Centennial Park (Burnt River) has a parking area, and is already popular for swimming and paddling (kayak and paddleboarders). The municipality should assess if it is feasible to expand the water access without causing too much erosion, and provide a picnic pavilion.

- In addition to the parks described above, Somerville Forest Tract is also in Northeast Kawartha Lakes, providing additional recreation opportunities.

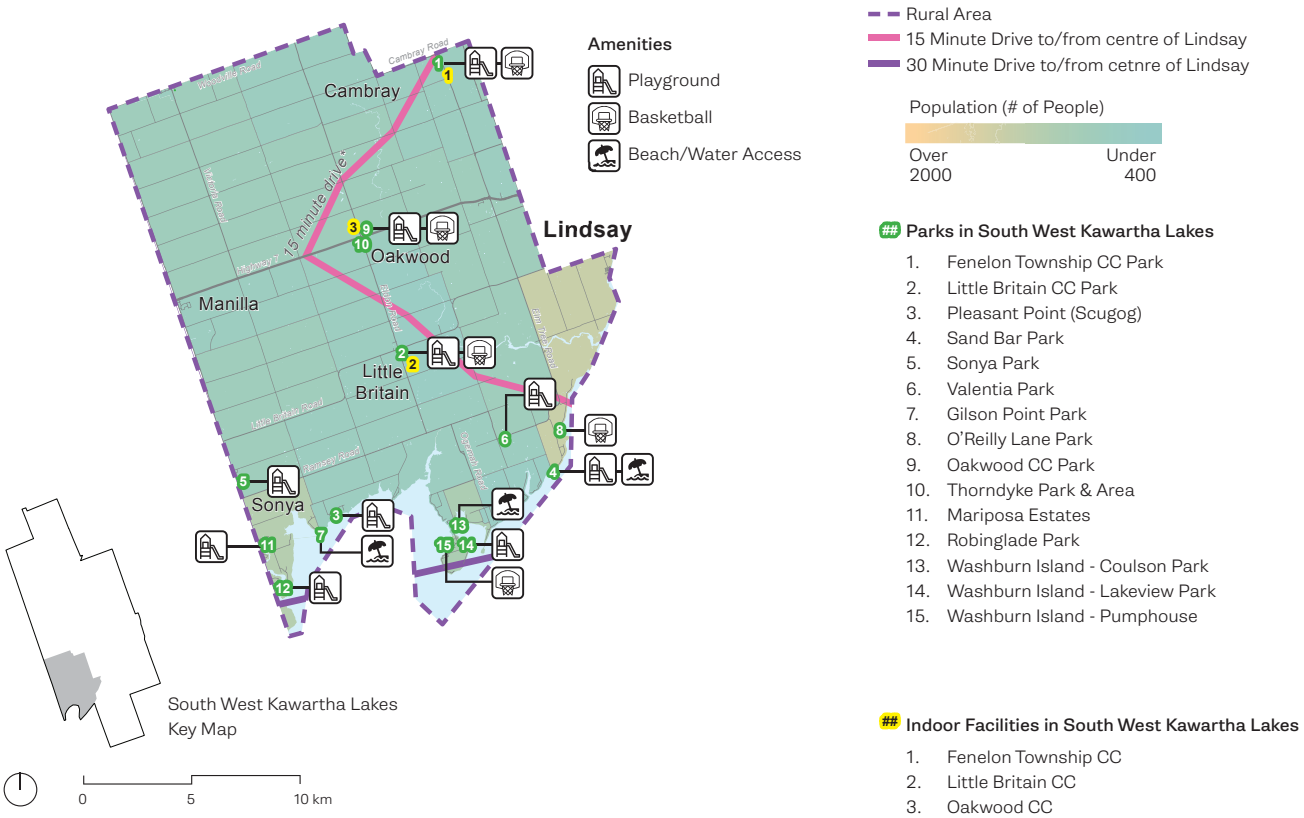
## RECOMMENDATIONS

P 22. Consult with Burnt River Community to improve and enhance the park. Suggestions include improving the rink and providing support amenities (e.g., add a warming hut), or adding a new amenity (e.g., outdoor fitness equipment).

P 23. Undertake a design process for Centennial Park (Burnt River) to identify options for improving/ expanding water access, and adding amenities such as a picnic shelter.

## 6.7.3 Southwest Kawartha Lakes

### Figure 6-4: Parks and amenities in southwest Kawartha Lakes




**## Parks in South West Kawartha Lakes**

1. Fenelon Township CC Park
2. Little Britain CC Park
3. Pleasant Point (Scugog)
4. Sand Bar Park
5. Sonya Park
6. Valentia Park
7. Gilson Point Park
8. O'Reilly Lane Park
9. Oakwood CC Park
10. Thorndyke Park & Area
11. Mariposa Estates
12. Robinglade Park
13. Washburn Island - Coulson Park
14. Washburn Island - Lakeview Park
15. Washburn Island - Pumphouse

**## Indoor Facilities in South West Kawartha Lakes**

1. Fenelon Township CC
2. Little Britain CC
3. Oakwood CC

## Table 6-15: Park Types in Southwest Kawartha Lakes

| Park Type | Total Quantity and Hectares | Park Names and Location |
|---|---|---|
| **Destination Parks** | 0 | Not Applicable |
| **Community Parks** | 5 parks<br><br>24.2 Ha | Fenelon Township CC Park, Cambray<br>Little Britain CC Park, Little Britain<br>Oakwood CC Park, Oakwood<br>Sand Bar Park, Little Britain<br>Valentia Park, Little Britain |
| **Neighbourhood Parks** | 5 parks<br><br>7.3 Ha | Pleasant Point, Little Britain<br>Sonya Park, Little Britain<br>O'Reilly Lane Park, Little Britain<br>Lakeview Park, Washburn Island<br>Pumphouse Park, Washburn Island |
| **Parkettes** | 5 parks<br><br>1.6 Ha | Gilson Point Park, Little Britain<br>Thorndyke Park & Area, Oakwood<br>Mariposa Estates, Seagrave<br>Robinglade Park, Seagrave<br>Coulson Park, Washburn Island |
| **Natural Areas** | 1 park<br><br>0.1 ha | View Lake Beach, Janetville |

**Observations:**

- Population density is quite low; higher around the edges of Lindsay and Little Britain. The northern part of the quadrant is also served by Woodville.

- Neighbourhood and Community Parks are well distributed around more populated areas

- Seagrave, Sonya, Gilson's Point area:

    - Fairly well supplied with Parkettes (Gilson Point Park, Mariposa Estates, and Robinglade Park) and Neighbourhood Parks (Sonya Park, Pleasant Point)

    - Improvements to parks in this area should focus on waterfront parks, particularly Pleasant Point and Mariposa Estates (for example, adding a picnic pavilion and improving the playgrounds). Pleasant Point Park may also have space for an additional amenity such as half court basketball, volleyball or table tennis.

- Little Britain, Valentia, Washburn Island area:

    - This area has two waterfront parks with great potential, within a 10-minute drive from each other: Sand Bar Park and Pumphouse Park.

    - Pumphouse Park is 1.5 ha in size and is surrounded by homes. As such it should undergo modest improvements including a small parking area (space for 3-5 cars), and a picnic structure. Given its proximity to other parks (such as Lakeview), connectivity could also be improved.

    - Sand Bar Park is 3.3 Ha, some of which is forested, with fewer homes surrounding it. As a popular swimming destination, it has the potential to be developed as a waterfront destination, potentially fulfilling the role of a Destination Park. Improvements can include the addition of trails through the forested area, mini putt course, an improved playground, volleyball courts, paddlecraft rental lockers, and a picnic shelter. Consideration should also be made for washrooms/portapotties and parking. Given the number of suggestions for Sand Bar Park, a design process with community consultation should be undertaken as a first step.

    - Little Britain Community Centre Park is a small recreation hub with a Community Centre, playground, basketball court, pickleball courts, picnic shelter, ball diamonds, athletic field, and track, adjacent to a public school. This would be an ideal location for a skatepark and/or pump track (assuming a splash pad is developed at Woodville Ball Park). There is sufficient space for these proposed facilities and it would facilitate recreation for children and youth at the nearby school.

- Cambray and Oakwood area:

    - Fenelon Township Community Centre Park also functions as a small hub with a Community Centre paired with a park. The park picnic shelter, playground, and half-court basketball.

## RECOMMENDATIONS

P 24. Undertake a design process with community consultation to improve Pleasant Point Park. Suggestions include adding a picnic pavilion, improving the playground, and adding a half-court basketball and/or volleyball court and/or a table tennis table.

P 25. Undertake a design process with community consultation to improve Mariposa Estates Park. Suggestions include adding a picnic pavilion and improving the playground.

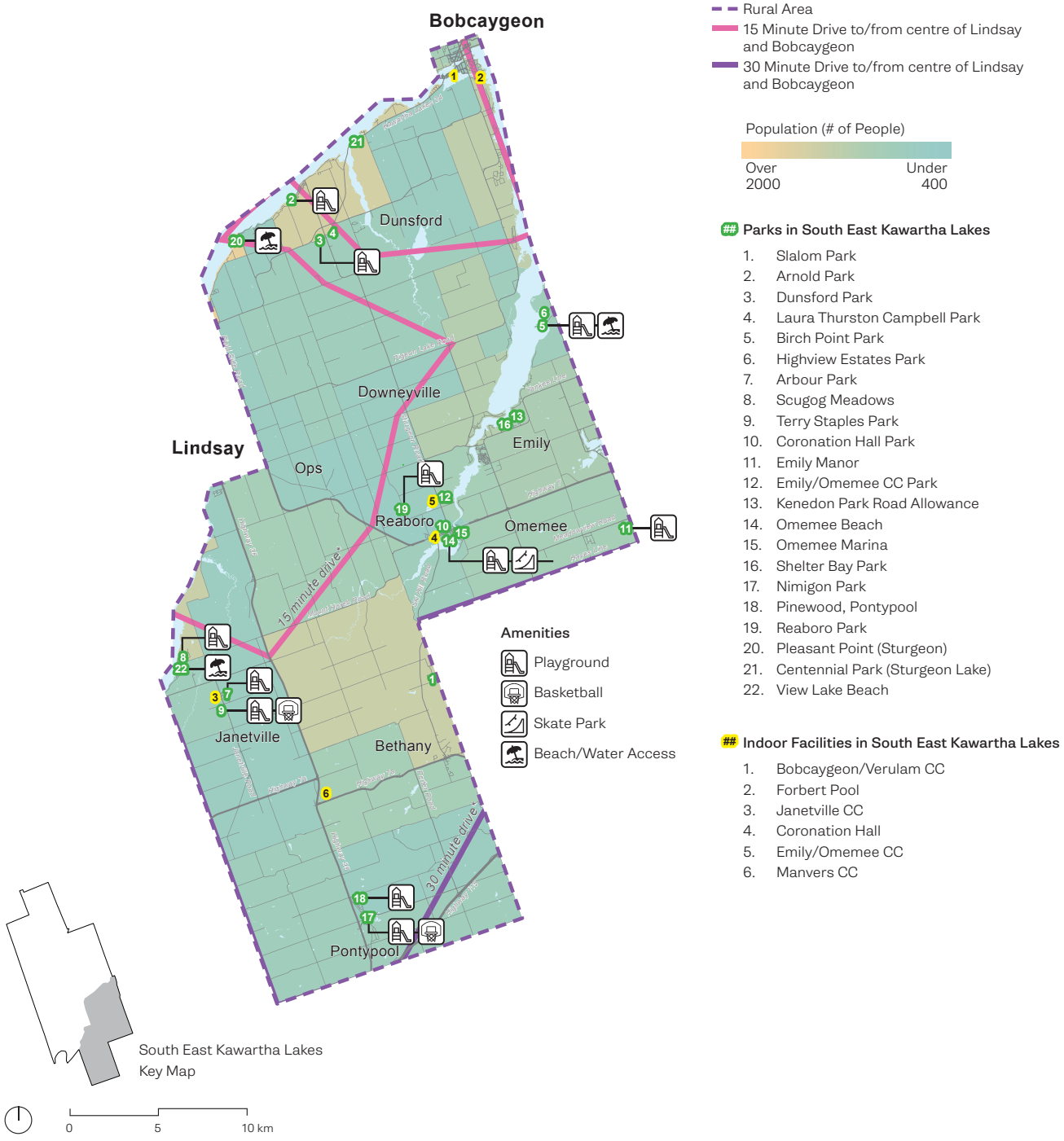
P 26. Improve Pumphouse Park through the addition of a picnic structure, improved connectivity to other parks, and parking spaces for 3-5 cars.

P 27. Undertake a design process with community consultation to redesign Sand Bar Park as a Destination Park. Some improvements to consider include trails through the forested area, mini putt course, improved playground, volleyball courts, picnic shelter, paddlecraft rental lockers, washrooms and parking.

P 28. Undertake a design process with community consultation to confirm demand, and if apparent, add a pump track or skatepark to Little Britain Community Centre Park.

## 6.7.4 Southeast Kawartha Lakes

### Figure 6-5: Parks and amenities in southeast Kawartha Lakes




**## Parks in South East Kawartha Lakes**

1. Slalom Park
2. Arnold Park
3. Dunsford Park
4. Laura Thurston Campbell Park
5. Birch Point Park
6. Highview Estates Park
7. Arbour Park
8. Scugog Meadows
9. Terry Staples Park
10. Coronation Hall Park
11. Emily Manor
12. Emily/Omemee CC Park
13. Kenedon Park Road Allowance
14. Omemee Beach
15. Omemee Marina
16. Shelter Bay Park
17. Nimigon Park
18. Pinewood, Pontypool
19. Reaboro Park
20. Pleasant Point (Sturgeon)
21. Centennial Park (Sturgeon Lake)
22. View Lake Beach

**## Indoor Facilities in South East Kawartha Lakes**

1. Bobcaygeon/Verulam CC
2. Forbert Pool
3. Janetville CC
4. Coronation Hall
5. Emily/Omemee CC
6. Manvers CC

Table 6-16: Park Types in Southeast Kawartha Lakes

| Park Type | Total Quantity and Hectares | Park Names and Location |
|---|---|---|
| **Destination Parks** | 1 park<br><br>2.0 ha | Omemee Beach Park |
| **Community Parks** | 4 parks<br><br>10.3 ha | Nimigon Park, Pontypool<br>Emily/Omemee CC Park, Omemee<br>Terry Staples Park, Janetville<br>Pinewood Park, Pontypool |
| **Neighbourhood Parks** | 7 parks<br><br>22.3 ha | Reaboro Park, Reaboro<br>Dunsford Park, Dunsford<br>Arnold Park, Dunsford<br>Emily Manor, Omemee<br>Pleasant Point Park (Sturgeon), Thurstonia<br>Scugog Meadows, Janetville<br>Arbour Park, Janetville |
| **Parkettes** | 6 parks<br><br>4.2 ha | Shelter Bay Park, Omemee<br>Coronation Hall Park, Omemee<br>Omemee Marina, Omemee<br>Laura Thurston Campbell Park, Dunsford<br>Highview Estates Park, Ennismore (border property)<br>Birch Point (Pigeon) Park, Ennismore (border property) |
| **Natural Areas** | 2 parcels<br><br>1.8 ha | Kenedon Park Road Allowance, Omemee<br>Slalom Park, Bethany |

**Observations:**

- This area has a large number of very small Neighbourhood Parks each of which serve a very small population. These parks typically consist of a green space with a play structure.
    - While inefficient (i.e., significant work to maintain for relatively small benefit due to a small number of users), given the isolated nature of these small subdivisions, the parks are probably valuable to those living there, as this is the only local public space for gathering and socializing.
    - It should be confirmed whether these parks are used by the community, and if the play equipment is suitable.
    - If the community is not using these parks, consider selling these parcels to adjacent property owners.
- Pontypool, Bethany, Omemee and Emily are well supplied with good quality Community Parks (e.g., Nimigon and Pinewood Parks) and one Destination Park (Omemee Beach Park).
    - The primary park in Bethany is not municipally owned, but the municipality provides support and funding, and should continue to do so.
    - There are active community groups contributing to park fundraising and park maintenance and programming in these communities.
    - The municipality has consulted with the community and is undertaking a redevelopment of Omemee Beach Park, that may include a splash pad.
    - The Trails Master Plan (2023) recommends a natural surface pump track in the Pontypool Forest Tract, which is planned to be developed, and will provide another recreation amenity in the area.
- Janetville has three parks, each providing the same amenities/facilities - green space, playground, and a ball diamond. One of these parks, Arbour Court, is currently planned to be redeveloped.
    - While reasonably close to Bethany or Lindsay, as the local Community Park, Terry Staples Park should be improved to provide more variety locally.
- Downeyville/Reaboro/Emily are not as well supplied, with Reaboro Park being the main park, which only has a small playground and trailhead for the Trans Canada Trail. It should also be noted that, given the geography of the area, being surrounded by lakes, access to other parks typically requires a drive of more than half an hour.
    - An additional amenity should be added to Emily/Omemee CC park so that it can better fulfill the role of a Community Park in this area
- Dunsford has a higher population density and is better supplied with four small Neighbourhood Parks. However, the parks in Dunsford are all very similar: small in size, with a standard playground.
    - Improvements should be made to at least one of these parks: Arnold, Dunsford, or Laura Thurston Campbell
    - However, each of these is very small and surrounded by homes, so improvements should be modest and sensitive to the proximity of houses (e.g., avoid pickleball and

dog parks). The municipality should consult with the local community in selecting which park to improve and the design.

- In addition to the parks described above, Emily and Pontypool Forest Tracts are also in Southeast Kawartha Lakes, providing additional recreation opportunities.

## RECOMMENDATIONS

P 29. Conduct research to confirm if any of the small parks in southeast Kawartha Lakes are not being used and are suitable for disposal.

P 30. Continue to collaborate with and support volunteer groups operating at Nimigon Park.

P 31. Develop the approved Omemee Beach Park Concept.

P 32. Undertake a design process with community consultation to coordinate improvements to Terry Staples Park and Arbour Court Park to increase the variety of amenities available locally.

P 33. Undertake a design process with community consultation to improve Emily/Omemee CC Park so it better fulfills the role of a Community Park. Some suggestions include adding a larger, more age-inclusive play structure when the current playground has reached its end of life, and a basketball or multi-sport court.

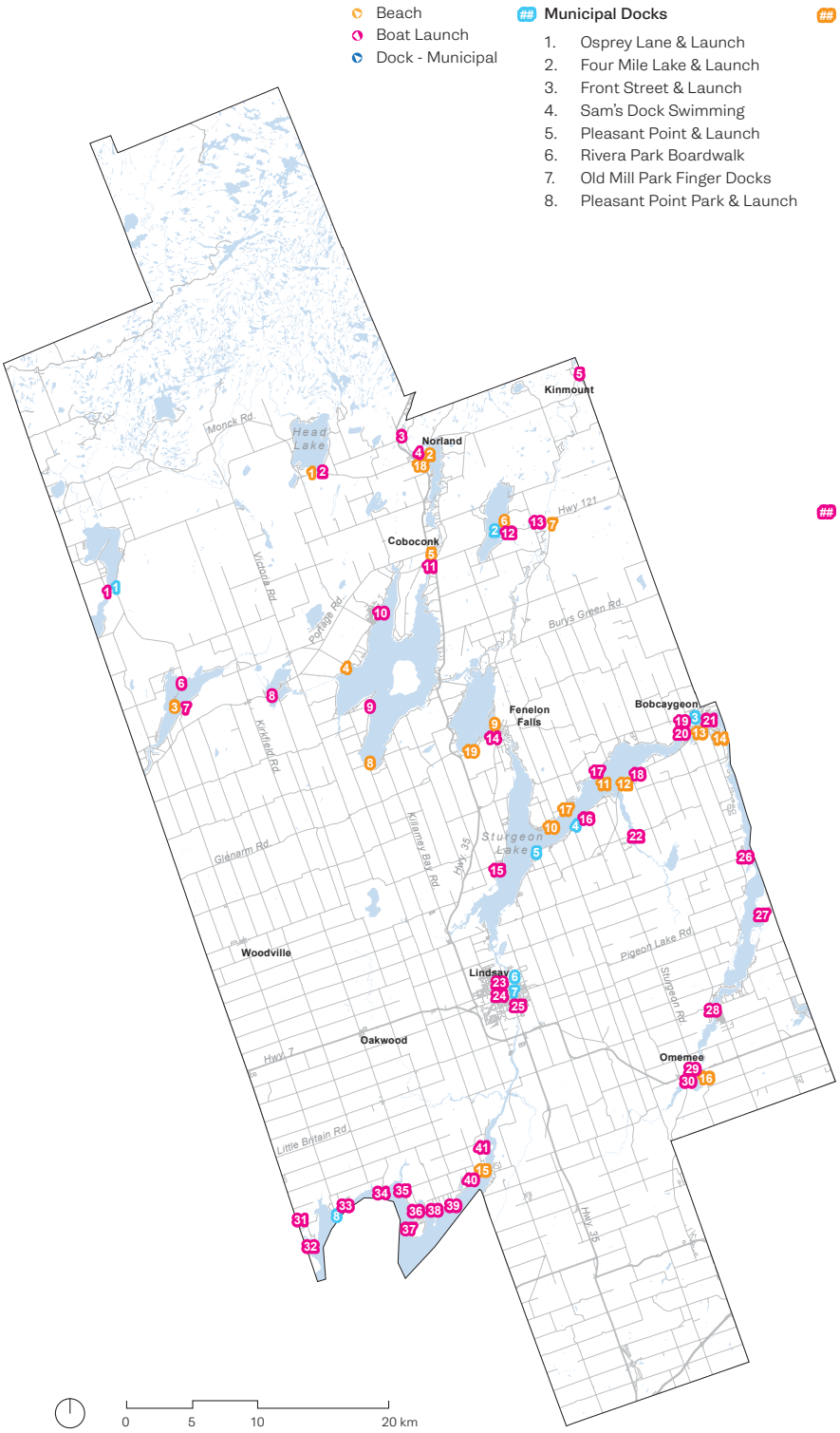
P 34. Conduct consultation with residents in the Dunsford area to improve the variety of park amenities in the area by making additions/changes at to one of these parks:

- Arnold Park
- Dunsford Park
- Laura Thurston Campbell Park

## 6.8 Assessment: Waterfronts

Water access was a prominent request in consultations. For example, 40% (or 437 respondents) to the online survey indicated they would like improvements to be made to the municipality's waterfronts, beaches, and boat launches. In open-ended questions, there were 27 mentions regarding adding/improving beach areas, water access, and boat launches. Municipal docks, beaches and boat launches are shown in Figure 6-6.

## Figure 6-6: Map of Municipal Docks, Beaches, and Boat Launches in Kawartha Lakes




### Municipal Docks

1. Osprey Lane & Launch
2. Four Mile Lake & Launch
3. Front Street & Launch
4. Sam's Dock Swimming
5. Pleasant Point & Launch
6. Rivera Park Boardwalk
7. Old Mill Park Finger Docks
8. Pleasant Point Park & Launch

### Beaches

1. Head Lake
2. Norland Bathing Area
3. Centennial Park West
4. Blanchard's Road
5. Coboconk Lions Park
6. Balsam Lake - Kirfield
7. Burnt River Four Mile Lake
8. Birch Point
9. Bond Street Garnet Graham
10. Sturgeon Point
11. Verulam Recreational Park - MacAlpine Park
12. Centennial Park KL 24
13. Bobcaygeon Beach Park
14. Riverview Park
15. Valentia (Sandbar Beach)
16. Omemee Beach Park
17. Hickory Beach
18. Shadow Lake Beach
19. Oriole Park - Fenelon Falls

### Boat Launches

1. Osprey Lane Dock
2. Head Lake
3. Elliot Falls
4. Shadow Lake Governement Dock
5. Burnt River (Kinmount Dock)
6. Canal Lake
7. Centennial Trailer Park Dock
8. Mitchell Lake
9. Balsam Lake - Otter Rd
10. Balsam Lake Coboconk
11. Balsam Lake - Summerside Rd.
12. Four Mile Lake
13. Burnt River (Centennial Park)
14. Cameron Lake (Fenelon Falls Water St.)
15. Sturgeon Lake (Fenelon Falls Francis St.)
16. Thurstonia Government Dock
17. Sturgeon Lake McAlpine
18. Sturgeon Lake - Scotch Line Rd.
19. Sturgeon Lake - West St.
20. Strugeon Lake Park St (Bobcaygeon Beach Park)
21. Sturgeon Lake - Front St. Dock
22. Emily Creek
23. Scugog River (St. Paul St. Rivera Park)
24. Scugog River (Welling St.)
25. Scugog River (Durham St. Nayoro Park)
26. Pigeon Lake (Lakeview Cr.)
27. Pigeon Lake (Marily Cr.)
28. Pigeon River (Peace Rd. Cowan's Bay launch)
29. Pigeon River (Colborne St. Omemee Marina)
30. Pigeon River (Omemee Sturgeon Rd. S.)
31. Lake Scugog (Mariposa Estates Launch)
32. Lake Scugog (Seagrave Robyn Glade)
33. Lake Scugog (Pleasant Point Chickadee Court)
34. Lake Scugog (Port Hover Launch)
35. Lake Scugog (Cottage Rd. Launch)
36. Lake Scugog (Washburn Island Rd., Coulson Park)
37. Lake Scugog (Bowen Rd. Launch)
38. Lake Scugog (Okadene west Muskie Dr. Launch)
39. Lake Scugog (Maple Ave Swain Plain Launch)
40. Lake Scugog (Sandbar Rd. Launch)
41. (O'Reilly Lane Launch)

## 6.8.1 Swimming Areas

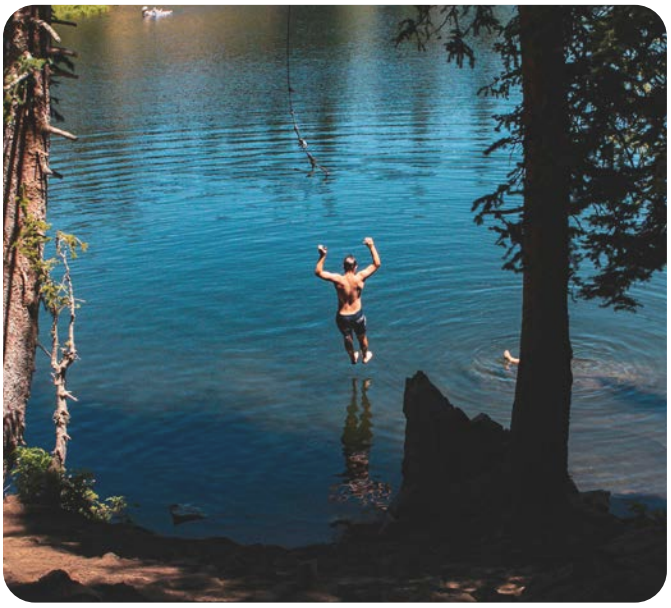
With numerous water bodies in Kawartha Lakes, it is impossible to know all of the locations where people like to swim. Therefore, this discussion focuses only on the municipally-owned shore-line parcels where people are known to swim.

Of these areas, Four Mile Lake, Birch Point (Balsam) Park, Sand Bar Park, Omemee Beach Park, Bobcaygeon Beach Park, Garnet Graham Beach Park, Centennial Park (KL24), McAlpine Park, Shadow Lake Rd Park, and Hickory Beach are the primary "beach" swimming locations. Four Mile Lake and Birch Point are also used for swimming lessons. For a municipality of 3,000 km2 and many water bodies, there would ideally be more beach parks of the Destination or Community Park calibre. However, many of the waterfront parcels the municipality owns are very small Neighbourhood/ Parkette/Natural area Parks, and would not be suitable for development as a Destination or Community Park. Section 6.7 identifies a number of waterfront parks for improvements, and two of which would function as Destination parks (Omemee Beach and Sand Bar), and the rest are minor improvements suitable for a Neighbourhood Park or Parkette:

- Centennial Park Burnt River (NE)
- Pleasant Point, Little Britain (SW)
- Hickory Beach (NE)
- Mariposa Estates (SW)
- Pumphouse Park (SW)
- Sand Bar Park (SW)
- Omemee Beach (SE)

If improvements are made to Sand Bar Beach and Omemee Beach, and they are developed as Destination Parks, that would bring the total of Destination Waterfront Parks up to four (Sand Bar, Omemee, Garnet Graham, and Bobcaygeon Beach Park), with broad geographic distribution as well. Northwest Kawartha Lakes is without a Destination Waterfront Park, however, Balsam Lake Provincial Park and Coboconk Wharf also provide swimming opportunities.

Improvements to the waterfront in Lindsay were the most numerous requests received. As noted earlier, it is recommended that Lindsay be looked at more closely through a Parks Master Plan. Waterfronts throughout the whole municipality should either be included as a component in the Parks Master Plan RFP, or tendered as a separate project, as waterfront studies often are. If done separately, the Waterfront Master Plan should follow the Parks Master Plan, so that it can incorporate recommendations from that Plan.



## 6.8.2 Boat Launches and Docks

The municipality allocates annual funding for boat launch and dock improvements and has been steadily making improvements to different locations each year. Based on the map of boat launches and docks (Figure 6-7), the boat launches and docks are well distributed throughout the municipality.

"...The current boat launch in [Fenelon Falls] causes significant frictions [with regard to] access, neighbour frictions, problems with docked overnight boats (cars racing), limited parking, etc. The boat launch could be moved to the existing Bass Street vacant City property. This area would offer a better approach/ launch for boaters, more space for parking, alleviating long [lines of] vehicles in the downtown. The biggest opportunity would be to pedestrianize Water Street from May St. to the Train Bridge - a wonderful new waterfront promenade and potential event space (buskers, markets, art fairs etc), enjoyable park space etc. in the summertime. Likewise, it could serve as a snow-corridor to invite snowmobilers directly into our downtown.

Given the planned new docking and pedestrian crossing in the lower gorge, there is significant potential for new public space in that area also. Currently there is an adjacent residential property for sale as well as adjacent vacant land. Owning the existing residential property currently listed would be a significant boon for that project - offering to expand Clifton Park, additional space for access to the waterway, providing power and water provisions for the area, potential for washrooms and shore facilities and perhaps parking. This could also offer a key public-private-partnership in that the facility could be leased to a private company to operate for the summer months. Perhaps a cantina, canoe, kayak & bike rentals, ... etc."

- resident email

## 6.8.3 General Water Access

Many water access points are not officially developed or maintained as swimming areas or boat launches, but may be used as such informally. The recommendations in section 6.7 identify some of these parcels and provide recommendations for improvements. There are also recommendations to consider disposing of waterfront parcels where there is little recreation value to the community.

Another key consideration is that the municipality does not have a complete inventory of all public water access points - the result of being a geographically massive municipality with extensive water bodies, with gaps in institutional knowledge post-amalgamation. Given the number of known water access points and the work required to create a confirmed, detailed inventory, the municipality should undertake a Water Access Strategy. The aims of this study would be to at a minimum:

- confirm the inventory, including identifying swimming areas: this will allow the municipality to create an updated, detailed mapping system for swimming areas, boat launches, and docking locations
- identify potential locations for new or improved swimming areas: to identify opportunities to improve water quality in swimming areas
- review and confirm the waterfront recommendations contained in this Plan
- confirm the need and identify location(s) for additional boat launch and dock areas
- identify boat launch and/or dock areas for improvement/expansion (especially regarding parking and circulation, as was identified as a pressing need in consultations)

### RECOMMENDATIONS

P 35. Develop a Waterfront Master Plan either as part of the Parks Master Plan, or as a subsequent project.

P 36. As part of the Parks Master Plan:

- confirm the inventory, including identifying swimming areas
- identify potential locations for new or improved swimming areas
- identify opportunities to improve water quality in swimming areas
- review and confirm the waterfront recommendations contained in this Plan
- confirm the need and identify location(s) for additional boat launch and dock areas
- identify boat launch and/or dock areas for improvement/expansion (especially regarding parking and circulation, as was identified as a pressing need in consultations).

## 6.9 Assessment: Parks Policy

This section discusses existing and proposed parks policies. The Mandate of the Kawartha Lakes Parks Advisory Committee is to advise on significant park and trail developments, which includes the development of park policy. As such, development of any policies recommended in this Plan should be developed in consultation with this Committee.

### 6.9.1 Existing Policies

**Public Art Policy (CP2021-035)**

This policy was reviewed and found to be comprehensive with no suggested improvements identified.

**By-Law to Protect and Enhance the Healthy Tree Canopy (By-Law 2024-201)**

The policy is new (2024), and includes measures (e.g., fees) to prevent and dissuade tree removal. This policy could be improved by adding sections on tree planting and improving biodiversity, that cover for example:

- targets for tree planting by the municipality
- incentives for residents who wish to plant trees
- list of preferred species

The 2018 CKL Healthy Environment Plan recommended implementing a tree planting incentive program with rebates for native and/or climate-resilient trees and shrubs, and solidifying that through this policy would help with continued implementation.

**Street, Municipal Facility, and Park Naming Policy (CP2022-001)**

The naming policy hinges on a Master Name List, and offers many provisions for individuals who may be named on this list:

- Former elected Members of Council (including from pre-amalgamation municipalities);
- Historic or Indigenous uses or persons;
- Veterans, as defined by the Royal Canadian Legion ;
- Federal or Provincial Politicians;
- Prominent Citizens; and,
- Sports Figures.

It is suggested to revise the policy to prohibit naming after individuals. This is part of a broader trend of moving away from naming public assets/spaces after people, to avoid conflicts, and having to re-name them later on. Naming after individuals is mentioned throughout the policy, so many sections would need to be revised. The Master Names list does include other options which are more suitable for public spaces, and would reduce the chances of re-naming down the line:

- Geographic significance including local landmarks;
- Service Clubs or Organizations;
- Indigenous uses;

- Sponsorships or Dedications (if not by an individual)

Section 3.03 discusses the naming of elements within a park:

> "Elements of parks (trails, fountains, squares, gardens, structures) and components of building[s] (rooms, pools, ice pads, galleries, gazebos, shelters, playing fields) should also be named in accordance with this policy."

Caution should be taken when naming elements within a park, as this often causes confusion in the inventory and within the community, as some will refer to the element by the name of the Park it is in, rather than the specific name given to it. Often it ends up having different names on the municipal website, schedules, inventory, and online Maps.

Understanding that this is a potential source of revenue for the municipality, this can remain an option, however, care should be taken to reduce confusion wherever possible. For example, in naming a ball diamond within a park, it should be named "EXAMPLE Ball Diamond", not "EXAMPLE Ball Park".

## RECOMMENDATIONS

P 37. Expand the By-Law to Protect and Enhance the Healthy Tree Canopy (By-Law 2024-201) by adding targets for tree planting by the municipality, incentives (e.g., planting support, rebates etc.) for residents who wish to plant trees; and the list of preferred species.

P 38. Revise the Street, Municipal Facility, and Park Naming Policy (CP2022-001) to preclude naming public spaces and assets after individuals.

P 39. Revise the Street, Municipal Facility, and Park Naming Policy (CP2022-001) to clarify that when naming elements within a park, the element name should not also include the word "park".

### Regulate Public Parks and Facilities By-Law 2006 - 147

In reviewing this policy a number of updates are suggested for consideration:

> **Section 5.02 Liquor:** No person shall bring, keep or consume upon any park or facility any liquor, unless that use is in accordance with the Liquor License Act, and all other Municipal, Provincial and Federal laws and regulations, and is part of an event authorized by a rental agreement.

Some municipalities across Canada (E.g., Toronto and Vancouver) have been revising their by-laws to permit alcohol in some or all public parks. Given the popularity of Kawartha Lakes parks and beaches as a tourist destination in summer, permitting alcohol in certain parks could further increase

the attractiveness for visitors as well as residents.

**Section 5.14 Camping and Lodging:** No person shall dwell, camp or lodge in a park or facility, except for designated campgrounds as set out in Schedule "A", and those who occupy such lands designated as campgrounds shall be subject to the regulations set out and agreed to as a condition of the rental agreement for any such campground.

**Section 5.15 Tents and Structures:** Unless authorized by rental agreement, no person shall place, install or erect any temporary or permanent tent or structure in any park.

Since the beginning of the COVID-19 pandemic, communities across Canada have seen an increase in the number of individuals experiencing homelessness and forming encampments in response. These encampments present unique challenges for Parks and Recreation Departments, as they strive to balance the rights and needs of encampment residents with those of their staff and the broader community. In response, the municipality has recently developed an Encampment Policy to define their approach to this issue.

**5.20 Cycling and Skating:** No person shall cycle, inline skate, roller skate, skateboard or use any other wheeled device propelled by human power or gravity in any park or facility, except in those areas of a park or facility designated for such activities, nor shall they:

a) engage in reckless skating/cycling;

b) cycle/skate or act in such a manner as to interfere with, endanger or disrupt any other person.

This provision is very restrictive, especially given how many people like to recreate by cycling, skating, and skateboarding, and the reasoning is not clear. It would be preferable to allow these activities in all places except in specific places where some danger or excessive nuisance has been identified. In other words, revising the wording to allow these activities except where prohibited (with signs posted).

## RECOMMENDATIONS

P 40. Consider updating Regulate Public Parks and Facilities By-Law 2006 - 147 section 5.02 to permit alcohol in some public parks.

P 41. Consider the need for updates to Regulate Public Parks and Facilities By-Law 2006 - 147 sections 5.14 and 5.15 to reflect the new Encampment Policy

P 42. Consider updating Regulate Public Parks and Facilities By-Law 2006 - 147 section 5.20 to be less restrictive to self-propelled devices, and include mention of scooters.

**By-Law 2018-020 (A By-Law to Regulate the Disposition of Municipal Real Property in and for The Corporation of the City of Kawartha Lakes) and Disposal of Real Property Policy and Land Management Policy CP2021-033**

In 2001, Council passed a motion stating it will not approve the sale of any parcel of land that has water access. This was formalized in section 8.0 of the By-Law 2018-020 (A By-Law to Regulate the Disposition of Municipal Real Property in and for The Corporation of the City of Kawartha Lakes). The policy CP2021-033 adds provisions for protecting land that can be used for affordable housing. It does not provide guidance specifically for park and recreation land.

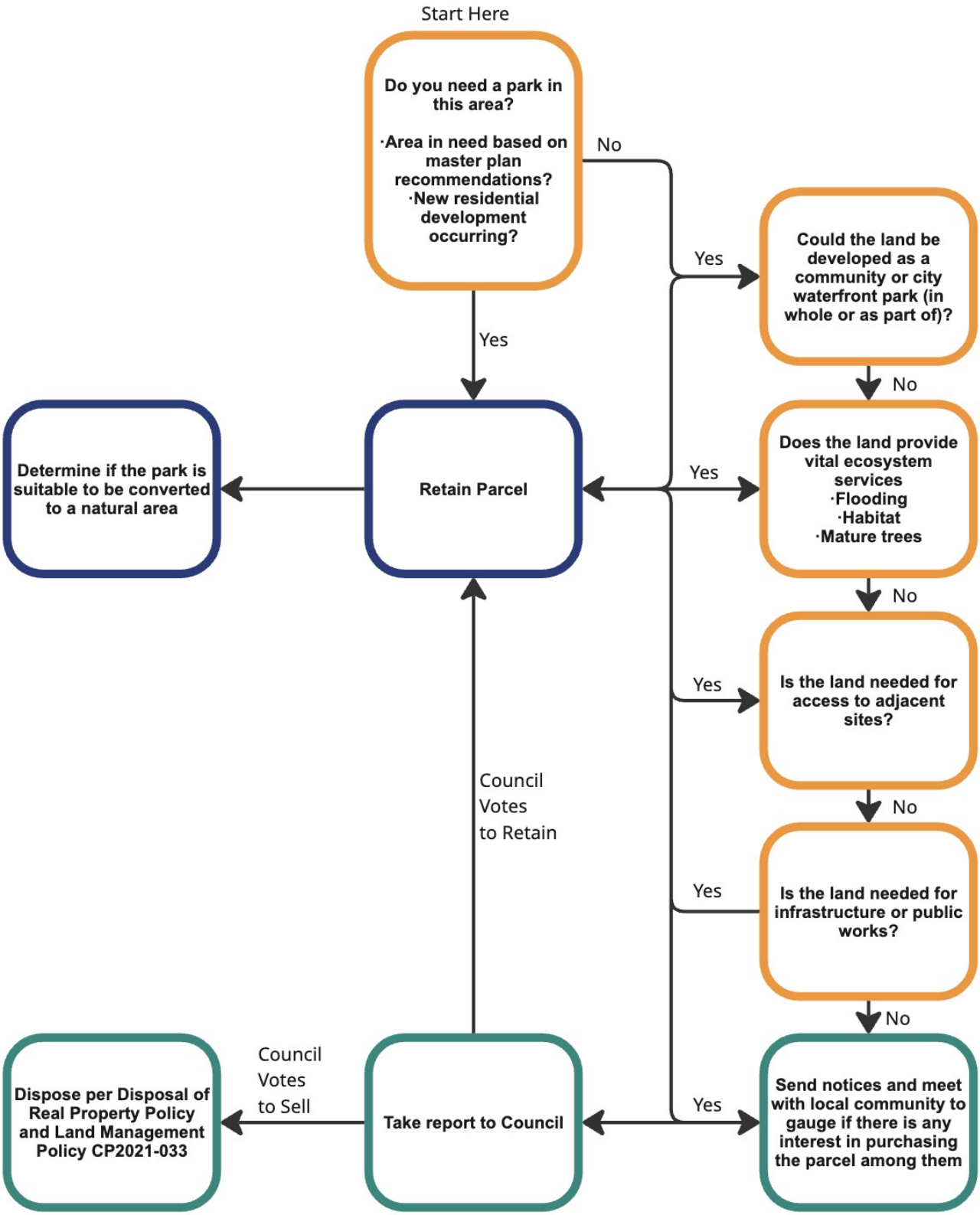
The Council resolution and By-Law 2018-020 speak specifically to road allowances with water access, but in practice, they have been interpreted as applying to any municipal land with water access. Also of note, the original motion stated that the municipality would consider "requests for occupation of such properties (short of purchase) by way of lease, licence or encroachment agreement", although no mention of this is made in the By-Law. Leasing or other agreements may not provide proceeds from a sale, however, savings would be realized through easing the maintenance burden of staff.

As discussed throughout this assessment, not all water access parcels provide value to the municipality or the community for recreation benefits or otherwise. For example, many are quite small and located between two residential properties, making them unsuitable/not ideal for public use. In some cases, there are multiple such parcels near each other.

Of note, By-Law 2018-020 section 8.01 states "Exceptions may be considered where alternate access to water in the immediate vicinity can be provided." It is recommended this section of the policy be repealed and replaced with a Park Disposal Decision tree to help determine if parkland should be retained. This approach is more responsive and allows for contextual considerations rather than the currently applied blanket approach.

Figure 6-7 provides a template of a parkland disposal decision tree that the municipality can use and adjust as needed. Before making the decision to dispose, lease, or naturalize parkland, there should be a process in place to ensure valuable parkland is not lost. Given that many (if not all) parcels that the Department can consider selling are very small and surrounded by houses, the most likely scenario for their sale would be to approach adjacent neighbours and ask if they are interested in purchasing or leasing the parcel from the municipality, thus expanding their property. If neighbours are not interested, the municipality should then ask any local community groups who may be interested. The decision tree builds in this step before going to Council and publicly posting the sale as a courtesy and act of goodwill to the neighbours adjacent to the parcel. It also builds in the option to determine if a retained parcel can be converted to a natural area.

Figure 6-7: Map of Municipal Docks, Beaches, and Boat Launches in Kawartha Lakes



## RECOMMENDATION

P 43. Repeal section 8.0 Unopened Road Allowances Leading to Water of By-Law 2018-020, and replace it with a park disposal decision tree to aid in decisions related to park disposal. Staff should use the park disposal decision tree before taking the steps outlined in the Disposal of Real Property Policy and Land Management Policy CP2021-033.

## 6.9.2 New Policies

### Parkland Dedication By-Law and Cash-in-lieu Policy

The Planning Act (1990) is the provincial legislation outlining land use planning and control in Ontario. Section 42[1] and various other sections of the Act allow municipalities to acquire physical parkland or cash-in-lieu of parkland from new developments, ensuring that residents in growing communities will continue to have access to parks and greenspace. Parkland dedication is typically acquired through development approvals such as Draft Plans of Subdivision or Condominium, Site Plan Control and/or Consents. In Kawartha Lakes, the vast majority of development is occurring in the three urban areas, and it is from these developments that the municipality will receive parkland dedication or cash-in-lieu.

In 2022, the provincial government passed Bill 23, the "More Homes Built Faster Act," to increase the supply of Ontario's market housing over the next ten years. The legislation revised ten provincial Acts including but not limited to the Conservation Authorities Act, Development Charges Act, and Planning Act, which resulted in significant implications for Ontario's land use planning regime (summarized in Table 6-17). Specifically, parkland dedication caps have been altered under Bill 23 such that the maximum alternative rate is now 1 hectare per 600 net residential units (Section 42(4) of the Act); and the cash-in-lieu parkland rate for medium- and high-density developments is 1 hectare per 1,000 net residential units. Sites of five hectares or larger are now capped at 15% parkland dedication, while sites under five hectares are capped at 10% parkland dedication. Municipalities must accept encumbered lands (e.g., land with below-grade infrastructure) or privately-owned publicly accessible open spaces (POPS) as parkland conveyance. Collectively, these changes mean that the amount of parkland and cash-in-lieu municipalities can receive from developments has been cut in half.

1 Section 42(1) of the Planning Act states that municipalities may pass a by-law as a condition of (re)development of land that requires a proportion of land be conveyed as parkland/other public recreational purposes. Section 42(1) of the Act allows for municipalities to acquire physical parkland at the prescribed rate and Section 42(6) of the Act allows municipalities to require a payment in lieu, based on a percentage of the value of the land otherwise require to be conveyed as parkland.

**Figure 6-8: Summary of key changes to parkland dedication from Bill 23**

| | Pre-Bill 23 | Post-Bill 23 |
|---|---|---|
| **Basic Parkland Dedication Provision** | Up to 2% of the land proposed for commercial or industrial (re) development | Sites of five hectares or larger are now capped at 15% parkland dedication, while sites less than five hectares are capped at 10% parkland dedication. |
| | Up to 5% for any other type of (re) development (e.g., residential uses), or cash equivalent. | |
| **Alternative Parkland Dedication Rate:** | Up to 1 hectare of parkland for every 300 dwelling units | 1 hectare per 600 net residential units |
| **Alternative Cash-in-Lieu Rate:** | 1 hectare of parkland for every 500 dwelling units (based on the value of land) | 1 hectare per 1,000 net residential units (for medium and high density)(based on the value of land) |
| **Other Considerations** | | Municipalities must accept encumbered lands (e.g., land with below-grade infrastructure) or privately-owned publicly accessible open spaces (POPS) as parkland conveyance. |
| | | Municipality must spend or allocate at least 60% of the monies that are in the special parkland dedication account at the beginning of each year. |

In order to fully understand the implications of these changes in Kawartha Lakes, the municipality should undertake an exercise whereby each planned development in the urban areas is assessed to determine:

- based on the park provision in the area, should parkland or cash-in-lieu be accepted for this development?
- what is the maximum amount of parkland that could be acquired?
- what is the maximum amount of cash that could be accepted?

The resulting matrix will identify what will be available for the municipality in the coming years, and in turn clarify the shortfalls that the municipality must make up (both in terms of cash and parkland) if any, to implement the recommendations of this Strategic Plan and others (i.e., the Trails Master Plan and the proposed Urban Parks Master Plan and Waterfront Access Strategy). Given that developments are occurring in the urban areas, this matrix exercise could be added to the scope of work for the Parks Master Plan.

Further, another important change introduced through Bill 23 was the inclusion of Section 42(16.1) which requires a municipality to spend or allocate at least 60% of the monies that are in the special parkland dedication account at the beginning of each year. This inclusion will have an impact on the spending of funds collected through cash-in-lieu of parkland and will not allow a municipality to save those fees for larger projects, unless the funds are allocated. Long term planning documents such as this Parks and Recreation Strategic Plan provide the municipality with a long-term road map that will facilitate allocating funds for future uses.

The legislative changes under Bill 23 require a parks plan prior to the passing of any future parkland dedication by-law. Specifically, Policy 42 (4.1) of the Planning Act states, "Before passing a by-law under this section, the local municipality shall prepare and make available to the public a parks plan that examines the need for parkland in the municipality." For all intents and purposes, this Plan is considered a municipal parks plan for the City of Kawartha Lakes under section 42 of the Planning Act, and can facilitate the future development of a Parkland Dedication By-law, along with applicable Official Plan policies for parkland dedication.

The City of Kawartha Lakes does not currently have a formal Parkland Dedication By-law or corresponding Cash-in-Lieu of Parkland Policy. However, the Municipality's Official Plan (2012) does include key policies relevant to the acquisition of land and land conveyance. The Official Plan does not include policies related to the use of alternative rates as set up in the Planning Act and introduced through Bill 23. In order for the Municipality to appropriately plan for the future development of parks, the Municipality should create a consolidated Parkland Dedication By-law that aligns with objectives outlined in the Municipality's Official Plan and other relevant policy documents. The by-law should include:

- Details for conveyance rates;
- Language to allow for cash-in-lieu of land dedication, accompanied by

allocation of funds;

- Parkland conveyance conditions; and
- Dedication or payment timing.

The by-law should also contain the directions provided in this strategic plan and the recent trails master plan regarding when to accept cash-in-lieu, and stipulations for parkland accepted. Recalling the recommendations from section 6.1:

- P2 In urban areas, aim to reach or maintain a parkland provision ratio of 3.3 ha per 1,000 people and/or provide parks within an 800m catchment area to all households.
    - In an urban area not meeting this provision rate, parkland should be prioritized over cash-in-lieu.
- P3 In rural areas, focus on providing and improving City and Community Parks
    - In rural areas, cash-in-lieu should be prioritized
- P4 Avoid accepting Parkettes as parkland dedication. Parks should be of sufficient size to act as a Neighbourhood Park (at minimum), or linear parcels should be given to accommodate pathways and trails. Where neither of these options is possible, smaller parcels from adjacent developments should be assembled together or adjacent to other community use space (e.g., schools, commercial areas, parks or recreation centres etc.)
    - The stipulation for linear parcels is in line with expanding the trails network
- P5 Any land given to the municipality should fit one of the classifications in the hierarchy, and be assigned a level of service to assist staff in determining what resources will be needed to maintain and/or develop the parcel.

It would be recommended that parkland dedication conveyance rates be included in the Municipality's Fees and Charges By-law so that fees can be updated periodically with inflation or market rates. The benefit of this would allow for only the fee to be updated rather than the entire parkland dedication by-law. Details on the timing of payment should also be addressed, as some Municipalities opt to require payment through a draft condition of approval vs. at the time of building permit issuance.

A Cash-in-Lieu of Parkland Policy should be prepared at the same time as the Parkland Dedication By-law to outline an alternate rate for parkland conveyance. Cash-in-Lieu of Parkland rates should consider the various types of lands within the Municipality and the abundance of shoreline in the Municipality. Waterfront lots/development typically come at a premium versus a rural or infill consent and as such would have a higher parkland dedication rate. Strategically utilizing the cash-in-lieu policy can support critical park enhancements like those recommended in this Plan.

## RECOMMENDATIONS

P 44. Develop a Parkland Dedication By-law and a Cash-in-Lieu of Parkland Policy as discussed herein.

P 45. Parkland dedication conveyance rates should be included in the municipality's Fees and Charges By-law so that fees can be updated periodically with inflation or market rates.

P 46. In order to comply with recent changes to the Planning Act, use the recommendations in this Strategic Plan to spend or allocate at least 60% of the monies that are in the special parkland dedication account at the beginning of each year.

P 47. Prepare a matrix of all planned developments to clarify how much parkland and cash-in-lieu will be received in order to understand where there may be shortfalls. This can be done in-house, or can be added to the scope of the Urban Parks Master Plan.

P 48. In urban areas not meeting the recommended provision rate (3.3 ha per 1,000 people and/or no park within an 800 m catchment area to all households), parkland should be prioritized over cash-in-lieu.

P 49. In rural areas, cash-in-lieu should be prioritized to support the strategy of investing in key City and Community Parks in rural areas.

### Community Garden Policy

Municipalities across Ontario follow a variety of models in providing community gardens based on where the gardens are situated (municipal lands, schools, or other institutional lands), the role of community partners, and the municipal department's capacity to provide oversight or facilitate the delivery of programs. Community food gardens should be led by interested community members or organizations to ensure their success. In most cases, community gardens are provided through a partnership between the municipality and community organizations, whereby the municipality provides land (including but not limited to parkland) free of charge along with planter frames, soil, fencing around the site, and a shed with basic supplies. The community group in turn takes on the administration and operation of the site. Maintenance can be shared between the two partners, typically with the municipality providing grass cutting and taking care of larger repairs.

Before community garden projects are initiated between the City and an interested community group, a policy should be developed outlining, at minimum, site selection criteria, approved species (for fruit trees, etc.) and roles and responsibilities pertaining to supplies, construction, operations, maintenance and programming. The policy may include a contract to be signed by relevant parties to ensure that gardens are properly cared for.

## RECOMMENDATION

P 50. Develop a community garden policy to clarify goals/objectives, roles and responsibilities etc. of the City and community group(s).

# 6.10 Assessment: Accessibility, Safety, and Equity

The topics of accessibility, safety, and equity are strongly linked, and when applied to parks planning, include additional consideration of:

- accessible parks and amenities
- health and safety (e.g., emergency phones, water safety, sharps disposal, lighting)
- free and affordable access to recreation

## 6.10.1 Accessible Parks and Amenities

The Accessibility for Ontarians with Disabilities Act (AODA) mandates minimum standards that apply to spaces, including accessible pathways, ramps, and washrooms. The municipality has taken accessibility further by implementing its own Facility Accessibility Design Standards (FADS). The FADS covers primarily indoor facilities (e.g., prescribing one universal washroom per floor), but provides less direction on outdoor spaces, or more specifically for parks (e.g. does not include anything related to play equipment or trails). A third document, a staff Parks Manual (draft), states that only accessible picnic tables will be used going forward, but otherwise does not provide any goals or guidelines for accessibility in parks and trails. Rather than adding yet another document to refer to for accessibility, recommendations contained here are suggested to be reflected in the Parks Manual so staff have all the information in one place.

Supporting accessibility means: "Removing the barriers faced by individuals with a variety of disabilities (including, but not limited to physical, sensory, cognitive, learning, mental health) and the various barriers (including attitudinal and systemic) that impede an individual's ability to participate in social, cultural, political, and economic life. Disabilities can be temporary or permanent. As we age our abilities change and therefore an accessible society is one designed to include everybody; both people with disabilities and people who self-identify as non-disabled."[1]

1 City for All Women Initiative. (2015). Advancing Equity and Inclusion. A Guide for Municipalities. Ottawa. p. 17.

Additional accessibility considerations to be included in the Parks Manual include:

- Playground surface: include discussion of accessibility upgrades such as engineered wood fibre, poured in place rubber or rubber tile safety/fall surface and cast-in-place flush concrete curb with ramp around perimeter of playground to retain safety surface and allow for barrier-free access
- Additional playground features: for example, communication boards for children who are non-verbal or have difficulty communicating, a roller slide which eliminates static electricity which can be dangerous for children with cochlear implants, wheelchair accessible gliding swing, raised sand/water table.

- Pathways and trails: again, much is covered by AODA and FADS, however the parks manual could discuss increasing accessibility at certain trails by adding 'tapping boards' along trails for those who are vision impaired.[1]

Accessibility upgrades should be planned in conjunction with scheduled playground replacements and park revitalization. In general, it is recommended that parks in the 'Destination Park' category (see Table 6-2) should be first priority for accessibility upgrades as these parks are most frequented by residents and visitors, followed by 'Community Parks'.

1 New trail in Qualicum improves accessibility for the visually impaired https://www.cbc.ca/player/play/video/9.6651424

### 6.10.2 Health and Safety

Accessibility is often discussed as a standalone issue, however, the general improvements discussed here have multiple, overlapping benefits that not only address accessibility but also serve to support public health and make spaces safer, more inclusive, more comfortable, and more usable. The following are key considerations for health and safety that are not currently reflected in policy or in the Department's internal Parks Manual (draft):

- water safety: at all municipal locations where people are known to swim, safety rings, a sign with a location identifier/number (to be provided to 911 in case of emergency) and swim ladders (if needed) should be provided. In areas of the municipality where cell phone service is intermittent, an emergency phone should also be provided.
- lighting: certain parks and amenities should be lit to facilitate use in winter and shoulder seasons when days are short. Examples include pathways used for jogging, sport facilities, and skate parks and pump tracks.
- shade: adequate shade needs to be provided in each park, either through tree canopy or a built structure. This is particularly important in playgrounds where caregivers with young children often spend considerable time exposed to the sun, and at facilities that seniors often frequent. Given the importance of providing shade in parks, shade structures and/or additional tree planting should be incorporated into all parks.

### 6.10.3 Free and Affordable Access to Recreation

Accessibility also means financially accessible, and parks are a key way the municipality supports free and affordable recreation. All park spaces and amenities for unstructured use, such as beaches, trails/paths, playgrounds, skateparks/ pump tracks, basketball courts and outdoor fitness equipment, provide opportunities for all residents at no up-front cost. When investing in these types of amenities (improvements or new), consideration should be given to this contribution to accessibility, as well as to the relative benefit to the surrounding population (e.g., prioritize these projects in areas with high instances of low-income families, youth, and seniors).

#### RECOMMENDATIONS

P 51. Update the staff operational Parks Manual to include further details on park accessibility, such as playground surfacing, play equipment and signs, and pathway trail features.

P 52. Update the Parks Manual to include information/guidance on water safety, safety lighting, and shade as discussed herein.

P 53. Prioritize accessibility upgrades at Destination Parks, followed by Community Parks.

P 54. When prioritizing and funding park and amenity upgrades, consider local demographics to maximize the impact/contribution of free/ affordable access to recreation.

## 6.11 Assessment: Climate Conscious Approach to Parks

### 6.11.1 Tree Canopy

A healthy, diverse, and resilient tree canopy is a significant public asset with lasting environmental, economic, and social impacts. Tree and forest canopy (TFC) coverage impacts several facets of ecological systems, including water quality, erosion protection, air quality, reduced UV exposure, and the health and prevalence of flora and fauna. While many areas in Kawartha Lakes have mature trees and adequate TFC coverage, others lack shade where it is needed most, such as around playgrounds. Recognizing the importance of tree canopy, many municipalities have established tree planting targets, however, no such target exists in Kawartha Lakes yet.

To develop a thoughtful target for Kawartha Lakes, it is recommended that the municipality retain the services of a consulting arborist to complete an inventory of trees on selected parcels of municipal-owned land, and then develop a Tree Canopy Strategy. The inventory will provide the baseline data to inform a management strategy. Given the extent of municipally owned land, this work should be limited to key areas, for example, select streets/right-of-ways within urban settlement areas, and/or at City and Community Parks across the municipality. All trees within the scope of the inventory should be geolocated. Data collected for each tree should include diameter at breast height (DBH), canopy width, species name, tree health, and hazard potential. The cost of this service will depend greatly on the scope, such as the number of trees included, the minimum size of the trees included, and whether woodlot areas or edges are included. The municipality should work with the consultant to ensure that the scope is strategic and well-defined. It should be noted that certain types of urban forest analysis are more effectively conducted as a desktop exercise using recent aerial imagery.

Following completion of the tree inventory, the Tree Canopy Strategy should be developed to guide the management of trees on municipally-owned land. The Plan should set targets related to the percentage of canopy cover, desired species composition, new tree planting, and ash tree removal to help manage and mitigate the effects of the Emerald Ash Borer. The strategy should include urban design standards and policy recommendations for the successful care and integration of trees in urban conditions such as along streets, parking lots, and stormwater ponds. The strategy should also have considerations for forest fire mitigations, such as maintenance of forest litter, barbeque policy, setbacks and fire breaks, and avoiding overflow parking on grassed areas. The main goal of the plan should be to expand and preserve tree canopy cover in Kawartha Lakes, with a focus on tree cover in parks and along trails and on select streets.

## RECOMMENDATIONS

P 55. Hire the services of a consulting arborist to complete a tree inventory of planted trees on a scoped portion of municipal land (e.g., parks and municipal rights-of-way in urban settlement areas, and/or limited to City and Community Parks across the municipality), and to thereafter develop a Tree Canopy Strategy to guide the management of these trees and define tree-planting targets.

P 56. Contribute funding to the Tree Canopy Reserve for the implementation of projects identified in the future Tree Canopy Strategy. At a minimum, budget will be required for tree planting, tree care maintenance, and hazard tree removal. The budget will depend on the outcomes of the proposed management plan and should be adjusted accordingly.

### 6.11.2 Naturalization and Re-wilding

Naturalization is a key strategy that can enhance the ecological functions of green spaces, reduce maintenance requirements and costs, and help mitigate the effects of climate change. It involves managing natural plant growth, typically by limiting non-native and invasive species and planting/encouraging the establishment of desired native species, resulting in improved ecosystem health and resilience.

Despite its benefits, naturalization faces two main challenges:

1. Some residents perceive naturalized landscapes as unkempt, prompting removal requests and/or or illegal clearing/encroachment.

2. Early maintenance demands can exceed those of mowed lawns due to specialized needs. Although maintenance will decrease after the first couple years once established.

Actions that can help address the first challenge by enhancing the intentional appearance of naturalized spaces include:

- Bold patterns/clean lines: While naturalized areas will change over time, the initial plantings should be laid out and confined to clear patterns or lines. This will help slowly introduce the idea to residents who request neat gardens.

- Bird feeders and pollinator gardens: Bird feeders and plants for pollinators communicate the intention of the place and reinforce that it is not abandoned or neglected.

- Borders: Borders have the quick ability to make any collection of plants look neater and can be made by fences, plantings, shrubs, or by mowing around the edges.

- Signage: Educational signage describing the plants and/or process in the naturalized area may help increase community understanding and, therefore, acceptance. Signage should also encourage visitors to stay out of the area to avoid trampling plants and exposure to ticks.

Community engagement is crucial when selecting and designing sites for naturalization. Consultations help educate residents and align designs with preferences. The Kawartha Lakes Healthy Environment Plan contains detailed directions for implementing naturalization projects and working with partners in these efforts, such as Kawartha Conservation.

Two other considerations that must be taken into account for naturalization projects:

- Even mature naturalized areas will require some maintenance (L4 - annually or semiannually) to remove invasive species.
- Care should be taken when naturalizing shorelines to not interfere with swimming area access.

## RECOMMENDATIONS

P 57. Implement managed naturalization practices as directed in the Kawartha Lakes Healthy Environment Plan, consulting with the community before embarking on projects.

P 58. Incorporate best practices for naturalized areas as described herein.

P 59. Plan to maintain naturalized areas at least twice a year to remove invasive species.

### 6.11.3 Movement

Park staff spend considerable time in vehicles driving to all corners of the municipality. Moving to hybrid vehicles is a current corporate-wide initiative that will reduce emissions related to park and recreation duties.

### 6.11.4 Extreme Heat

Extreme heat events are becoming more frequent, and in general, summers are getting hotter. For safety and comfort, there is a need for more shade, and if possible, water sources, in parks. The parkland hierarchy in section 6.4 identifies the need for shade and water in all City and Community Parks, and park-specific recommendations in section 6.7 identify additional parks (including some Neighbourhood Parks and Parkettes) that would benefit from the addition of shade pavilions.

### 6.11.5 Flooding & Water Quality

With climate change driving heavier and more frequent rain events, both natural and engineered stormwater systems are under increasing stress. Intense storms can rapidly overwhelm sewers, storm drains, wetlands, and vegetated swales, reducing their effectiveness and leading to localized flooding, property damage, and erosion. At the same time, stormwater carries sediments, chemicals, and excess nutrients from urban surfaces like roadways, rooftops, and parking lots into lakes and watercourses, degrading water quality and harming aquatic ecosystems. Contaminants such as heavy metals, de-icing salts, fertilizers, and bacteria—including those introduced by large populations of geese—contribute to algal blooms, oxygen depletion, and habitat disruption. In places like Kawartha Lakes, the presence of geese and their impact on swimming areas remains a particular concern.

As rainfall patterns continue to shift, communities should invest in resilient stormwater management solutions to mitigate these growing risks. Low Impact Design (LID) emphasizes sustainable, nature-based approaches to managing stormwater by mimicking natural hydrological processes. Strategies such as permeable pavements, rain gardens, green roofs, and bioswales help capture, filter, and slow the movement of runoff, reducing pressure on traditional stormwater infrastructure. Additionally, preserving and restoring wetlands, vegetated buffers, and riparian edges enhances flood resilience while improving water quality.

## RECOMMENDATION

P 60. Implement Low Impact Design (LID) practices in parks as part of regularly scheduled updates and/or park redevelopments. Prioritize parks that experience flooding and/or poor water quality.

## 6.11.6 Community and Pollinator Gardens

The municipality has several active horticultural clubs that plant baskets, planters, ornamental and pollinator gardens in various communities and contribute greatly to beautification and sense of place. These groups are supported by the municipality through the Community Partnership and Development Fund Beautification program.

The municipality also contributes to pollinator-friendly landscaping by implementing naturalization areas. Bee City Kawartha Lakes and the Kawartha Lakes Environmental Action Committee (KLEAC) run the annual Bee a Hero Garden Challenge, where they encourage residents to submit pictures of their personal pollinator/native gardens for a chance at a prize.[1]

In terms of community gardens for growing food, currently United Way provides a number of community garden plots for use by residents, and Kawartha Lakes Food Source has open-access gardens run by volunteers.[2] There are also apple and pear trees at Orchard Park, which were planted in 2018 through a collaboration that included the Kawartha Lakes Food Coalition Food Security Working Group, the City's Parks, Recreation and Culture division and others with funding through the Healthy Communities Fund grant.[3]

Community gardens provide opportunities for education and programming, which is increased when gardens are located near schools and facilities with kitchens. Program participants can

learn gardening skills and grow food during the summer. As produce is ready for harvesting, it can be used for cooking and preserving classes. Such a program would require a partnership with community groups or volunteers to maintain the gardens and instruct the lessons. Community gardens are also an excellent opportunity for intergenerational programming, which strengthens the bonds in the community by forging relationships between people of varying ages (children, teens, adults, seniors).

Any community garden should be supported by the development of a community garden policy as discussed under section 6.9 Park Policy, New Policies. Community groups could be further encouraged to plant bird and bee-friendly plants through grants for approved species, and other incentives that can be built into the Community Partnership and Development Fund.

### RECOMMENDATIONS

P 61. Update the Community Partnership Development Fund to include grants and incentives to encourage the planting of pollinator gardens on municipal lands.

P 62. If approached by an interested community group to develop a community food garden, ensure the policy is in place first to guide the process and agreement.

1 https://www.kawarthalakes.ca/en/news/bee-a-hero-garden-challenge-now-open-for-2024.aspx
2 https://ckl-unitedway.ca/category/community-gardens/
3 https://www.kawarthalakes.ca/en/news/kawartha-lakes-community-coming-together-to-create-access-to-fresh-fruit.aspx#:~:text=Kawartha%20Lakes%20%E2%80%93%20A%20new%20cooperative,at%20Orchard%20Park%20in%20Lindsay.

# 6.12 Assessment: Cemeteries

The municipality has 17 active and 30 inactive cemeteries. Of these, 13 have grass cut by contractors, and the remainder are maintained by staff.

## 6.12.1 Cemetery Trends/ Considerations

### Columbaria and Scattering Grounds

Columbaria offer a range of benefits (e.g., sheltered areas for visitations, affordability, etc.) for those seeking a unique and dignified way to memorialize their loved ones. Columbaria are also space-efficient, making efficient use of land resources.

To enhance future columbaria, the municipality should focus on implementing a sheltered/outdoor style in their designs. This approach combines the benefits of being sheltered and protected while maintaining a connection to the outdoors, providing visitors with a comforting and contemplative space. It is also essential to include comfortable seating, allowing visitors a peaceful and restful space for reflection. The option for fixtures at each niche to leave flowers, photos, or other mementos creates a personal touch, allowing families to celebrate the lives of their dearly departed in a tangible and meaningful manner. In designing future columbaria and burial areas, the municipality should provide a variety of columbarium types, seating types, seating arrangements and pathways, to add uniqueness to different resting areas, and offer a variety of choices.

Scattering gardens can be incorporated around the cemetery where residents are invited to lay their loved ones' cremated remains to rest. These gardens should be designed with consideration of providing private seating areas. Scattering gardens have higher maintenance needs, and if the City does expand them, it may be advisable to adjust the rates (which are currently very low at $30 per scattering), to help cover the costs of providing this service.

### Green/Natural Burials

Green or natural burials are another popular alternative to traditional burials and cremation. In a natural burial, the body is placed in a wood or wicker casket, or wrapped in a shroud, and buried in a natural setting like a forest or meadow. The Green Burial Society of Canada outlines the five principles of green burial:

1. No Embalming
2. Direct Earth Burial
3. Ecological Restoration & Conservation
4. Simple Memorialization
5. Optimized Land Use [1]

Green/natural burials are better for the environment, have lower maintenance needs, and are typically more affordable than traditional burials. The municipality should consider assigning an undeveloped area of a cemetery as a green burial area and certifying it through the Green Burial Society of Canada. Staff will need to research and determine the best methods of opening the grave, and ensuring detailed record keeping as there are no grave markers.

1 https://greenburialcanada.ca/the-five-principles/

### Diverse Practices

While the current population in Kawartha Lakes is overwhelmingly of European descent, with population growth, there is the possibility of increased diversity, and with that, demands to accommodate a broader range of burial and cremation methods. The top countries of origin of immigrants to Canada in 2024 were India, China, the Philippines, Nigeria, Cameroon, Afghanistan, Eritrea, Pakistan and France. These countries represent a vast array of cultures and religions, and burial practices. A cursory review of common burial practices in these countries indicates that burial and cremation are the preferred methods, with some specifications (e.g., some have restrictions on embalming and use of alternative coffins). The municipality should continue to provide columbaria and burial plots, but should also consider expanding scattering grounds and green burial grounds to accommodate diverse populations, but also to recognize the growth in popularity of these choices generally.

### Visiting the Cemetery

In other municipalities, historic and mature cemeteries have contributed to the green space systems. For example, both Meadowvale Cemetery in Brampton and Streetsville Memorial in Mississauga include walking paths and nature-observation areas, together with more formal gardens, encouraging people to visit and spend time on the grounds.

Picturesque cemeteries have increasingly been used for wedding photos, and even wedding ceremonies. The Williamsburg Cemetery in Kitchener, for example, also includes a chapel that can be rented for weddings. The City planned the development of the cemetery with this goal in mind and markets the rentals on a variety of wedding sites:

"We're trying to encourage people to see this area as more than just a place where we bury our dead," [the Cemeteries Manager] said. "I see this cemetery as multi-use. It's here for the community to enjoy... Kitchener doesn't have an abundance of land,... The city planned very carefully to make the site inviting, with ponds, extensive landscaping, a long bridge snaking across the water, a wooden pergola and gazebo."[2]

## RECOMMENDATIONS

P 63. Expand scattering gardens and columbaria options.

P 64. Introduce green burial grounds.

2 https://www.cambridgetimes.ca/news/till-death-do-us-part-kitchener-cemetery-a-hot-spot-for-weddings/ article_99d9ffa7-2f70-5b88-b3bd-f7a52c232e69.html

# 7.0 Service Delivery

## 7.1 Review of Organizational Structure

### 7.1.1 Overview of Kawartha Lakes Delivery Model for Parks and Recreation Services

Municipalities in Ontario are not explicitly mandated by law to provide parks and recreation services; they are discretionary services. Under the Municipal Act, 2001, municipalities have the authority (given to them by the province) to establish and operate parks and recreation programs if they choose to do so. Most do provide some level of service, while other very small municipalities, unorganized communities, or northern locations, do not have the resources or inclination to do so. However, under the Planning Act municipalities are required to plan for public spaces, including parks, and may require developers to contribute land or funds for parkland through the parkland dedication process.

There are several fundamental models of how municipalities choose to deliver parks and recreation services, including direct service delivery, commission/board, non-profit/community-based, public private partnership, regional/shared, contracted and hybrid. These models are profiled, along with the advantages and disadvantages of each, in Appendix H.

The City of Kawartha Lakes employs a hybrid model for its Parks and Recreation Division; specifically, a mix of direct provision, non-profit or community based, and contracted services. In this structure, the municipality directly manages and delivers parks and recreation services through its Parks and Recreation Division. This Division is responsible for maintaining parks, trails, forest tracts, arenas, recreation facilities, community halls, and cemeteries. The Division also offers a variety of recreation, fitness, and aquatics programs for all ages, organizes special events, and oversees various grants and funding programs. At the same time, Volunteer Management Committees play a large role in managing and operating a number of facilities, some of which also provide their own programs and events.

Non-profits like BGC Kawarthas play an important role in the municipality as well, in providing summer camps for children. In terms of parks and cemeteries, some grass cutting, particularly in rural areas is contracted out to private contractors.

The Division also engages with the community through advisory committees, such as the Kawartha Lakes Parks Advisory Committee, which provides input on park developments and policies.

**Current Structure and Operations**

The structure of the Community Services Department, and the Parks and Recreation Division within it, is shown below (Figure 7-1):

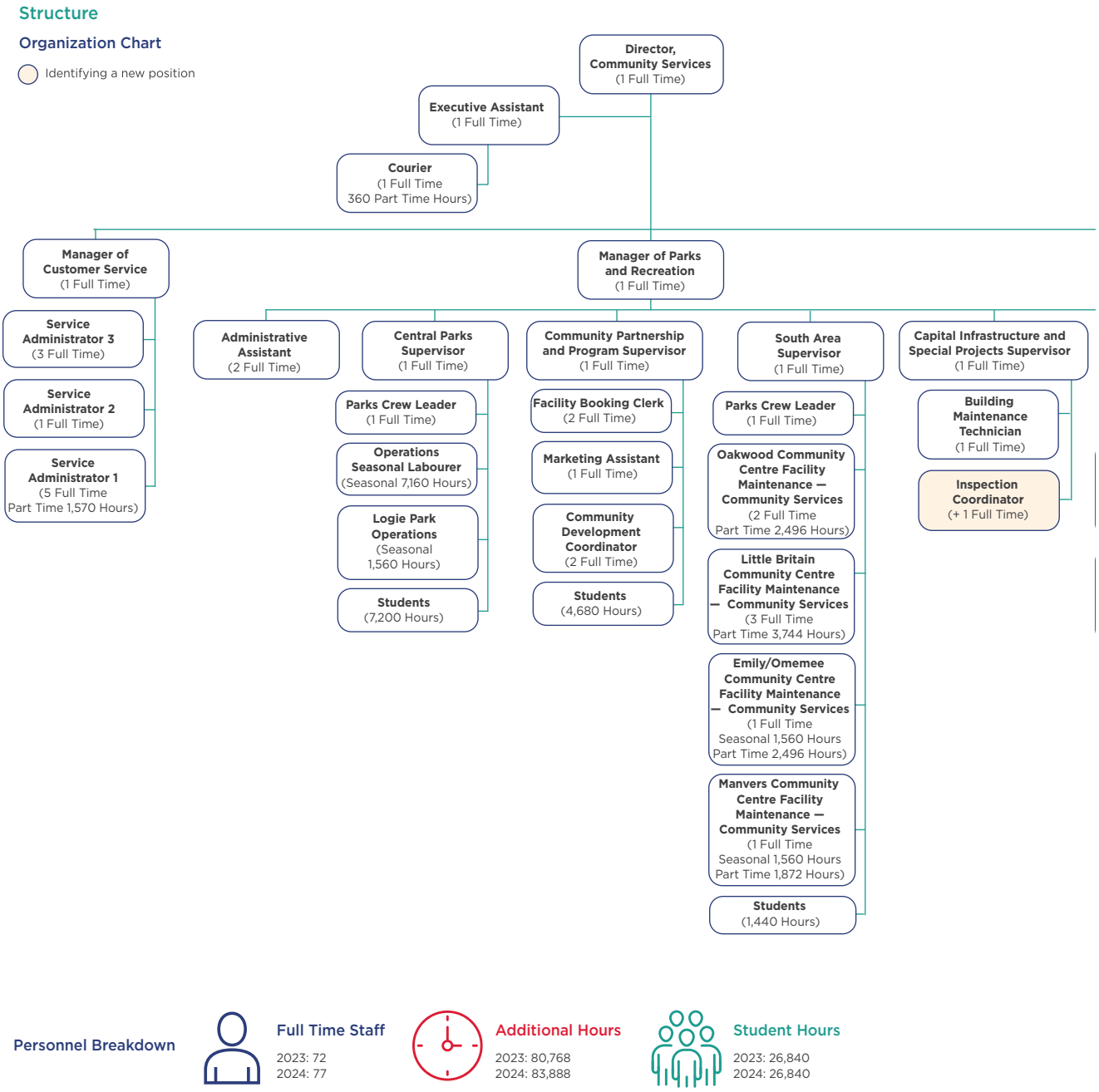
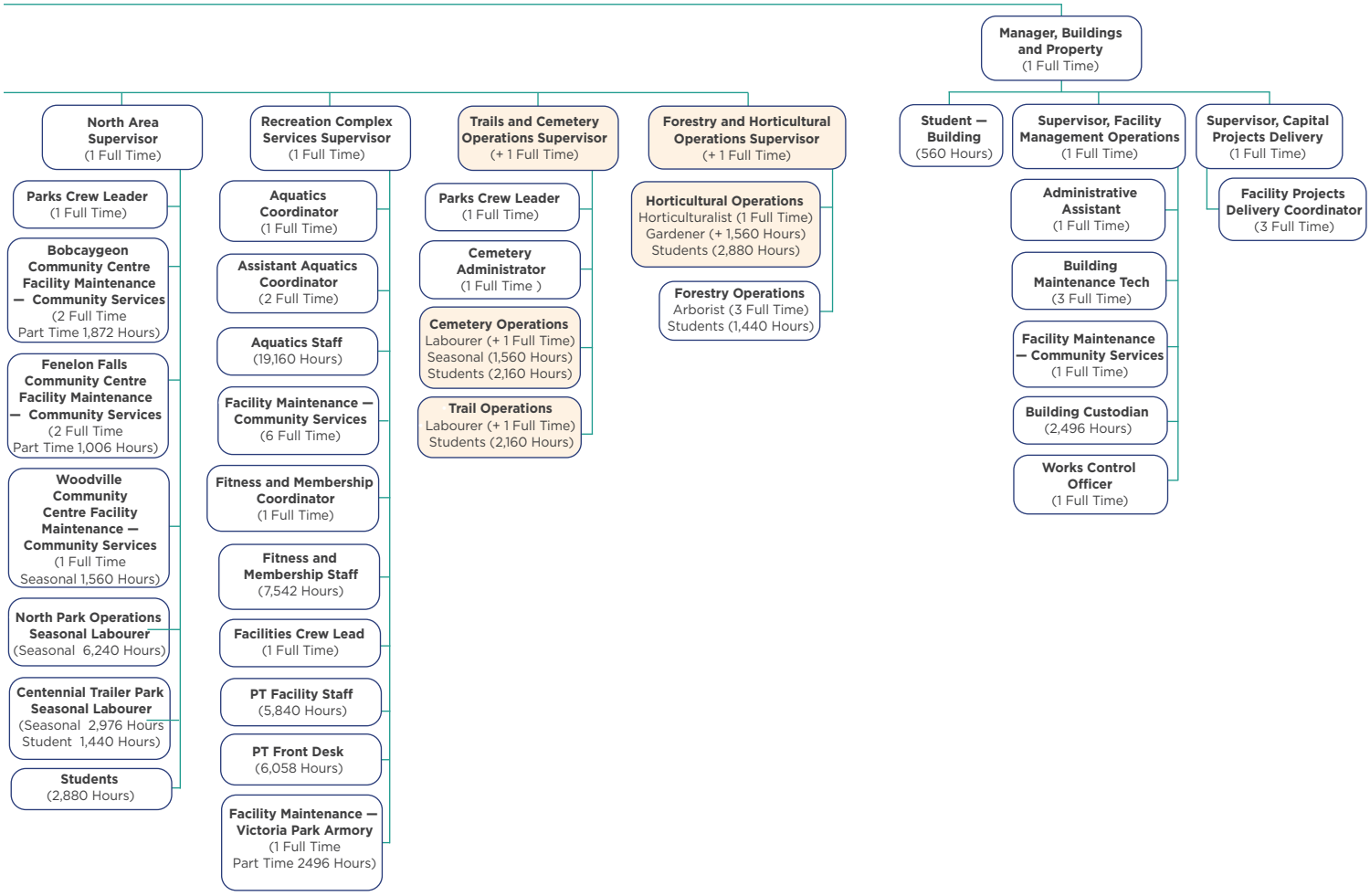



**Figure 7-1: Kawartha Lakes Community Services Department Organizational Structure**

Source: Kawartha Lakes 2024 Budget and Business Plan


Manager, Buildings and Property
(1 Full Time)
North Area Supervisor
(1 Full Time)
Parks Crew Leader
(1 Full Time)
Bobcaygeon Community Centre Facility Maintenance — Community Services
(2 Full Time
Part Time 1,872 Hours)
Fenelon Falls Community Centre Facility Maintenance — Community Services
(2 Full Time
Part Time 1,006 Hours)
Woodville Community Centre Facility Maintenance — Community Services
(1 Full Time
Seasonal 1,560 Hours)
North Park Operations Seasonal Labourer
(Seasonal 6,240 Hours)
Centennial Trailer Park Seasonal Labourer
(Seasonal 2,976 Hours
Student 1,440 Hours)
Students
(2,880 Hours)
Recreation Complex Services Supervisor
(1 Full Time)
Aquatics Coordinator
(1 Full Time)
Assistant Aquatics Coordinator
(2 Full Time)
Aquatics Staff
(19,160 Hours)
Facility Maintenance — Community Services
(6 Full Time)
Fitness and Membership Coordinator
(1 Full Time)
Fitness and Membership Staff
(7,542 Hours)
Facilities Crew Lead
(1 Full Time)
PT Facility Staff
(5,840 Hours)
PT Front Desk
(6,058 Hours)
Facility Maintenance — Victoria Park Armory
(1 Full Time
Part Time 2496 Hours)
Trails and Cemetery Operations Supervisor
(+ 1 Full Time)
Parks Crew Leader
(1 Full Time)
Cemetery Administrator
(1 Full Time )
Cemetery Operations
Labourer (+ 1 Full Time)
Seasonal (1,560 Hours)
Students (2,160 Hours)
Trail Operations
Labourer (+ 1 Full Time)
Students (2,160 Hours)
Forestry and Horticultural Operations Supervisor
(+ 1 Full Time)
Horticultural Operations
Horticulturalist (1 Full Time)
Gardener (+ 1,560 Hours)
Students (2,880 Hours)
Forestry Operations
Arborist (3 Full Time)
Students (1,440 Hours)
Student — Building
(560 Hours)
Supervisor, Facility Management Operations
(1 Full Time)
Administrative Assistant
(1 Full Time)
Building Maintenance Tech
(3 Full Time)
Facility Maintenance — Community Services
(1 Full Time)
Building Custodian
(2,496 Hours)
Works Control Officer
(1 Full Time)
Supervisor, Capital Projects Delivery
(1 Full Time)
Facility Projects Delivery Coordinator
(3 Full Time)

The Parks and Recreation Division operates under the Community Services Department. At the top, the Director of Community Services oversees Parks and Recreation along with other Community Service Divisions. The Parks and Recreation Division is led by a Manager of Parks and Recreation, who is responsible for all day-to-day operations, staffing, and budgeting within the Division. This Manager reports directly to the Community Services Director, linking the Division's activities to the broader municipal administration and Council's oversight.

Key functional areas within the Parks and Recreation organizational structure are:

- **Facilities/Parks Operations:** This section maintains recreation facilities and parks, trails, forest tracts, cemeteries and open spaces across Kawartha Lakes. Maintenance crews are organized regionally, each overseen by an Area Supervisor (for example, a Central Parks Supervisor covers Lindsay). These supervisors manage park maintenance staff, schedules, and upkeep of green spaces and amenities. Horticulture is divided among staff and community groups: the Horticultural Operations team from the Parks and Recreation Division work in mainly in Lindsay (with some services provided to outlying communities); and volunteer groups maintain gardens and baskets in their respective downtown areas. Also part of the 2024 restructuring, a Supervisor of Forestry and Horticulture position was also added. Forestry services are handled separately. The Centennial Trailer Park is staffed by two seasonal workers dedicated to this property, along with two FT staff and some student hours. As part of the 2024 restructuring, a dedicated Supervisor of Trails and Cemetery Operations was introduced. This new role focuses on Kawartha Lakes' extensive trail network and the municipality's 17 active (and 30 inactive) municipal cemeteries, ensuring these assets receive focused maintenance and improvements. The creation of the trails/cemetery supervisor position reflects the municipality's effort to enhance park and trail operations through specialized oversight.

- **Community Development and Recreational Programming:** This section manages the arenas, recreation complexes, swimming pools, and community halls. It delivers a wide array of recreation programming, either directly or through other agencies and volunteer organizations. Key roles here include Supervisors (who manage facilities year-round and parks on a seasonal basis) and Program Coordinators. For example, the Lindsay Recreation Complex (a major hub for aquatics and fitness) is managed by a Recreation Complex Supervisor, who oversees program staff (lifeguards, fitness instructors, etc.), schedules programs (swimming lessons, public skates, fitness classes), and maintains the facility. Similarly, supervisors or coordinators manage other facilities like the Forbert Memorial Pool in Bobcaygeon and various community halls. Program staff within this section plan and run leisure programs, aquatics, summer camps, sports leagues, fitness classes, and special youth/adult programs. They also organize special events such as the annual Concerts in the Park series and the Lindsay Milk Run community race. These event responsibilities are often handled by a Community Development or Programs Coordinator team within the division (accessible via the "community development" contact person) to ensure events and activities align with community interests. The Supervisor of Community Partnerships and Programs and staff in this section are responsible for facilitating and supporting program provision by non-municipal agencies and the volunteer sector.

- Capital Infrastructure: The division includes staff dedicated to capital improvements and long- term planning of parks and facilities. A Supervisor of Capital and Special Projects leads this area, managing major park development projects, facility upgrades, and grant or funding programs. This role coordinates projects like new park constructions (e.g. the Bobcaygeon Beach Park redevelopment) or infrastructure upgrades to arenas and playgrounds. Staff in this section work closely with other City departments (engineering, finance) to deliver projects and also administer sponsorships and the memorial dedication program for park amenities. By having a dedicated capital projects supervisor, Parks and Recreation can focus on strategic improvements and ensure projects are completed efficiently and meet community needs.

**Recent Changes (2022-2026 Restructuring):**

Kawartha Lakes is undertaking an internal reorganization of the Parks and Recreation Division to address significant gaps in resources to meet the expected service levels. This resulted in a modified organizational structure with several revised positions to support park and trail operations. A notable change was the addition of two supervisors; the Trails and Cemetery Operations Supervisor, and a Forestry/Horticulture Supervisor. By carving out these specialties, the department aims to enhance maintenance standards in parks, trails, and cemeteries, acknowledging that these services require dedicated focus. Additionally, the Division filled other support roles (such as trail maintenance staff and seasonal workers) to assist this new supervisor. There was also a leadership change: the long-time Manager of Parks and Recreation transitioned into the Director of Community Services role, and a new Manager of Parks and Recreation took charge of the Division. This leadership update was part of the realignment to ensure clear reporting lines and fresh oversight for the evolving Division. Overall, the 2024 restructuring modernized the Parks and Recreation organizational model to better match its wide range of responsibilities, from horticulture and parkland care to arena programming and community events.

Overall, the Parks and Recreation Division's structure is designed to cover a broad mandate – from maintaining outdoor spaces to running indoor recreation programs – by delegating responsibilities to specialized units. The reporting hierarchy flows upward from front-line staff (parks workers, lifeguards, instructors) to Supervisors/ Coordinators, then to the Manager, and up to the Director, ensuring that each level can focus on its core duties while maintaining accountability. The 2024 reorganization refined this model by adding capacity where needed (especially for trails and projects) and clarifying who is responsible for emerging priorities. With this structure, the Division can more effectively provide services like year-round facility programming, well-maintained parks and trails, and community events, all aligned under a unified leadership.

Table 7-1 provides a high-level depiction of the Parks and Recreation Division's hierarchy and key roles.

**Table 7-1: Summary of the Parks and Recreation Division Roles**

| Role / Unit | Description | Reports To: |
|---|---|---|
| **Director of Community Services** | Oversees all Community Services divisions, including Parks and Recreation. Sets strategic direction and ensures alignment with corporate goals. | Chief Administrative Officer (CAO) and City Council |
| **Manager of Parks and Recreation** | Leads the Parks and Recreation Division. Manages budgets, staff, and operations across all Parks and Rec services (parks, facilities, programs, etc). Implements policies and reports on division performance. | Director of Community Services |
| **Parks Operations Section**<br>• **Parks Area Supervisors**<br>• **Supervisor, Trails and Cemetery Operations**<br>• **Supervisor, Forestry and Horticulture** | Maintains parks, trails, forests, and cemeteries city-wide. Handles landscaping, turf maintenance, snow removal in parks, trail grooming, cemetery upkeep. | Manager of Parks and Recreation |
| | (North and South Parks and Facilities) Supervise crews in their geographic area. Schedule maintenance, ensure safety and service standards in parks, arenas and community halls | Manager of Parks and Recreation |
| | (New in 2024) Oversees trail system maintenance and all municipal cemetery operations. Coordinates trail inspections, repairs, and cemetery burials and grounds care. | Manager of Parks and Recreation |
| **Recreation Facilities and Programs Section**<br>• **Recreation Complex Supervisor**<br>• **Program Coordinators/ Instructors** | Operates arenas, recreation centers, pools, and community halls. Delivers recreation and aquatic programs for all ages (sports, fitness, camps, swims). Coordinates facility rentals and community events. | Manager of Parks and Recreation |
| | Oversee daily operations of major facilities (e.g. Lindsay Recreation Complex). Manage front-line staff (lifeguards, instructors), program scheduling, and customer service at their facility. | Manager of Parks and Recreation |
| | Plan and run specific programs (e.g. children's summer camps, fitness classes, aquatics. Gather community feedback on program needs and adjust offerings. | Recreation Supervisors / Manager |
| **Special Events and Community Partnerships**<br>• **Community Partnership and Programs Supervisor** | Plans city-led events (concerts, runs) and works with volunteer groups and sports associations (and partnerships). Manages the Sponsorship and Dedication program for memorial benches, tree plantings etc. Engages the public and promotes recreation opportunities. Responsible for programming and facility rentals. | Manager of Parks and Recreation |
| **Capital Projects and Planning**<br>• **Capital Infrastructure and Special Projects Supervisor** | Manages park development projects and facility upgrades. Prepares long-term plans (informed by master plans and community input) for new or improved recreation amenities. Pursues grants and capital funding opportunities. | Manager of Parks and Recreation |
| | Leads implementation of major projects and strategic initiatives. Examples: new park constructions, arena revitalizations, trail expansions. Ensures projects meet scope, budget, and community expectations. | Manager of Parks and Recreation |
| **Administrative Support** | Handles division-wide administration: marketing, facility bookings, customer inquiries, budgeting assistance, and clerical support. Often centralized at the Parks and Recreation office (50 Wolfe St.) for recreation. | Manager of Parks and Recreation |

**Potential Areas for Improvement**

The current organizational model appears to be robust and covers all major functions of Parks and Recreation. However, there are several improvements to consider that would enhance efficiency, role clarity, alignment with community needs, and improved grant capacity:

- **Enhance Operational Efficiency:** Continue to seek ways to streamline operations and eliminate any duplication of efforts between sections. For example, better integration of seasonal work could improve efficiency – parks maintenance staff could be further cross-trained to support arena or winter programs in the off-season, and vice versa, ensuring full utilization of the workforce year-round. Introducing modern maintenance management software for scheduling park and trail work, and coordinating it with recreation event schedules, can optimize resource use. Small operational tweaks, such as centralizing procurement of supplies for all facilities and parks (to leverage bulk purchasing and avoid each facility ordering separately), could reduce costs and administrative overhead.

- **Ongoing Assessment of Organization Structure:** Periodically, the City should evaluate the organizational structure's performance – perhaps through an internal audit or a review in a few years – to determine if the 2022-2026 restructuring achieved its goals in efficiency and service quality. Metrics such as facility use rates, program participation, park condition scores, and response times to maintenance issues can highlight where the structure is working well or where adjustments are needed. For example, if maintenance response is lagging, perhaps an additional parks supervisor or crew is justified; if certain program areas are exploding in popularity, maybe a new coordinator role should be added. By monitoring outcomes and remaining adaptable, the Parks and Recreation Division can ensure its organizational model remains effective and future-ready.

- **Improve Role Clarity and Communication:** To capitalize on the restructured model, the Department should clearly define and communicate the responsibilities of each role to both staff and the public. Internally, updated job descriptions and an up-to-date organizational chart should be shared so that every team member understands "who does what." This will prevent overlap or gaps. For instance, if a community hall needs repairs, staff should know exactly who to call. Regular inter-departmental meetings or briefings can help clarify any gray areas, especially where duties intersect. This would need further assessment to determine where the product(s) needed are stored and how they are distributed in order to determine whether there really a is cost savings over suppliers simply delivering o each location. (e.g. when a special event in a park involves both the Parks Operations team for setup and the Programs team for event coordination). Externally, providing residents with a clear contact list for various services (as the municipality partially does via the 705-324-9411 ext.1301 main line) can improve service delivery, such that residents know who to contact for a given issue. The Department could publish a simple organizational chart or directory on the municipal website and in community guides, showing the hierarchy and key contacts for parks, facilities, programs, and cemeteries. This transparency ensures that community members and partner organizations can easily reach the appropriate staff, thereby improving responsiveness. Overall, sharpening role clarity will foster better teamwork and public satisfaction, as each employee knows their mandate and stakeholders know where to turn for help.

- **Attracting and Retaining Staff:** Like many municipalities, particularly those in rural areas, Kawartha Lakes is challenged to recruit and retain staff. This trend worsened during and after the pandemic. As a response, the municipality completed a market assessment of wages, and implemented a significant increase, with the second half of the market adjustment to occur in 2025. In addition, the municipality has adapted some hiring requirements and introduced more flexible and work-from-home arrangements where possible to further retain and attract staff. These changes have resulted in a greater volume of applications. Another option being explored by other municipalities for Kawartha Lakes to consider is to transition roles from casual or contract to permanent part and full-time.

- **Volunteer Management Committees:** The Volunteer Management Committees, working within Terms of Reference, operate and program rural halls and associated properties on behalf of the municipality. Further integrating the activities of the City and the Committees in providing a comprehensive community-wide parks and recreation system is in keeping with the service delivery improvements suggested here. Recommendations on approaches to this objective are provided in the facilities discussion.

- **Strengthen Parks Staffing:** It was widely agreed that parks operations are understaffed, and that it has been a challenge to retain staff. It has also been a challenge to maintain parks in the rural areas due to staff levels, but also due to the wide distribution of parks. Currently park operations staff are responsible for certain zones, which are geographically quite large. As the recommendations from this Plan are implemented, and facilities and amenities are added at key locations, the municipality should consider adjusting these operations, for example, aligning operations teams with the four rural areas used in the parks assessment, plus urban teams for Fenelon Falls, Bobcaygeon, and Lindsay. The parks assessment (section 6.0) also recommends disposing of a number of underused parcels, which would further lighten operations' load. Overall, the amount of staffing should be in proportion to the amount of parkland. Appendix G provides a detailed analysis of how to calculate staff needs based on parkland, with the findings summarized in Table 7-2. These ratios should be used to help determine staffing needs as parkland is acquired.

- **Horticulture:** While the volunteer model has worked well for Kawartha Lakes, with the aging volunteer base and broader trend of declining volunteerism, the municipality should be prepared for the potential to take on more horticulture care over the term of this Plan if needed. As a first step, staff should work closely with volunteer groups currently providing horticulture care, to monitor need, and to improve response time. Ideally the municipality should continue to support these groups so they may continue providing this valuable service. However, if they are unable to continue to maintain a high level of service (especially in downtown and tourist areas), the municipality should provide assistance by way of staffing. Depending on needs, this could mean moving horticulture staff based in Lindsay to different locations or adding additional horticulture staff to be focused in other areas, for example, split time between Bobcaygeon and Fenelon Falls (in the downtown areas of these communities).

- **Centennial Trailer Park:** As noted above, the two full time staff leave the Trailer Park in August to begin getting the rinks ready. However, the Trailer Park is open until Thanksgiving, leaving the area attended by only three staff (one of whom is a student)

**Table 7-2: Amount of park hectares maintained per FTE, by maintenance level.**

| | Target Hours Spent per Acre Acquired (rounded) | Target Hours Per Hectare Acquired (rounded) (2.471 acres = I ha) | Implied Hectares Covered per FTE[1] (rounded) |
|---|---|---|---|
| **Category of Parkland** | Target Hours Spent per Acre Acquired (rounded) | Target Hours Per Hectare Acquired (rounded) | 5 |
| **(2.471 acres = I ha)** | Implied Hectares Covered per FTE1 (rounded) | 213 | 10 |
| **L1** | 172 | 425 | 5 |
| **L2** | 86 | 213 | 10 |
| **L3** | 26 | 64 | 32 |

1 At a ratio of 2,080 hours per FTE. So, for example, one FTE (2,080 hours per year) could cover approximately 6 hectares of parkland maintained at an L1 standard (2,080 divided by the 360 hours required to maintain one hectare of parkland).

for the last two months of the season. The Trailer Park is a challenging area considering the number of tasks, breadth of knowledge required, and potential for conflict with and between residents, and as such it should be staffed sufficiently, and with mature, knowledgeable staff. This can be achieved by either hiring dedicated staff for the season, and/or by adjusting staff schedules so seasonal roles do not overlap.

- **Strengthen Alignment with Community Needs:** Ensuring the organizational model stays aligned with what the community needs is an ongoing process. The municipality is already taking a major step in this direction through this Parks and Recreation Strategic Plan (2024–2040), which is focused on defining community needs and how services should adapt to meet them. To support this work, the department should establish regular feedback loops with the community. This could include annual surveys, suggestion forums, or town hall meetings (perhaps an extension of the current Parks Advisory Committee's role) to gauge satisfaction and emerging needs in parks and recreation. The organizational structure should remain somewhat flexible to respond to this input – for example, if the public indicates growing interest in trail use or in new types of recreation programs (such as esports or outdoor fitness equipment), the Manager can assign staff leads or form working groups to address these, rather than adhering strictly to traditional roles. Another improvement could be the creation of a Community Development Coordinator position within the division, as one does not formally exist. This person (or team) would liaise with sports clubs, volunteer recreation groups, and park users, ensuring their needs are heard and integrated into planning. By having a role focused on facilitating the efforts of non-municipal service providers, the Department can better adapt its services – for instance, coordinating with local trail associations or service clubs willing to sponsor park improvements. In terms of facility use, aligning with community needs might mean adjusting hours or programming based on use data (e.g. opening a recreation centre earlier if there is demand for morning fitness classes, or repurposing under-used space for popular activities). The Strategic Plan's outcomes should guide any realignment of staff or budget priorities – for example, as

the Plan identifies a need for more recreation programming in rural areas, the Department might assign a program coordinator to travel and run satellite programs in those communities. In summary, continuous community consultation and a willingness to tweak the organizational setup (such as creating new roles or teams for high-priority initiatives) will keep Parks and Recreation in tune with residents' needs. Section 7.3 provides additional detail on service planning and evaluation which, in turn, will inform needed staff resources and the organizational approach to delivering them.

- **Leverage Ongoing Training and Evaluation:** The department should also invest in professional development to ensure staff at all levels can operate effectively within the Division. Training for supervisors in leadership and project management will help them run their teams more efficiently and clarify their decision-making authority. Front-line staff (parks crews, facility attendants) can benefit from customer service and cross-functional training (so a parks worker can inform citizens about recreation programs, and a facility attendant can handle basic park inquiries).

- **Improved Grant Capacity:** There are a number of provincial grant possibilities for which Kawartha Lakes may be eligible for in the future. These are listed in Appendix L. Having a full-time development officer (or having fundraising and development responsibilities being part of a full-time staff responsibility) would ensure that the municipality is aware of changing grant requirements, application deadlines, private foundation possibilities, etc. Note that this is an area that could be part of a larger municipal function, beyond just the Parks and Recreation Division.

By implementing the actions described above, the department can further improve its service delivery. This will lead to a more responsive organization that not only operates smoothly internally but also fulfills its mission of providing high-quality recreation opportunities, facilities and well-maintained parks that enhance residents' quality of life. Modifications to be made should be based upon a review of the 'new' model and incorporation of changes where it makes sense. Specific modifications would relate to the Manager scope; establishing a Compliance Officer position (for training, health and safety development (SOPs) and preventative maintenance); a split of facility and recreation programming at the Supervisor level; and the establishment of a Customer Experience/Recreation software lead position.

## RECOMMENDATIONS

SD 1. Introduce maintenance management software for scheduling park and trail work, and coordinate it with recreation event schedules.

SD 2. Regularly review the workloads of staff since the 2022-2026 restructuring to ensure balance and efficiency.

SD 3. Continue to monitor market rates for wages, adapting to remain competitive, and offering other incentives (e.g., flexible hours/ arrangements, full-time positions, etc.) to attract and retain candidates.

SD 4. Consider reducing the size of parks operations' geographic zones and increasing staff to cover new zones (e.g., aligning operations teams with the four rural areas used in the parks assessment, plus urban teams for Fenelon Falls, Bobcaygeon, and Lindsay).

SD 5. Use the parkland maintenance/ staff hour ratios and outlined in Table 7-2 and Appendix G, and use it to gauge the operating cost implications of new park development or acquisition in future.

SD 6. Work closely with volunteer groups providing horticulture care, and provide assistance as needed to support their ongoing service. If needed, mobilize existing municipal horticulture staff beyond Lindsay, and/or add horticulture positions to be focused in other areas (e.g., split time between Omemee, Bobcaygeon and Fenelon Falls).

SD 7. Hire mature, experienced staff for Centennial Trailer Park, and if using full-time staff, adjust schedules so that seasonal roles do not overlap, leaving Park understaffed.

SD 8. Explore centralizing procurement for facility and parks supplies to achieve efficiencies.

SD 9. Improve role clarity and communication internally and externally (i.e., circulate new job descriptions and organizational chart to all staff, update website and contact information etc.).

SD 10. Establish ongoing consultation to gauge satisfaction and emerging needs in parks and recreation.

SD 11. Consider creating a Community Engagement/Outreach/ Partnerships Coordinator position within the division to be responsible for soliciting regular community consultation, and liaising with sports clubs, volunteer groups, and park users, ensuring their needs are heard and integrated into service delivery. This position can be part time to start, and eventually grow to full time.

SD 12. Invest in professional development to ensure staff at all levels can operate effectively within the organizational model (e.g., training for supervisors in leadership and project management; customer service and cross-functional training for frontline staff).

SD 13. Use metrics such as facility use rates, program participation, park condition scores, and response times to maintenance requests to identify where additional training and/or staffing may be needed.

## 7.2 Review of Parks and Recreation Policies and Procedures

### 7.2.1 Review of Current Policies

The Kawartha Lakes Parks and Recreation Division adheres to several policies and guidelines to ensure the effective management and safety of its facilities and programs. These policies are designed to promote safety, responsibility, and enjoyment for all participants and staff involved in the providing the municipality's programs and facilities. The policies that most directly pertain to parks and recreation facilities and programs are listed below.

1. **Alcohol Management on Municipal Premises Policy (CP2019-006):** This policy governs the consumption and possession of alcohol on municipal properties, ensuring compliance with provincial regulations and promoting responsible use.

2. **Code of Conduct - Employees (CP2016-018):** Establishes standards of behavior and ethical conduct expected from employees within the Parks and Recreation Division.

3. **Occupational Health and Safety Policy (CP2016-010):** Outlines the commitment to maintaining a safe and healthy work environment for all staff and patrons.

4. **Refunds, Cancellations, and Service Interruptions Policy:** Details the procedures for program cancellations, refund eligibility, and handling service interruptions. For example, refunds for programs canceled due to insufficient registration are issued in full, while other refund requests may incur an administration fee.

5. **Centennial Trailer Park Code of Conduct Rules and Regulations:** Specifies guidelines for behavior, noise curfews, alcohol consumption, and other regulations to ensure a safe and enjoyable environment within the trailer park.

6. **Strategic Asset Management Policy (CP2019-389):** The City of Kawartha Lakes is committed to both responsible fiscal resource management efficient infrastructure and asset management. Expanding on this commitment, this policy provides for the City's compliance with Section 3 of Ontario Regulation 588/17 (Asset Management for Municipal Infrastructure) under the Infrastructure for Jobs and Prosperity Act. As a result, this policy embeds asset management planning into the corporate planning framework in a manner aligned with the Corporate Strategic Plan.

7. **Community Partnerships and Development Fund Program Policy (CP2021-009):** The Community Grants Program consists of four separate elements – Beautification Fund, Culture Fund, Special Events Fund, and the Municipal Tax Rebate Fund. The program is administered by the Community Services Department in conjunction with Council. This policy addresses the process for the request and distribution of operating and/or minor capital funds to be used in partnership with local community organizations to provide financial support for such organizations that provide a valuable resource and service to the municipality and its residents.

8. **50/50 Community Project Capital Funding Initiative (CP2021-010):** The 50/50 Community Project Capital Funding Initiative policy addresses the process for the request and distribution of capital funds to be used

in partnership with local community organizations to provide for the betterment of the City's facilities and parks.

9. **Public Art Policy (CP2021-035):** The Corporation of the City of Kawartha Lakes (the City) recognizes that Public Art is a valuable cultural asset that improves the aesthetic of streetscapes and public space and expresses our cultural identity and heritage. This policy establishes the framework and procedures for the procurement of Public Art that is City owned and installed on City owned public space, and expressed intent of the City to work with the broader public, development and business community to encourage public art. The goals of this policy are:

   **a)** To facilitate the municipal acquisition of Public Art with artistic merit and establish a standardized and transparent process for the selection, acquisition, maintenance and de-accessioning of Public Art;

   **b)** To provide Public Art guidelines that will guide involvement in creative place-making processes in order to encourage civic pride and celebrate the unique cultural identity of the City's diverse communities;

   **c)** To increase understanding and enjoyment of Public Art and awareness and appreciation of diverse artistic environment;

   **d)** To encourage contributions by business and private investors that will contribute to Public Art in our communities;

   **e)** To enable artists to contribute to the design and development of the public domain through collaborations with planners, architects, landscape architects and urban designers in City capital works projects; and

   **f)** To nurture the City as a creative environment in which opportunities for artists and their role in the community can flourish and expand.

10. **Council, Committee, Board and Task Force Policy (CP2021-031):** The City appoints citizens from the municipality to Council Committees, Boards and Task Forces to review and recommend actions to Council to advance various issues relating to the municipality. It is recognized that Committees, Boards and Task Forces are vital to informing and supporting City Council in accomplishing the City's strategic goals and priorities. It is further recognized that appointed volunteer members of these Committees, Boards and Task Forces bring valuable community knowledge, experience and information, and are committed community stakeholders and ambassadors. This policy establishes the process for appointments, defines the volunteer appointee's roles and responsibilities, and establishes how they conduct business for the betterment of the municipality. This policy applies to all Council Committees, Boards and Task Forces created and approved by Council and their working groups.

11. **Street, Municipal Facility and Park Naming Policy (CP2022-001):** This policy provides for a consistent process for the City of Kawartha Lakes to recognize heritage, events of significance, people, Indigenous names, geographic features and overall community identity through the naming of streets, parks and municipal facilities. This policy applies to all streets, parks and municipal facilities within the geographical area of the City of Kawartha Lakes.

We have reviewed these policies and determined that overall, they are comprehensive and up-to-date. Section 6.0 on Parks contains recommendations for improvements and additions to parks-related policies.

While not strictly a "policy", the department is also responsible for the Municipal Event Application (MEA). The MEA outlines the procedures and requirements for organizing events on municipal property, including necessary approvals, accessibility considerations, and emergency planning. Event organizers are advised to submit applications well in advance, which allows various departments to coordinate services if needed, and allows organizers enough time to ensure compliance with all municipal regulations.

### 7.2.2 Potential Additional Policies

Comparing Kawartha Lakes Parks and Recreation policies to those maintained by other municipalities in Ontario has revealed some additional areas where policies could be developed to enhance awareness, accessibility, inclusivity and sustainability, and revenue generation (Examples of municipalities that have implemented such policies are provided in Appendix I). These policy areas, and the rationale supporting each, are summarized in Table 7-3. It should be noted that these policy areas would affect not only the municipal provision of parks and recreation services, but also potentially other areas of municipal service provision.

### Table 7-3: Additional Policies for Consideration

| Policy Type | Rationale |
|---|---|
| **1) Community Engagement Policy** | This policy would create a framework for actively involving community members in planning and decision-making processes related to parks and recreation services, fostering a sense of ownership and responsiveness to public needs. |
| **2) Digital Accessibility Policy** | This blanket policy would ensure that all online resources, including program registrations and information portals, are accessible to individuals with disabilities, aligning with the Accessibility for Ontarians with Disabilities Act (AODA) standards. |
| **3) Volunteer Recruitment and Management Policy** | This policy would establish clear guidelines for the recruitment, training, and recognition of volunteers to ensure a positive and productive experience for both volunteers and the community overall. (While several facilities have thjeir own Volunteer Management Boards, an over-arching policy would ensure consistency.) |
| **4) Environmental Sustainability Policy** | This policy would focus on minimizing environmental impact through sustainable practices, such as waste reduction, energy efficiency, and conservation initiatives within parks and recreational facilities. As well, it would apply to all other areas of municipal operations. |

Implementing these policies could further promote sustainability, inclusivity, and community involvement within the Kawartha Lakes Parks and Recreation Department. Also the need for insurance for all bookings should be considered (currently the only mandatory requirement is $2M for events with alcohol) in an increasingly litigious environment.

## RECOMMENDATIONS

SD 14. Develop a Community Engagement Policy

SD 15. Develop a Digital Accessibility Policy

SD 16. Develop a Volunteer Recruitment and Management Policy

SD 17. Develop a Environmental Sustainability Policy

SD 18. Update the Naming Rights and Sponsorship Policy to specifically enable naming rights for facilities, as well as sponsorships.

# 7.3 Service Planning and Evaluation

The motivation for formal planning, monitoring and evaluation processes is to direct investment in parks and recreation services based on 'needs' vs. 'wants' and to ensure investment in needs is judicious and generates intended returns. Further, there is a requirement to both anticipate future needs and manage existing assets. The following section summarizes the key components of information collection and use in needs-based services planning to:

- verify community service needs
- monitor and evaluate the success of the service response
- incorporate results in subsequent planning activities

Each component of the above tasks is outlined in Table 7-4. [1]

1 Although the table deals with both facilities and programs/services under the same headings, it is noted that facility (infrastructure) planning is typically a longer-term endeavor than program planning, which is annual or even seasonal. It also includes tasks that may already be conducted by the Township to show where they fit in relation to other activities.

## Table 7-4: Services Planning Information Requirements and Application

| Verify Community Service Needs | | |
|---|---|---|
| | **Facilities** | **Programs/Services** |
| **Maintain a Single, Comprehensive Inventory** | Document and regularly update an inventory of all facilities and relevant information by type. Ideally, all facilities now or potentially available for community use in the municipality should be included in a single, integrated data base. | Document and regularly update an inventory of all programs and relevant information by type. Ideally, all programs/services available either directly or indirectly through collaborations with the municipality should be included. |
| **Document Data on Use Related to Capacity** | Track actual hours of facility use in relation to capacity within total prime and non-prime time hours, where applicable.[1] Institute periodic, rotating checks on unscheduled facilities to document use at different times and/or apply available technologies for this purpose. | Track program/service fill rates in instances with a capacity limit or simple counts of participants/ users/attendees when no limit on capacity. |
| **Develop Indicators of Unmet Demand** | Document information on unmet demand for facilities, programs and services from organized users, community interests via Jump In Kawartha Lakes, resident inquiries/requests to the municipality, and through formal market research (e.g., periodic random surveys, focus groups). | |
| **Monitor and evaluate to determine success of response** | | |
| **Measure Service Performance Against Targets** | Using tools noted above to gather feedback, evaluate success of individual facilities and programs/services on an ongoing basis with organized and casual users, program participants and instructors, in relation to pre-determined performance targets. | |
| **Incorporate results in subsequent planning activities** | | |
| **Adjust Service Plans According to Evaluation Findings** | As a cyclical activity covering both short- and long-term service provision, the findings on evaluation can be used to maintain alignment between the supply /delivery of services and community needs. | |

1 Actual use is the same as scheduled use if all scheduled use occurs.

Parks and Recreation Ontario's Manual entitled "Measuring Customer Value and Satisfaction for Parks and Recreation" is a practical guide to supporting service evaluation work. As noted in the Manual, it is "intended to enable providers of parks and recreation to easily and consistently assess customer value and related issues. [It] includes a common set of core questions and an enhanced set of questions that can be used by providers to evaluate the effectiveness of their programs and services, as well as advice on approaches to administering surveys" (p.1).

Definitions and applications of prime time are key to determining the point at the municipality should consider additions to facility supply, especially where cost is a major factor. In terms of use, prime time can comprise a very small proportion of total time available and the need to balance the cost of provision - if capacity use of limited prime time is considered the 'tipping point' - needs to be considered against adding more to unused facility time.

Recreation management software enables information collection on service use and trends in performance to inform the planning and evaluation process. The municipality has software it uses for recreation services management functions. In expanding its planning and evaluation capacity, staff can develop a comprehensive menu of information requirements - based on needed indicators in all service areas.

### 7.3.1 Incorporating Data in Service Planning

The results of this work will reveal patterns of use/participation over time, available facility/program capacity that is not being used, and measures of outstanding demand. The municipality can then determine if:

- Response to unmet demand will mean adding more facilities/programs to supply or improving the performance of existing services
- Response to underused services will mean offering fewer times or locations for the same program, rescheduling to more convenient times, or discontinuing the service; consolidating, relocating or removing facilities from supply

### 7.3.2 Annual and Long-term Planning to Updating the Master Plan

The results of monitoring and evaluation will also inform annual planning and budgeting. It will contribute to setting annual objectives in the budget cycle, and tracking their progress.

Monitoring and evaluating can also be used to project into the future and

assist in anticipating longer-term facility requirements by verifying changing levels of participation and use. The outcomes of decisions based on these activities can be used to keep the Plan current through regular updates in relation to a changing context.

A comprehensive review and update of the Plan should occur in five years. The review will be facilitated by the annual work noted above in tracking the progress on implementing recommendations and documenting contextual changes that have impacted/influenced this work. Ideally, this will provide a current information base on which to proceed directly to the update.

### 7.3.3 Engaging Other Service Providers

The importance of collaborations and partnerships should be supported by regular, joint services planning by all key providers in the community with a view to integrating the efforts of all in developing facilities, programs and services. The municipality can take a leadership role in facilitating joint planning activities. This will help ensure a comprehensive, whole community approach to service planning and provision, especially as Kawartha Lakes grows and services expand. A process that works for the municipality and relevant other parties in terms of the number and scheduling of planning sessions, their structure, etc. should be developed and implemented in the short-term and grow over time, as needed.

## RECOMMENDATIONS

SD 19. Further develop and implement service planning, monitoring and evaluation capacity to align service provision with verified community needs.

SD 20. Use the results of monitoring and evaluation to detail year by year steps to implementing initiatives within each term of the Plan, by setting annual objectives in the budget cycle, and tracking their progress.

SD 21. Conduct a five-year review and update of the Plan.

SD 22. Engage all relevant parties to collaborations and partnerships in regular joint service planning sessions to create a coordinated, whole community approach to provision.

# 7.4 Marketing and Promotion

## 7.4.1 Framework for Assessing Marketing Practices

The approach taken here to assessing the marketing and promotion aspect of Kawartha Lakes' parks and recreation services is to first develop a framework that identifies the elements of a successful marketing strategy for parks and recreation services, and then assess the performance of Kawartha Lakes on the basis of that framework. The Framework is outlined in detail in Appendix K. It describes 10 marketing best practices for parks and recreation services:

- Develop a Strategic Marketing Plan
- Know Your Audience
- Embrace Digital and Social Media
- Community Engagement and Co-Promotion
- Equity, Diversity and Inclusion (EDI) in Messaging
- Youth and Family Engagement
- Program Guides and Seasonal Calendars
- Collect and Use Feedback
- Promote Subsidies and Access Programs
- Monitor and Measure Success

## 7.4.2 Assessment of Marketing Considerations for Parks and Recreation Services in Kawartha Lakes

Using the framework developed above, a number of considerations for the marketing of parks and recreation facilities and services for Kawartha Lakes are offered below. The overall context in which these marketing considerations are developed is a recognition that Kawartha Lakes is a large, predominantly rural municipality with over 250 lakes and rivers, a mix of small towns, villages, and agricultural communities, and a strong seasonal resident and tourism sector. The municipality is also characterized by:

- An aging population (average age above provincial average)
- A growing number of newcomers and seasonal residents
- High community pride in local heritage, trails, and outdoor spaces
- Ongoing development of the Parks and Recreation Strategic Plan 2040
- A need to promote equity of access across urban and rural areas

**Key considerations for marketing of recreation services**

The municipality should develop a strategic marketing plan that encompasses the following best practices and key considerations:

1. **Enhance collaboration internally:** There are both corporate-wide and Parks and Recreation Division communications functions. The consultation process identified that

there are opportunities to better collaborate between these two. While parks and recreation should retain its own channel in this regard (as it is closely aligned with the needs and expectations of parks and recreation consumers across the spread of the municipality and can better respond to their specific communications needs), the corporate function has a broader platform to get the word out regarding new programs and services to all residents. Communications initiatives across these two delivery channels should be coordinated and harmonized. Note that depending on the actions contained within such a marketing effort may involve additional staff time and resources - and possibly additional cost.

2. **Understand and Segment Audiences:** A key element in the marketing campaign will be to structure the audience into meaningful segments and identify the core messages aligned with each. For example:

| Segment | Sample Messaging and Programs |
|---|---|
| **Seniors** | "Stay Active, Stay Connected – programs for 55+" |
| **Families with Kids** | "Free splash pads and family swim nights" |
| **Seasonal Residents** | "Make the most of your cottage time – top 5 parks to explore or 'can't miss' events"<br>A summer-long campaign with:<br>Weekly spotlight on a different park or trailw<br>User-submitted photos (with prizes)<br>Featured free or low-cost programs<br>Printable or digital scavenger hunt sheet |
| **Rural Residents** | "Your park might be just down the country road" |

A key analytical element would be to use postal code-based registration data to determine usage patterns by geography.

3. **Actively Utilize Digital and Social Media Presence:** Having a digital and social media presence is an absolute must for community engagement. Critical initiatives include:

- Focus on Facebook and Instagram, which have high local engagement.
- Post short-form videos of seasonal activities (e.g., kayaking, ice skating trails, community clean-up days).
- Try Instagram Reels or TikToks for showcasing trails, behind-the-scenes staff features, or "park of the month" videos.
- Consider targeted Meta ads for underused rural facilities or upcoming seasonal programs.
- Use hashtags like #ExploreKawartha, #KLRecreation, #ThisIsMyKL in digital promotion.

4. **Strengthen Community Partnerships:** Partnerships with local and regional organizations can not only act effectively to 'spread the word' to a larger audience, but also can lead to exciting new programs and services being developed. Points to consider include:

- Collaborate with:
  - School boards and individual schools for after-school programs and promotion
  - Local service clubs (e.g., Lions, Rotary) for co-hosted events
  - Tourism and Economic Development on event promotion

    - Libraries for co-promoted literacy + recreation programs

- Partner with First Nations and Indigenous organizations on inclusive program design and land acknowledgment signage.

- Partnerships with developers and development initiatives (such as the Wilson Estates or Tribute developments in Lindsay) could result in additional parks and recreation facilities.

5. **Focus on Inclusion and Accessibility:** Also very important will be to ensure that accessibility and inclusion are seen to be key values underlying the provision of parks and recreation activities, and that the actual provision follows through on this promise. Initiatives would include:

- Promote accessibility features: paved trails, adaptive equipment, sensory-friendly programming.

- Translate promotional materials into common languages for newcomers.

- Advertise subsidy programs like "Recreation Fee Assistance" prominently. (e.g., partnership programs such as 'Jumpstart')

- A key message is that recreation is "for all residents – full-time or seasonal, young or old, new or rooted."

6. **Emphasize Fun for Youth and Families:** Clearly this represents a key target market. Suggestions for initiatives include:

- Launch a Parks Passport Challenge: kids get stickers or badges for visiting 10+ parks.

- Host pop-up rec events in rural hamlets with inflatables, games, or arts.

- Use student ambassadors at local high schools to promote programs on social media.

7. **Optimize Print and Digital Program Guides: Suggestions include:**

- Include QR codes on posters/signs to quickly access schedules or register.

- Distribute guides at:

    - Grocery stores and LCBO

    - Pharmacies

    - Libraries

    - Farmers markets

8. **Collect and Act on Feedback:** Any marketing campaign needs to solicit feedback from existing and potential customers and users, and 'evolve' the campaign over time. Effective mechanisms for soliciting feedback that should be considered include:

- Use of QR code kiosks at recreation centres for instant feedback.

- Send follow-up emails after registered programs with short surveys.

- Host a yearly Recreation Town Hall (virtual or in-person) to get community input on what is working/ not working.

- Google Analytics to see which pages/ programs are most visited.

- Social media insights to refine messaging.

- Registration and usage data by program and location.

As well, the Department should track progress and regularly report key insights to Council and the community to show value and build support. Key data should also be posted on the municipal website to demonstrate progress to the community.

## RECOMMENDATION

SD 23. Create a Strategic Marketing Plan including the best practices and key considerations provided herein.

# 8.0 Resources and Asset Management

## 8.1 Current Deficit in Parks and Recreation Budget

To gauge the implication of this shortfall on the current budget, the calculation can be made based upon the budget data for the current and previous fiscal year (for the Parks and Recreation Division within the Community Service Department) (Table 8.1).

**Table 8-1: Calculation of Percent of Operating Budget Allocated to Staffing**

| | 2024 Budget | 2025 Budget |
|---|---|---|
| **Full-Time (FT) Staff** | 53 | 55 |
| **FT Hours (@ 2,080 hours per year)** | 110,240 | 114,400 |
| **Additional Hours (Contract)** | 79,462 | 82,582 |
| **Student Hours** | 26,280 | 26,280 |
| **Total Hours** | 215,982 | 223,262 |
| **FTE Equivalent (Rounded)** | 104 | 107 |
| **Salaries and Wages Budget** | $6,509,767 | $7,213,817 |
| **Equals Average FTE Salary** | $62,594 | $67,419 |
| **Total Parks and Recreation Division Budget (Expenses)** | $12,636,539 | $13,372,332 |
| **Percentage of Operating Budget Allocated to Staffing** | 51.5% | 53.9% |

Source: 2025 Mayor's Budget: Parks and Recreation Division

The budget data shows that the number of full-time (FT) staff in 2024 and 2025 was (or is expected to be in the case of 2025), 53 and 55 respectively. Assuming a workload of 2,080 hours per year per FT staff person (i.e., 40 hours a week for 52 weeks) implies 110,240 FT staff hours in 2024 and 114,400 in 2025. To this is added the number of additional hours (part-time and contract) and student hours paid in 2024 and anticipated in 2025, to yield a total number of hours paid for by the community services department (which includes salaries, wages and benefits). In turn, dividing into this the number of hours spent per full-time employee equivalent (i.e., 2,080) provides an estimate of the average full-time equivalent paid by the Department. This equates to approximately $62,600 in 2024 and just under $67,400 in 2025.

Appendix B shows that according to the benchmarking analysis of parts and recreation expenditures in comparable communities, Kawartha Lakes is underfunded relative to the average of comparable communities by somewhere on the order of $1 million to $2.5 million, depending upon the measure used (see the Appendix B). Taking the lower figure as a conservative estimate of the amount of underfunding, if it is assumed that 54% of this amount (as per the staffing ratio for 2025 calculated above, rounded) would be allocated to staffing, this would imply approximately $540,000 being allocated to wages, salaries and benefits (with the other 46% being allocated to other operational costs). At the current average FTE staffing cost of approximately $67,000 as shown above (the 2025 average of salaries, wages and benefits per position), this would translate to approximately 8.1 full-time equivalents. This can be matched against the human resource requirements of the Parks and Recreation Strategic Plan to obtain some sense of 'reasonableness' of the plan.

Another way to look at this would be to pro-rate the $1 million of underfunding according to the 2025 budget allocations, which would imply additional expenditure in the areas outlines in Table 8-2.

**Table 8-2: Estimated Distribution of Additional Funding to Close $1M Gap of Underfunding**

| Cost Area | Allocation 2025 | % Breakdown of Total Expenses | Implied Allocation for $1 Million |
|---|---|---|---|
| **Salaries, Wages and Benefits** | $7,213,817 | 53.9% | $539,458 |
| **Materials, Training, Services** | $2,446,400 | 18.3% | $182,945 |
| **Contracted Services** | $1,919,970 | 14.4% | $143,578 |
| **Rents and Insurance** | $3,000 | 0.0% | $224 |
| **Debt, Lease and Financial** | $79,550 | 0.6% | $5,949 |
| **Transfer to External Clients** | $249,500 | 1.9% | $18,658 |
| **Inter-functional Adjustments** | $1,460,095 | 10.9% | $109,188 |
| **Total** | $13,372,332 | 100% | $1,000,000 |

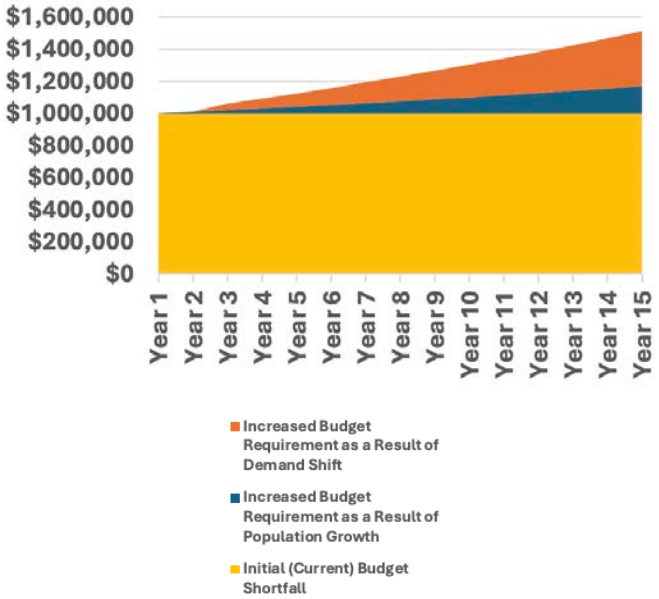
## Future Growth in Parks and Recreation Funding

It should be borne in mind that this is the estimated shortfall at the present time, and that this deficit will only grow in future. A first level approach to estimating the additional budget requirement over the coming decade (which would be seen to the time-period of this plan) would be to simply grow the budget by the amount of permanent population growth anticipated for Kawartha Lakes over the coming decade (a simple projection of the growth rate seen in the last census suggests about 1% per year). A more feasible and likely accurate approach would be to recognize that, in addition to population growth alone, there are other societal and cultural factors that will contribute to the growing demand for parks and recreation services. These include an aging population, an increasing awareness and emphasis upon the importance of health and wellness, growing concern on the part of parents regarding the amount of 'screen time' spent by their children, and (still) a rebound factor from the pandemic. One estimate from Reportlinker suggests that growth in market demand for parks and recreation facilities and services is expected to grow by nearly 6% per year .

Given that this reflects demand for all services (public and private) it is reasonable to assume that only some portion of this demand growth would represent growth in demand for publicly-provided parks and recreation services. Accordingly, an estimate of 2% annual growth in demand is felt to be a reasonable ballpark growth trajectory.

Adding this to the demand anticipated as a result of population growth, yields an estimate of the growth in the projected deficit to something like $1.3 million in 10 years' time. Figure 8-1 shows the components of this deficit.

**Figure 8-1: Components of Estimated Budget Shortfall**




Again, this provides a rationale supporting the need for additional resources to support the implementation of this Parks and Recreation Strategy.

## 8.2 Pricing

### 8.2.1 Pricing Strategies Used by Kawartha Lakes

The municipality employs a multifaceted approach to pricing its parks and recreation services, incorporating several models to balance accessibility, cost recovery, and community benefit. The primary pricing strategies currently in use include:

1. **Tax-Supported (Subsidized) Services**

- **Public Access:** Basic services such as playgrounds, parks, trails, unscheduled sports fields, and public washrooms are provided free of charge, funded through municipal taxes.

2. **Fee-for-Service (User Pay)**

- **Program and Facility Fees:** Specific programs and facility uses, including recreation programs, swimming pools, and arenas, require users to pay fees. For instance, the Parks and Recreation Division offers various children's programs with costs varying by service

3. **Differential Pricing**

- **Discounts for Specific Groups:** The municipality provides discounted rates for seniors and people who are disabled for certain programs, typically set at up to 25% less than the base rate. However, these discounts generally do not apply to ice or facility rentals and may not be available for all programs.

4. **Financial Assistance Programs**

- **Subsidies and Payment Plans:** Subsidies up to $500 may be granted to families in greatest need through Tri-County Respite. Additionally, payment plans are available for program fees, ensuring financial constraints do not hinder participation.

5. **Permits, Licenses, and Rentals**

- **Facility Rentals:** The municipality offers various facilities, including community halls, parks, and sports fields, for rent. Rental rates are based on the nature and size of the event, and interested parties are encouraged to contact the Facility Booking Office for pricing.

6. **Partnership-Based Access**

- **Community Passes:** In collaboration with local organizations, the Kawartha Lakes Public Library provides free family passes to cultural, educational, and recreation facilities, enhancing access to various services.

## 8.2.2 Potential Considerations for Future Improvement

To further enhance the accessibility and sustainability of parks and recreation services, Kawartha Lakes might consider the following improvements:

- **Enhanced Differential Pricing:** Expanding discounts to include more demographics, such as youth or low-income households, and applying them to a broader range of services, including facility rentals, could promote greater inclusivity.
- **Increased Financial Assistance:** Developing more robust subsidy programs or increasing subsidy amounts can help ensure that financial barriers do not prevent residents from participating in recreation activities.
- **Dynamic Pricing Models:** Implementing pricing that varies based on demand, time of day, or season can optimize facility use and increase revenue during peak times while encouraging use during off-peak periods.[1]
- **Community Engagement in Pricing Decisions:** Regularly consulting with residents to understand their needs and financial capabilities can lead to more responsive and acceptable pricing strategies.
- **Encourage Consistency Among Volunteer Management Committees:** We heard from the interviews that different volunteer associations and boards are inconsistent in what they charge for use of facilities and services. This should be an area where consistent rationale for pricing is in place. (This could be part of a Volunteer Management Policy – see the Policy section of this report).

  The facilities discussion recommends allocating some portion of time on ball diamonds managed by the VCMs to scheduling by the municipality for organized users to increase needed access. Presumably this time would be charged at the same rate as other scheduled diamonds in equivalent classes. Whether or not a differential rate is applied during facility time allocated to the VCMs for local use, the fees charged should be consistent across all comparable facilities.

By adopting these strategies, the municipality can continue to provide equitable and sustainable parks and recreation services that meet the evolving needs of its community.

### RECOMMENDATION

R 24. To increase the financial accessibility of programs and services, consider implementing differential pricing, increased financial assistance, and/or dynamic pricing.

1 An example would be the Vancouver Parks Board that used dynamic pricing for some of its services: https://parkboardmeetings.vancouver.ca/2024/20241125S/REPORT-2025FeesCharges-ParksRecreation-20241125.pdf?utm

## 8.3 Asset Management

The municipality has implemented several best practices in municipal asset management for parks and recreation facilities, aligning with Ontario's regulatory requirements and industry standards (see Appendix M for a summary of asset management best practices). An overview of the practices currently adopted by Kawartha Lakes and recommendations for future enhancements are as follows:

1. **Alignment with Ontario's Asset Management Planning Regulation (O. Reg. 588/17)**

**Current Adoption:**

- **Asset Management Plans (AMPs):** Kawartha Lakes has developed AMPs for both core and non-core assets:pub-kawarthalakes.escribemeetings.com+1Home+1
    - **Core Assets:** An AMP was prepared to meet the July 1, 2022, deadline, covering infrastructure such as roads, bridges, water, and wastewater systems.
    - **Non-Core Assets:** An interim AMP for non-core assets, including parks and recreation facilities, was adopted to comply with the July 1, 2024, deadline. pub-kawarthalakes.escribemeetings.com

### RECOMMENDATION

R 25. Continue efforts to develop a comprehensive AMP encompassing all municipal assets by the July 1, 2025, deadline, ensuring full compliance with O. Reg. 588/17.

2. **Inventory and Data Collection**

**Current Adoption:**

- Asset Inventory: The municipality maintains an inventory of parks and recreation assets, including equipment and facilities. However, age-based condition ratings have been assigned to only a small percentage (1%) of these assets. These data could be documented as part of the comprehensive inventory noted in Section 7.3.

### RECOMMENDATION

R 26. Implement comprehensive data collection methods, such as GIS mapping and mobile data collection apps, to improve the accuracy and completeness of asset inventories.

3. **Regular Adoption and Current Assessments:**

- **Condition Assessments:** Limited age-based condition assessments have been conducted, with only 1% of parks and recreation assets evaluated.

### RECOMMENDATION

R 27. Conduct regular physical condition assessments using standardized rating scales to better inform maintenance and rehabilitation priorities.

### 4. Lifecycle Costing and Long-Term Planning

**Current Adoption:**

- **Lifecycle Cost Estimates:** Preliminary estimates for maintaining current levels of service have been developed, with an average annual lifecycle cost of approximately $4.93 million for parks and recreation services. See the Kawartha Lakes Asset Management Plan: https://www.kawarthalakes.ca/en/news/resources/Kawartha-Lakes-Asset-Management-Plan-Non-core-Assets_final.pdf?utm

## RECOMMENDATION

R 28. Utilize asset management software to develop detailed financial models, including 10-20 year capital forecasts, to support sustainable long-term planning.

### 5. Define Levels of Service (LOS)

**Current Adoption:**

- **LOS Statements:** The municipality has articulated level of service statements for parks and recreation services, focusing on maintaining pleasant experiences for staff and visitors.

## RECOMMENDATION

R 29. Engage the community to define and refine LOS metrics, ensuring they align with public expectations and needs.

### 6. Preventative Maintenance Programs

**Current Adoption:**

- **Maintenance Planning:** While lifecycle costs are estimated, specific details on preventative maintenance programs are not extensively documented.

## RECOMMENDATION

R 30. Develop and implement structured preventative maintenance schedules to extend asset lifespans and reduce emergency repairs, and document these in the staff operational Parks Manual.

### 7. Climate Change and Sustainability Considerations

**Current Adoption:**

- **Strategic Planning:** The municipality is developing a Parks and Recreation Strategic Plan to guide asset management through 2040, which may incorporate sustainability considerations.

## RECOMMENDATION

R 31. Explicitly integrate climate change risk assessments and sustainable practices into asset management planning to enhance resilience.

**8. Performance Monitoring and Continuous Improvement**

**Current Adoption:**

- **Performance Metrics:** Some performance measures, such as the number of complaints about facilities, are tracked, though data may be limited.

## RECOMMENDATION

R 32. Establish a broader set of key performance indicators (KPIs) to monitor asset performance and inform continuous improvement efforts.

**9. Integration Across Departments**

**Current Adoption:**

- **Strategic Alignment:** The Parks and Recreation Strategic Plan aims to align with other municipal strategies, such as the 2024-2027 Strategic Plan.

## RECOMMENDATION

R 33. Enhance coordination between departments (e.g., planning, finance, public works) to ensure cohesive asset management planning and implementation.

By building upon current practices and adopting these recommendations, the municipality can further enhance the management and sustainability of its parks and recreation facilities, ensuring they meet community needs now and in the future.

**The Use of Predictive Asset Management**

A tool that will be increasingly used in future for municipal asset management (for a full range of assets, not just parks and recreation facilities) will be predictive asset management (PAM). This is a method that leverages artificial intelligence to anticipate equipment failures, optimize maintenance schedules, and reduce operational downtime. The creation and utilization of such a tool typically involves a number of steps:

**Data Collection**

- Sources of data: IoT sensors, machine logs, maintenance records, ERP systems, weather data, etc.
- Types of data typically collected: Vibration, temperature, pressure, load, energy usage, past failures, etc.

Data Processing & Integration

- AI systems clean, normalize, and integrate data across disparate sources.
- Time-series data is crucial for tracking equipment performance over time.

**Predictive Modeling**

- Using Machine Learning (ML) and Deep Learning (DL) which are part of the proprietary software from the supplier, models are trained to detect

patterns and anomalies.

- Common techniques: regression models, neural networks, decision trees, and anomaly detection.

**Failure Prediction**

- The system predicts which components are likely to fail and when (Remaining Useful Life or RUL).
- Alerts and recommendations are generated before failure occurs.

**Prescriptive Insights**

- Depending upon the particular software used, PAM recommends what action to take (e.g., replace a specific component in 5 months) and when to schedule it to minimize disruption.

**Continuous Learning**

- Models improve over time as more data is gathered and outcomes are fed back into the system.

There are several technologies that can be employed including:

- IBM Maximo Application Suite
- SAP Predictive Asset Insights (PAI)
- Siemens MindSphere
- Uptake Fusion Platform
- GE Digital – Asset Performance Management (APM)
- Azure IoT with AI (by Microsoft)
- PTC ThingWorx

## RECOMMENDATION

R 34. Explore using Predictive Asset Management tools

# 9.0 Implementation

## 9.1 Implementation Considerations

The proposed roll-out of recommendations is based on the information available at the time of Plan development and includes the following considerations.

### Operations vs. Capital Projects

Of the 183 recommendations, 143 are operational/strategic in nature. This means the implementation of these recommendations would be undertaken by existing or additional staff as part of their day-to-day activities. The remaining 22 capital recommendations and 18 recommendations to undertake supplementary studies/designs require discrete budget allocations for execution. This includes both improvements/repairs to existing parks and facilities, as well as the design and construction of new parks, facilities and amenities.

Note, multiple recommendations can be addressed under the same study. In many cases there will be capital costs resulting from the studies, but we cannot know what they will be so they are shown as to be determined (TBD) pending the results of the design/study. The capital cost estimates for parks provided here include the construction and materials costs as well as design fees, initial project start-up permits, insurance, protection fencing, construction signage, contingency and cash allowance.

### Dependences and Efficiencies

While recommendations are described as individual initiatives, many are interrelated and need to be considered in the larger context of achieving efficiencies in implementation. Some recommendations must be initiated and completed before other recommendations can begin, while others may benefit from being undertaken simultaneously in terms of process efficiency and providing a more fulsome approach to physical improvements. This is reflected in the implementation strategy by indicating if a recommendation should occur in the short, medium, mid-late, or late term.

### Budget Considerations

The implementation sequence attempts to evenly distribute the costs of recommendations over the Plan's 15-year time frame. This includes costs associated with operations, additional staffing, planning/design, and implementation. The total cost allowance of all recommendations over the 15 years is $22,892,812, with the majority of spending to occur in the mid to late term. A summary of total costs for each term, and for each service area is shown on page 260.

It should also be noted that costs for some recommendations are not available and are yet to be determined. These have been noted in the forecast and would be in addition to the numbers provided in the strategy. For example, where a park design is needed, we have provided a price for that process, but not for the

capital costs for the resulting design of that process. Another factor to consider are cost premiums/fluctuations due to the current rate of inflation. We have applied an inflation factor to medium- and late-term costing to try and account for anticipated inflationary increases.

**Staff Resources**

The need for staff resources to do the work requires both a distribution of tasks over time and, in some cases, hiring additional staff to take responsibility for implementation. Additional recommended staff include two Community Development Coordinators (one in short term to focus on event support and development, and one in the medium to late term to support seniors programming), a Community Engagement/Outreach/Partnerships Coordinator, and parks operations staff (amount to be determined as development occurs). The Community Engagement/Outreach/Partnerships Coordinator will focus on agreements and volunteer arrangements to support the ongoing success of collaborative service provision.

**Flexibility**

The proposed schedule reflects a reasonable roll-out, assuming no major obstacles to activation. However, it is expected that some projects may need to be delayed due to unforeseen circumstances. There may also be opportunities to "fast-track" other initiatives.

Some recommendations are ongoing (to be carried through each year to the end of the Plan's term as relevant), but the implementation plan shows the time they are to be initiated. Their applicability throughout the entire period, however, will depend on evolving needs in relation to service development. For example, program expansion for specific interests may be sufficient to meet demand in considerably less than 15 years (subject to potential changes based on continuation of monitoring and verification needs). The point at which this will happen, however, is unknown and thus not identified as an "end-date" in implementation.

The recommendations shown as time-limited endeavors may also extend beyond the years shown. It may take longer to complete the identified activities and/or the completion of a recommendation may result in a new system component or procedure. Recommendations to establish formal agreements or contracts, for example, are shown as time-limited for negotiating arrangements that will create new, ongoing relationships between the municipality and other providers (e.g., volunteers, agencies, businesses, etc.)

## 9.2 Implementation Plan

The following tables outline the anticipated costs and timeframe for implementing each of the Strategy's recommendations. These tables (provided to staff in Excel format) can be used to track ongoing progress of the plan.

Table Legend:

- Operations
- Strategic approach
- Study or Design
- Capital

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Programs & Events** | | | | | | |
| **Variety of Programs** | | | | | | |
| **PE1** | Expand capacity for high-demand programs such as aquatics, day camps, fitness classes, and pickleball, baseball and soccer, through facility expansion and staffing (see Facilities and Service Delivery recommendations). | | | | | |
| **PE2** | Work with the Cultural Centre to support arts and culture programming and events in parks. | | | | | |
| **PE3** | Where feasible, move existing programming (e.g., bootcamp, yoga, simple crafting, literacy, parent-and-tot programs) to parks to increase outdoor recreation opportunities | | | | | |
| **PE4** | Introduce a mobile activity centre, and seek partners to assist with equipment, volunteering, etc. | see PE 9 | | | | |
| **PE5** | Introduce water, park and trail-based programming to engage residents in outdoor recreation through programs like paddling clinics, outdoor survival skills courses, trail running, etc. | | | | | |
| **PE6** | Monitor demand for a more diverse range of programs, activities, and events as Kawartha Lakes' population grows, and conduct programs needs assessments on a 5 year cycle (including community consultations) to confirm interest before pursuing new offerings | | see SD20 | | see SD20 | |

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Variety of Events** | | | | | | |
| **PE7** | Continue to support community groups to organize events by providing support, resources, and promotional assistance, while encouraging them to diversify events to reflect the changing needs and preferences of the community. | see PE 9 | | | | |
| **PE8**[1] | Explore opportunities to provide large-scale sports tourism events in collaboration with the Economic Development Division to enhance the local economy, strengthen the municipality's tourism brand, and create unique experiences that benefit both residents and visitors. | | see PE 9 | see PE 9 | see PE 9 | |
| **PE9**[2] | Add a Community Development Coordinator position to focus on event development (both community and City-led), MEAs, and the Mobile Activity Centre. | $221,130 | $221,130 | $294,840 | $368,550 | **$1,105,650** |
| **Age-based Programming Gaps** | | | | | | |
| **PE10** | Monitor demand for dry-land programs for toddlers and children on an annual basis through community outreach to assess whether additional programming is needed. Regular feedback should also be collected at the conclusion of municipally-run programs to identify emerging needs. | | | | | |

1 Timing dependent on facility improvements/development.
2 Based on an estimated salary of $73,710 per year.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **PE11** | Explore opportunities to expand day camp programming by introducing sessions at the Fenelon Falls Community Centre, using a phased approach based on demand, to improve geographic accessibility and accommodate anticipated population growth. | | | | | |
| **PE12** | Build on existing drop-in programs by introducing additional drop-in sports programs for both youth and adults, while exploring opportunities to facilitate these programs through the use of an app such as Pickup Hub. | | | | | |
| **PE13** | Consider opportunities to offer or encourage additional walking groups to form in Kawartha Lakes, with the long-term goal of having programs led by volunteers. | | | | | |
| **PE14**[1] | Collaborate with volunteer groups offering seniors' programs to identify ways the municipality can support their sustainability. If groups are unable to provide services, and the municipality must begin providing seniors' programs directly, a seniors-focused Community Development Coordinator will be required. | TBD | TBD | TBD | TBD | |

1 To be determined if a seniors CDC will be required.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **PE15** | Consider developing targeted communications/ marketing to seniors to increase awareness of parks and recreation services. | | | | | |
| **Geographic Programming Gaps** | | | | | | |
| **PE16** | Explore solutions for providing programming that is accessible to rural and remote areas through the expansion of programming at Fenelon Falls Community Centre and Forbert Memorial Pool. | | | | | |
| **Accessible Programming** | | | | | | |
| **PE17** | Collaborate with local agencies that specialize in inclusive recreation to identify opportunities for improving program accessibility. | | | | | |
| **PE18** | Develop additional recreation programs that target accessibility barriers, while exploring new opportunities to use supportive technology to enhance access to both organized and self-guided recreation activities. | | | | | |
| **Affordable Programming** | | | | | | |
| **PE19** | Consider working with the Kawartha Lakes Public Library to expand the variety of equipment that is lent out through the "Library of Things", and to develop programming that promotes these offerings. | | | | | |

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Programming for Girls/Women in Sports** | | | | | | |
| **PE20** | Continue to engage local recreation groups that focus on girls' and/or women's sports to better understand community needs and support program planning and development. | | | | | |
| **PE21** | Integrate gender-inclusive training for Parks and Recreation staff. | | | | | |
| **Total Cost Programs** | | **$221,130** | **$221,130** | **$294,840** | **$368,550** | **$1105,650** |

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Facilities** | | | | | | |
| **Indoor Facilities - Ice Pads** | | | | | | |
| **F1**[1] | Optimize use of all ice pads by increasing weekend prime time scheduling between 8am and 11pm on Saturday and Sunday. | | | | | |
| **F2** | Prepare a detailed Recreation Facility Master Plan and, as part of this study, confirm the number of ice pads needed to serve population growth. | $258,000 | | | | |
| **F3**[2] | For additional ice pads recommended in the Recreation Facility Master Plan and beyond, consider their provision as part of twin pad facilities to also replace aging single pads in locations that will cover existing markets and serve population growth in each of the following areas: South Lindsay; Fenelon Falls/ Bobcaygeon; Emily/ Omemee/Manvers; and Woodville/Little Britain/ Oakwood. | | | | | |
| **F4**[3] | As part of the recommended Recreation Facility Master Plan, assess Ops as a priority location for a new twin pad facility in South Lindsay. | | | | | |
| **F5**[4] | Treat potential twin pad arenas as the core of future indoor recreation hubs that may also be appropriate locations for other needed facilities (e.g., gyms, multi-purpose space, etc.). | part of F4 | | part of F3 | part of F3 | |

1 Practice to be initiated in short-term; ongoing thereafter.
2 Staff will use the results of F4 and F5 to determine the need for and timing of feasibility studies for twin pad facilities in indoor recreation hubs to serve other areas identified in F3, after Ops facility is fully operational. Potentially $300,000 for up to three studies; assumes at least one will not be required until after 2040.
3 Cost for detailed study to prepare for design and construction of twin pad arena and potentially co-located facilities as noted in F5.
4 Cost for recreation facilities included in corporate budget for all municipal buildings.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F6** | Use detailed building condition assessments being prepared for the arenas over the next five years to inform the priority of proposed arena replacements as part of twin pad facilities. | | | | | |
| **F7** | Monitor and apply trends in participation/ use of all ice pads to ensure projected facility requirements reflect demand over time to confirm when new facilities should be designed and developed, and how they should be configured. | | | | | |
| **Indoor Facilities - Gymnasiums** | | | | | | |
| **F8** | Secure use of the Fleming College Fieldhouse through an agreement or other alternative arrangement with the College, as deemed appropriate. | | | | | |
| **F9[1]** | As part of future arena-recreation hub development, consider including municipal gyms to serve the north and south ends of Kawartha Lakes (pending access to Fleming College Fieldhouse in Lindsay). | | see F5 re: potential hubs | see F5 re: potential hubs | see F5 re: potential hubs | |
| **F10[2]** | Establish agreements for greater access to School Board gyms, especially in rural areas of the municipality. | | | | | |

1 Gyms to be considered as part of arena hub developments.
2 As required over time.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Indoor Facilities - Fitness Facilities, Track, Squash** | | | | | | |
| **F11** | As part of future indoor recreation hub development, consider including strength and conditioning rooms and fitness program studios. | | | see F5 re: potential hubs | see F5 re: potential hubs | |
| **F12**[1] | Prepare a facility needs assessment to confirm required upgrades and expansion to the Forbert Memorial Pool fitness facility. | $45,000 | | | | **$45,000** |
| **F13**[2] | As part of design/ costing work related to future development plans for arena-based recreation hubs, investigate options to including an indoor track. | | | see F5 re: potential hubs | see F5 re: potential hubs | |
| **F14**[3] | No additional squash courts will be needed during the term of the Strategic Plan. | | | | | |
| **Indoor Facilities - Pools** | | | | | | |
| **F15** | Investigate increasing operating hours and coordinating program schedules between the LRC and Forbert Memorial Pools to maximize use of all available time. | | | | | |
| **F16** | As part of the recommended Recreation Facility Master Plan, prepare a facility needs/ feasibility assessment for redeveloping and expanding the Forbert Memorial pool into a 25m, 8-lane facility with a leisure component to serve long-term need for aquatic facilities. | | | part of cost for F2 | | |

1 Assumes this is for the fitness component, general building, and maybe some mechanical upgrades to the pool, but not a pool expansion.
2 To be considered in the F6 feasibility studies.
3 Term is not applicable.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Indoor Facilities - Multi-purpose Rooms** | | | | | | |
| **F17**[1] | For all municipally owned community rooms, implement a data collection system that documents needed information for planning purposes and is comparable and consistent across all facilities. | | | | | |
| **F18** | As part of the recommended Recreation Facility Master Plan, confirm the future of municipally-owned stand alone community rooms. | | | | | |
| **F19**[2] | Engage Volunteer Management Committees in ongoing data collection and reporting activities. | | | | | |
| **F20**[3] | Use upcoming building conditions assessments to inform the cost-related implications for building systems and space planning to enhance the multi-purpose function of stand-alone facilities | | | | | |
| **F21**[4] | Prepare a prioritized program to implement capital upgrades to municipal facilities. | | | | | |
| **F22** | Where possible, maximize use of Volunteer Committee managed community rooms to satisfy demand for programming/ rentals, using all existing facilities before adding new space. | | | | | |
| **F23**[5] | As appropriate, work to facilitate community access to not-for-profit space. | | | | | |

1 Practice to be initiated in short-term; ongoing thereafter.
2 Ongoing engagement.
3 To inform F21.
4 Costs will depend on results of conditions assessments and location-specific requirements, options to enhancing the spaces.
5 To inform F21; short-medium term to negotiate access; ongoing thereafter.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Outdoor Facilities - Ball Diamond** | | | | | | |
| **F24**[1] | Adopt a collective 'group' approach (using the eight groups described herein) to the function of ball diamonds to better serve communities throughout Kawartha Lakes and optimize municipal investment in facility provision. | | | | | |
| **F25**[1] | Incorporate Friday evenings into prime time diamond scheduling. | | | | | |
| **F26**[1] | Formalize definition of prime time to 6pm to 9pm and 6pm to 11pm Monday through Friday on unlit and lit diamonds, respectively. | | | | | |
| **F27**[1] | Revise rates to charge an hourly fee for each hour scheduled. | | | | | |
| **F28**[2] | Working with Volunteer Management Committees, integrate 'bookable' municipal diamonds into the scheduling, and use tracking system and allocate agreed-upon prime times for organized use. | | | | | |
| **F29**[3] | Complete required capital upgrades on volunteer managed diamonds to be used for expanded organized use. | | $700,000 | $700,000 | | **$1,400,000** |
| **F30**[4] | Increase weekend use of diamonds to the extent possible. | | | | | |
| **F31**[4] | Work with organized users to investigate options to better distribute diamond use throughout June, July and August. | | | | | |

1 Practice to be initiated in short-term; ongoing thereafter.
2 Short-term to negotiate with existing VMCs; mid-term to initiate new ones.
3 Based on a range of $300k - $1.1M. Actual costs will be based on required upgrades.
4 Short-term to initiate; ongoing thereafter.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F32**[1] | With prime time definitions, additional bookable diamonds, and revised fee structure in place, continue to track use of all municipal ball diamonds to verify unmet demand for additional access to facilities due to population growth and participation. | | | | | |
| **F33**[2] | Prior to building new facilities consider ways to optimize the use of existing diamonds through capital improvements (e.g., lighting), and agreements to access not-for-profit and school diamonds. | | | | | |
| **F34**[3] | If the Valentia diamond is not needed over the long term, consider it for removal from supply. | | | | $80,000 | $80,000 |
| **Outdoor Facilities - Athletic Fields** | | | | | | |
| **F35**[4] | Incorporate Friday evenings into prime time athletic field scheduling. | | | | | |
| **F36**[5] | Formalize definition of prime time to 6pm to 9pm and 6pm to 11pm Monday through Friday on unlit and lit fields, respectively. | | | | | |
| **F37**[6] | Revise rates to charge an hourly fee for each hour scheduled. | | | | | |
| **F38**[7] | Increase weekend use of fields to the extent possible. | | | | | |

1 Part of ongoing planning activities.
2 Part of ongoing planning activities.
3 Based on a range of $50k - $80k. Timing and cost to be determined based on need; assumes removal of diamond and associated amenities and restore to open sod field.
4 Practice to be initiated in short-term; ongoing thereafter.
5 Practice to be initiated in short-term; ongoing thereafter.
6 Practice to be initiated in short-term; ongoing thereafter.
7 Practice to be initiated in short-term; ongoing thereafter.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F39**[1] | Work with organized users to investigate options to better distribute field use throughout June, July and August and to schedule games times to minimize competition for the same allocations. | | | | | |
| **F40**[2] | With prime time definitions and revised fee structure, and potential increased use on weekends and in non-peak months, continue to track use of all municipal athletic fields to verify unmet demand for additional access to facilities due to population growth and participation in soccer and other field sports. | | | | | |
| **F41**[3] | Once operational, use the new field at Sylvester Park to shift some of the early evening use from Wilson Fields to this location. | | | | | |
| **F42** | The completion of Ops, George Street and Sylvester Parks development will add the equivalent of six (6) unlit fields to supply, which will satisfy the population-based facility need projection for Lindsay. | | | | | |
| **F43**[4] | Once the artificial turf field at Ops is operating, pilot access prior to May 15 during its first year for interested groups. | | | | | |
| **F44**[5] | Monitor the performance of new additions to lit fields to confirm the need for more than four (4) total based on trends in participation that increase need beyond population growth. | | | | | |

1 Short-term to initiate; ongoing thereafter.
2 Part of ongoing planning activities
3 Assumes Sylvester Park will be completed and used soon.
4 Determine need to extend after pilot.
5 Part of ongoing planning activities; see also F38.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F45**[1] | If improvements are needed to sustain use of high school athletic fields for organized users, consider entering agreements with one or both School Boards to improve the facilities in exchange for guaranteed community access. | | | | | |
| **F46**[2] | If required later, light the natural turf field at Ops to provide two (2) lit facilities and to contribute to this location's recreation hub function. | | | | $425,000 | **$425,000** |
| **F47**[3] | If required later, upgrade Elgin Park field to accommodate organized use. | | | | $520,000 | **$520,000** |
| **F48**[4] | Working with the Fenelon Agricultural Society to amend its agreement for use of the property, provide two (2) A class athletic fields in Fenelon Falls to anticipate area population growth. | | | $1,650,000 | | **$1,650,000** |
| **Outdoor Facilities - Cricket Field** | | | | | | |
| **F49**[5] | Prior to developing a formal cricket field, continue to schedule cricket activity at Optimist Park on weekends to distribute use of this space throughout the week, and to confirm demand for a formal field in view of the Optimist Club's interest in providing one at this location. | | $800,000 | | | **$800,000** |

1 Potential capital costs would be specific to each field and reflected in negotiated agreement; timing as required.
2 Based on a range of $200k - $400k. Assumes new electrical panel, posts, wire and lighting required for one field.
3 Based on a range of $200k - $400k. Depends on what exact upgrades are needed.
4 Based on a range of $1.5M - $6M. Low end estimate is for 2 grass fields, high end is for two artificial turf fields; timing will depend on demand in conjunction with ability to meet early needs through an agreement for access to Fenelon Falls SS field.
5 Based on a range of $400k - $1.2M; cost to municipality would be adjusted relative to Optimist contribution.

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F50**[1] | Consider locating a cricket field on Fleming College property through a long-term lease for a municipal facility or a joint development and operating agreement with the College. | | | | | |
| **Outdoor Facilities - Tennis and Pickleball Courts** | | | | | | |
| **F51**[2] | Repurpose the two shared tennis/pickleball courts at Optimist Park to tennis only and add two more for a total of four (4) dedicated tennis courts. | $530,000 | | | | **$530,000** |
| **F52** | Repurpose lit shared use courts at Memorial Park to create eight (8) dedicated pickleball courts, for a total of 12 pickleball courts including existing facilities at Little Britain. | | | | | |
| **F53** | Reallocate 2026 funding for developing four (4) new pickleball courts at Fenelon Township CC to repurpose and/or upgrade the courts at Memorial Park and Little Britain as dedicated pickleball courts. | See F52 | | | | |
| **F54** | Confirm projections to add an estimated three (3) tennis courts and five (5) pickleball courts, all single use, and two (2) shared courts to total supply by 2040, beyond those included in near term shared court addition at Ops. | | | | | |
| **F55** | For future needed facilities, consider adding pickleball courts to those at Memorial Park, adding tennis courts or lights at Optimist Park, and meeting shared court requirements with a court at each of Ops and Pioneer Park. | | | | | |

1 Potential to acommodate college use; need to determine College's interest and opportunity to share costs.
2 Based on a range of $5k - $50k.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Facility Allocation** | | | | | | |
| **F56**[1] | Create a formula-based seasonal allocation process for Kawartha Lakes ball diamonds and fields with the objective of providing an equitable distribution of available prime time among all user groups. | | | | | |
| **F57** | Create a formula-based allocation process for ice to ensure optimal use and distribution of available prime time among all user groups. | | | | | |
| **F58** | Develop honour system protocols for shared use of all casual use courts, detailed by type. | | | | | |
| **F59** | Post basic court use protocols at all municipal courts and supplement with additional required details/explanation regarding rules and etiquette on the City's website. | | | | | |
| **Facility Agreements** | | | | | | |
| **F60** | Consider options to determine the preferred model for access to / use of pickleball courts by organized users. | | | | | |
| **F61**[2] | Agreements between the municipality and the VMCs should ensure a process is implemented whereby the Committees monitor and report on required use data for planning purposes. | | | | | |

1 Short-term to initiate; ongoing thereafter.

2 part of planning activities for both existing and potentail new VCMs; agreements would follow the finalization of the pro cess and determination of other relevant items (e.g., access to diamonds for organized users; capital improvement plans, etc.)

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **F62** | Capital investment to improve facilities operated by the VMCs should be directed by agreed upon plans to meet needs for their respective communities and other groups they may serve. | | | | | |
| **F63**[1] | The potential for the municipality to take responsibility for managing/programming the Fleming College Fieldhouse should be supported by a formal agreement that is mutually beneficial to both parties. | | | | | |
| **F64**[2] | Consider the possibility of entering reciprocal use agreements with the School Boards for access to facilities for community recreation at select schools throughout the municipality, and especially in non-urban locations. | | | | | |
| **Facility Design and Development** | | | | | | |
| **F65**[3] | When planning new or renewing existing facilities, investigate opportunities to provide those that are designed to be inclusive. | | | | | |
| **Total Cost Facilities** | | **$833,000** | **$1,500,000** | **$2,350,000** | **$1,025,000** | **$5,450,000** |

1 See also F8.
2 As required over time, and would comprise a different type of agreement than one on access only for (for example) use of gyms.
3 Ongoing practice as part of planning activities.

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Parks** | | | | | | |
| **Parkland Hierarchy, Supply, and Staffing** | | | | | | |
| **P1** | Adopt the updated/ expanded Parkland Hierarchy system provided herein, and categorize parks accordingly. | | | | | |
| **P2** | In urban areas, aim to reach or maintain a parkland provision ratio of 3.2 ha per 1,000 people and/or provide parks within an 800m catchment area to all households. | | | | | |
| **P3** | In rural areas, focus on providing and improving Destination and Community Parks. | | | | | |
| **P4** | Avoid accepting Parkettes as parkland dedication. Parks should be of sufficient size to act as a Neighbourhood Park (at minimum), or linear parcels should be given to accommodate pathways and trails. Where neither of these options is possible, smaller parcels from adjacent developments should be assembled together or adjacent to other community use space (e.g., schools, commercial areas, parks or recreation centres etc.) | | | | | |
| **P5** | Any land given to the municipality should fit one of the classifications in the hierarchy, and be assigned a level of service to assist staff in determining what resources will be needed to maintain and/or develop the parcel. | | | | | |

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P6** | Update the descriptions of each level of service, and include them in the staff operations Parks Manual. | | | | | |
| **P7** | Review to determine if currently applied LOS is appropriate to each park. | | | | | |
| **Park Amenity Quantities - Playgrounds** | | | | | | |
| **P8**[1] | Invest in upgrading existing playgrounds to include greater variety of equipment, themed playgrounds specific to different locations, activities for broader age groups etc., as playgrounds reach the end of their life. | $1,200,000 | $1,200,000 | $1,650,000 | $2,060,000 | **$6,110,000** |
| **P9** | Playgrounds should be paired with other facilities or amenities where possible | | | | | |
| **Park Amenity Quantities - Splash Pads** | | | | | | |
| **P10**[2] | Consider adding two more splash pads to supply if, first, demand is sufficient and confirmed (i.e. through community consultation during the park design process), and secondly, if the municipality is seeking to develop a Community or Destination Park and needs an anchor facility. | | $1,000,000 | | 2,200,000 | **$3,200,000** |
| **P11** | The preferred model is a location that has municipal infrastructure but other may options may be considered. | | | | | |
| **Park Amenity Quantities - Dog parks** | | | | | | |

1 Based on 2024 budget allocation of $412,000 for 3 playground upgrades, and 5 playground surface upgrades. Cost shown here is $412,000 per year, and assumes a similar rate of upgrades (3-5 play grounds/surfaces per year).

2 costed in P20.

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Park Amenity Quantities - Basketball courts** | | | | | | |
| **P13**[1] | The municipality is relatively well supplied with basketball courts. However, given the high demand from residents, the municipality should consider adding basketball courts to parks undergoing revitalization or when seeking to add diversity to the types of amenities in parks. | | | | | |
| **Park Amenity Quantities - Skateparks and Pump Tracks** | | | | | | |
| **P14**[2] | Continue with plans to add three pump tracks to supply. | | $540,000 | $540,000 | $540,000 | **$1,620,000** |
| **P15** | Update and improve existing skate parks in the municipality | $150,000 | $150,000 | | | **$300,000** |
| **Park Amenity Quantities - Other Amenities for Consideration** | | | | | | |
| **P16**[3] | Where possible, prioritize new facilities/ amenities that appeal to all ages/multiple age groups (e.g., table tennis, multi-sport courts, outdoor fitness equipment, trail activities etc.). | | | | | |
| **Recommendations for Urban Hubs** | | | | | | |
| **P17**[4] | Complete the Parks Master Plan | | | | | |
| **Recommendations for Rural Hubs - Northwest Kawartha Lakes** | | | | | | |
| **P18**[5] | Enhance Dalton or Carden Community Centre Park by adding additional amenities (e.g., outdoor fitness equipment, basketball courts, etc.). Consult with the community to determine specific amenities and facilities of interest. | | | $750,000 | | **$750,000** |

1 To be costed in park specific recommendations.
2 To be costed in park specific recommendations.
3 Cost TBD based on individual projects, site conditions, design, etc.
4 This is based on quote we provided as an add on to the PRSP, per the TOR provided. If done as a standalone project and/or scope increased, cost will likely be higher.
5 Based on a range of $500k - $1M, with specifics to be determined through community consultation.

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| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P19**[1] | Enhance Bolsover Community Centre Park by adding additional amenities (e.g., outdoor fitness equipment, basketball courts, etc.). Consult with the community to determine specific amenities and facilities of interest. | | $750,000 | | | **$750,000** |
| **P20**[2] | Add a splash pad to Woodville Ball Park, and seek opportunities to work with the community to fundraise for the project. | | | | see P10 | |
| **P21** | If policy allows, consider disposing the following parcels (see inventory/ GIS for exact locations):<br>• Stanley Road Allowance<br>• Three parcels on MacPherson Crescent<br>• Trent River Road North Road Allowance<br>• Natural Heritage Park<br>• Pinewood Blvd., Bolsover<br>• Doig-Abbot Park | | | | | |
| **Recommendations for Rural Hubs - Northeast Kawartha Lakes** | | | | | | |
| **P22**[3] | Consult with Burnt River Community to improve and enhance the park. Suggestions include improving the rink and support amenities (e.g., add a warming hut), or adding a new amenity (e.g., outdoor fitness equipment). | | $450,000 | | | **$450,000** |

1 Based on a range of $500k - $1M, with specifics to be determined through community consultation.
2 Based on a range of $1.5M - $2.5M, with specifics to be determined through community consultation, partnership opportunities, and fundraising. Includes design fees.
3 Based on a range of $300k - $600k, with specifics to be determined through community consultation.

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|---|---|---|---|---|---|---|
| **P23**[1] | Undertake a design process for Centennial Park (Burnt River) to identify options for improving/expanding water access, and adding amenities such as a picnic shelter. | $30,000 | TBD | | | **$30,000** |
| **Southwest Kawartha Lakes** | | | | | | |
| **P24**[2] | Undertake a design process with community consultation to improve Pleasant Point Park. Suggestions include, adding a picnic pavilion, improving the playground, and adding a half court basketball and/or volleyball court and/or table tennis table. | | $30,000<br><br>capital cost TBD | | | **$30,000** |
| **P25**[3] | Undertake a design process with community consultation to improve Mariposa Estates Park. Suggestions include adding a picnic pavilion and improving the playground. | | | | $30,000 | **$30,000** |
| **P26**[4] | Improve Pumphouse Park through the addition of a picnic structure and parking spaces for 3-5 cars. | | | | $200,000 | **$200,000** |
| **P27**[5] | Undertake a design process with community consultation to redesign Sand Bar Park as a City Park. Some improvements to consider include trails through the forested area, mini putt course, improved playground, volleyball courts, picnic shelter, paddlecraft rental lockers, washrooms and parking. | $65,000 capital cost TBD | | | | **$65,000** |

1 Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project.

2 Based on a range of $20k - $50k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project. Design and construction in same time frame, capital costs TBD based on design.

3 Based on a range of $20k - $50k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project. Design and construction in same time frame, capital costs TBD based on design.

4 Based on a range of $50k - $100k. Includes design fees. Assumes small picnic structure.

5 Based on a range of $50k - $80k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P28**[1] | Undertake a design process with community consultation to confirm demand, and if apparent, add a pump track or skatepark to Little Britain Community Centre Park. | | $750,000 | | | **$750,000** |
| **Southeast Kawartha Lakes** | | | | | | |
| **P29** | Conduct research to confirm if any of the small parks in southeast Kawartha Lakes are not being used and are suitable for disposal. | | | | | |
| **P30** | Continue to collaborate with and support volunteer group operating at Nimigon Park. | | | | | |
| **P31**[2] | Develop the approved Omemee Beach Park Concept. | | for potential splash pad, see P10 | | | |
| **P32**[3] | Undertake a design process with community consultation to coordinate improvements to Terry Staples Park and Arbour Court Park to increase the variety of amenities available locally. | | | $30,000 capital cost TBD | | **$30,000** |
| **P33**[4] | Undertake a design process with community consultation to improve Emily/Omemee CC Park so it better fulfills the role of a Community Park. Some suggestions include adding a large, age-inclusive play structure, and a basketball or multi-sport court. | $37,500 | TBD | | | **$37,500** |

1 Based on a range of $500k to $1M. Assumes consultation, design and construction. Low end for pump track. High end for skatepark.
2 Based on a range of $10k - $25k Assumes combined with another park design project.
3 Based on a range of $20k - $50k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project. Design and build should be in same term; capital costs TBD based on design.
4 Based on a range of $25k - $50k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project. Capital costs TBD based on design.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P34**[1] | Conduct consultation with residents in the Dunsford area to improve the variety of park amenities in the area by making additions/changes at to one of these parks: Arnold Park, Dunsford Park, Laura Thurston Campbell Park | | $37,500 | TBD | | **$37,500** |
| **Waterfronts** | | | | | | |
| **P35**[2] | Develop a Waterfront Master Plan either as part of the Parks Master Plan, or as a subsequent project. | $50,000 | | | | **$50,000** |
| **P36** | As part of the Parks Master Plan:<br>• confirm the inventory, including identifying swimming areas<br>• identify potential locations for new or improved swimming areas<br>• identify opportunities to improve water quality in swimming areas<br>• review and confirm the waterfront recommendations contained in this Plan<br>• confirm the need and identify location(s) for additional boat launch and dock areas<br>• identify boat launch and/or dock areas for improvement/ expansion (especially regarding parking and circulation, as was identified as a pressing need in consultations). | part of P17 | | | | |

1 Based on a range of $25k - $50k. Could be less if combined with other design work. High end assumes stand alone project. Low end assumes combined with a least one other project. Capital costs TBD based on design.

2 This cost assumes it is paired with another study, such as the City-Wide Water Access Strategy or the Parks Master Plan. If this is done as a standalone project, the cost will likely be higher.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Park Policy** | | | | | | |
| **P37** | Expand the By-Law to Protect and Enhance the Healthy Tree Canopy (By-Law 2024-201) by adding targets for tree planting by the municipality, incentives (e.g., planting support, rebates etc.) for residents who wish to plant trees; and the list of preferred species. | | | | | |
| **P38** | Revise the Street, Municipal Facility, and Park Naming Policy (CP2022-001) to preclude naming public spaces and assets after individuals. | | | | | |
| **P39** | Revise the Street, Municipal Facility, and Park Naming Policy (CP2022-001) to clarify when naming elements within a park, the element name should not also include the word “park”. | | | | | |
| **P40** | Consider updating Regulate Public Parks and Facilities By-Law 2006 - 147 section 5.02 to permit alcohol in some public parks. | | | | | |
| **P41** | Consider the need for updates to Regulate Public Parks and Facilities By-Law 2006 - 147 sections 5.14 and 5.15 to to reflect the new Encampment Policy. | | | | | |
| **P42** | Consider updating Regulate Public Parks and Facilities By-Law 2006 - 147 section 5.20 to be less restrictive to self propelled devices, and include mention of scooters. | | | | | |

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P43** | Repeal section 8.0 Unopened Road Allowances Leading to Water of By-Law 2018-020, and replace it with a park disposal decision tree to aid in decisions related to park disposal. Staff should use the park disposal decision tree before taking the steps outlined in the Disposal of Real Property Policy and Land Management Policy CP2021-033. | | | | | |
| **P44** | Develop a Parkland Dedication By-law and a Cash-in-Lieu of Parkland Policy as discussed herein. | | | | | |
| **P45** | Parkland dedication conveyance rates should be included in the municipality's Fees and Charges By-law so that fees can be updated periodically with inflation or market rates. | | | | | |
| **P46** | In order to comply with recent changes to the Planning Act, use the recommendations in this Strategic Plan to spend or allocate at least 60% of the monies that are in the special parkland dedication account at the beginning of each year. | | | | | |
| **P47** | Prepare a matrix of all planned developments to clarify how much parkland and cash-in-lieu will be received in order to understand where there may be shortfalls. This can be done in-house, or can be added to the scope of the Parks Master Plan. | | | | | |

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P48** | In urban areas not meeting the recommended provision rate (3.3 ha per 1,000 people and/or no park within an 800m catchment area to all households), parkland should be prioritized over cash-in-lieu. | | | | | |
| **P49** | In rural areas, cash-in-lieu should be prioritized in order to support the strategy of investing in key city and community parks in rural areas. | | | | | |
| **P50** | Develop a community garden policy to clarify goals/objectives, roles and responsibilities etc. of the City and community group(s). | | | | | |
| **Accessibility, Safety, and Equity** | | | | | | |
| **P51** | Update the staff operations Parks Manual to include further details on park accessibility including for example, playground surfacing, play equipment and signs, and pathway trail features. | | | | | |
| **P52** | Update the staff operations Parks Manual to include information/ guidance on water safety, safety lighting, and shade as discussed herein. | | | | | |
| **P53** | Prioritize accessibility upgrades at Destination Parks, followed by Community Parks. | | | | | |
| **P54** | When prioritizing and funding park and amenity upgrades, consider local demographics to maximize the impact/ contribution of free/ affordable access to recreation. | | | | | |

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Climate Conscious Approach to Parks** | | | | | | |
| **P55**[1] | Hire the services of a consulting arborist to complete a tree inventory of planted trees on a scoped portion of municipal land (e.g., parks and municipal rights-of-way in urban settlement areas, and/or limited to City and Community Parks across the municipality), and to thereafter develop a Tree Canopy Strategy to guide the management of these trees and define tree-planting targets. | | $150,000 | | | **$150,000** |
| **P56**[2] | Contribute funding to the Tree Canopy Reserve for the implementation of projects identified in the future Tree Canopy Strategy. At a minimum, budget will be required for tree planting, tree care maintenance, and hazard tree removal. The budget will depend on the outcomes of the proposed management plan and should be adjusted accordingly. | $32,500 | $32,500 | $32,500 | $32,500 | **$130,000** |
| **P57**[3] | Implement managed naturalization practices as directed in the Kawartha Lakes Healthy Environment Plan, consulting with the community before embarking on projects. | $32,500 | $32,500 | $32,500 | $32,500 | **$130,000** |

1 Extent of site work/tree assessments to be scoped appropriately in RFP to be a higher level assessment of existing conditions. Plan for assessing future tree inspections to be addressed as part of management plan.

2 Estimated Allowance, based on a range of $15,000 - $50,000. Depending on Council and staff discretion and specific project needs.

3 Cost project dependent, based on a range of $15,000 - $50,000.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **P58** | Incorporate best practices for naturalized areas as described herein. | | | | | |
| **P59**[1] | Plan to maintain naturalized areas at least twice a year to remove invasive species. | | | | | |
| **P60**[2] | Implement Low Impact Design (LID) practices in parks as part of regularly scheduled updates and/or park redevelopments. Prioritize parks that experience flooding and/or poor water quality. | $32,500 | $32,500 | $32,500 | $32,500 | **$130,000** |
| **P61** | Update the Community Partnership Development Fund to include grants and incentives to encourage the planting of pollinator gardens on municipal lands. | | | | | |
| **P62** | If approached by an interested community group to develop a community food garden, ensure the policy is in place first to guide the process and agreement. | | | | | |
| **Cemeteries** | | | | | | |
| **P63** | Support demand for cremation practices including expanding scattering gardens and columbaria. | TBD | TBD | TBD | TBD | |
| **P64** | Introduce green burial grounds. | TBD | TBD | TBD | TBD | |
| **Total Cost Parks** | | **$1,630,000** | **$5,125,000** | **$3,097,500** | **$5,127,500** | **$14,980,000** |

1 As part of staff time assuming L3 or L4 LOS for these areas.
2 Cost project dependent, based on a range of $15,000 - $50,000.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Service Delivery** | | | | | | |
| **Organizational Structure** | | | | | | |
| **SD1**[1] | Introduce maintenance management software for scheduling park and trail work, and coordinate it with recreation event schedules. | | | | | |
| **SD2**[2] | Regularly review the workloads of staff since the 2022-2026 restructuring to ensure balance and efficiency. | | | | | |
| **SD3**[3] | Continue to monitor market rates for wages, adapting to remain competitive, and offering other incentives (e.g., flexible hours/ arrangements, full-time positions, etc.) to attract and retain candidates. | | | | | |
| **SD4**[4] | Consider reducing the size of parks operations' geographic zones and increasing staff to cover new zones (e.g., aligning operations teams with the four rural areas used in the parks assessment, plus urban teams for Fenelon Falls, Bobcaygeon, and Lindsay). | | | | | |

1 Practice to be initiated in short-term; ongoing thereafter.
2 Practice to be initiated in short-term; ongoing thereafter.
3 Practice to be initiated in short-term; ongoing thereafter.
4 Practice to be initiated in short-term; ongoing thereafter.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **SD5**[1] | Work closely with volunteer groups providing horticulture care, and provide assistance as needed to support their ongoing service. If needed, mobilize existing municipal horticulture staff beyond Lindsay, and/or add horticulture positions to be focused in other areas (e.g., split time between Omemee, Bobcaygeon and Fenelon Falls). | | | | | |
| **SD6** | Use the parkland maintenance/staff hour ratios and outlined in Table 7-2 and Appendix G, and use it to gauge the operating cost implications of new park development or acquisition in future. | | | | | |
| **SD7** | Explore centralizing procurement for facility and parks supplies to achieve efficiencies. | | | | | |
| **SD8** | Improve role clarity and communication internally and externally (i.e., circulate new job descriptions and organizational chart to all staff, update website and contact information etc.). | | | | | |
| **SD9**[2] | Establish ongoing consultation to gauge satisfaction and emerging needs in parks and recreation. | | | | | |

1 Responsibility of new staff reco SD 10. Practice to be initiated in short-term; ongoing thereafter.
2 Responsibility of new staff reco SD 10. Practice to be initiated in short-term; ongoing thereafter.

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **SD10** | Consider creating a Community Engagement/ Outreach/Partnerships Coordinator position within the division to be responsible for soliciting regular community consultation, and liaising with sports clubs, volunteer groups, and park users, ensuring their needs are heard and integrated into service delivery. This position can be part time to start, and eventually grow to full time. | $156,162 | $221,130 | $294,840 | $368,550 | **$1,040,682**[1] |
| **SD11** | Invest in professional development to ensure staff at all levels can operate effectively within the organizational model (e.g., training for supervisors in leadership and project management; customer service and cross-functional training for frontline staff). | $14,400 | | $22,080 | | **$36,480** |
| **SD12** | Use metrics such as facility use rates, program participation, park condition scores, and response times to maintenance requests to identify where additional training and/or staffing may be needed. | | | | | |
| **Policies and procedures** | | | | | | |
| **SD13** | Develop a Community Engagement Policy | | | | | |
| **SD14** | Develop a Digital Accessibility Policy | | | | | |
| **SD15** | Develop a Volunteer Recruitment and Management Policy | | | | | |
| **SD16** | Develop a Environmental Sustainability Policy | | | | | |

1 Short term: annual part-time salary $52,054. Mid and late terms: annual full-time salary $73,710.

Table Legend: Operations | Strategic approach | Study or Design | Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **SD17** | Update the Naming Rights and Sponsorship Policy to specifically enable naming rights for facilities, as well as sponsorships. | | | | | |
| **Service Planning and Evaluation** | | | | | | |
| **SD18**[1] | Further develop and implement service planning, monitoring and evaluation capacity to align service provision with verified community needs. | | | | | |
| **SD19**[2] | Use the results of monitoring and evaluation to detail year by year steps to implementing initiatives within each term of the Plan, by setting annual objectives in the budget cycle, and tracking their progress. | | | | | |
| **SD20**[3] | Conduct a five-year review and update of the Plan. | | $80,000 | | $200,000 | **$280,000** |
| **SD21**[4] | Engage all relevant parties in collaborations and partnerships in regular joint service planning sessions to create a coordinated, whole community approach to provision. | | | | | |
| **SD22**[5] | Create a Strategic Marketing Plan including the best practices and key considerations provided herein. | | | | | |
| **Total Cost Service Delivery** | | **$170,562** | **$301,130** | **$316,920** | **$568,550** | **$1,357,162** |

1 Responsibility of new staff reco SD 10. Practice to be initiated in short-term; ongoing thereafter
2 Responsibility of new staff reco SD 10. Practice to be initiated in short-term; ongoing thereafter.
3 Mid term review assumed to be smaller in scope, making updates to the PRSP based on changes in supply and population updates for example. Update in long term will likely require a more in-depth study/development of a new Plan.
4 Practice to be initiated in short-term; ongoing thereafter.
5 Can be completed by staff or contracted out (for additional fee).

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **Resources and Asset Management Resources and Asset Management** | | | | | | |
| **R1** | To increase the financial accessibility of programs and services, consider implementing differential pricing, increased financial assistance, and/or dynamic pricing. | | | | | |
| **R2** | Continue efforts to develop a comprehensive AMP encompassing all municipal assets by the July 1, 2025, deadline, ensuring full compliance with O. Reg. 588/17. | | | | | |
| **R3** | Implement comprehensive data collection methods, such as GIS mapping and mobile data collection apps, to improve the accuracy and completeness of asset inventories. | | | | | |
| **R4** | Conduct regular physical condition assessments using standardized rating scales to better inform maintenance and rehabilitation priorities. | | | | | |
| **R5** | Utilize asset management software to develop detailed financial models, including 10-20 year capital forecasts, to support sustainable long-term planning. | | | | | |
| **R6** | Engage the community to define and refine LOS metrics, ensuring they align with public expectations and needs. | | | | | |
| **R7** | Develop and implement structured preventative maintenance schedules to extend asset lifespans and reduce emergency repairs, and document these in the staff operational Parks Manual. | | | | | |

Table Legend: Operations Strategic approach Study or Design Capital

| # | Recommendation | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|---|
| **R8** | Explicitly integrate climate change risk assessments and sustainable practices into asset management planning to enhance resilience. | | | | | |
| **R9** | Establish a broader set of key performance indicators (KPIs) to monitor asset performance and inform continuous improvement efforts. | | | | | |
| **R10** | Enhance coordination between departments (e.g., planning, finance, public works) to ensure cohesive asset management planning and implementation. | | | | | |
| **R11** | Explore using Predictive Asset Management tools | | | | | |
| **Total Cost Resources and Asset Management** | | | | | | |

## Summary of Costs by Service Area for Each Term of the Plan

| | Short-Term (1-3 years) | Mid-Term (4-6 years) | Mid/Late-Term (7-10 years) | Long-Term (11-15 years) | Total Cost |
|---|---|---|---|---|---|
| **Programs and Events** | $221,130 | $221,130 | $294,840 | $368,550 | **$1,105,650** |
| **Facilities** | $833,000 | $1,500,000 | $2,350,000 | $1,025,000 | **$5,450,500** |
| **Parks** | $1,630,000 | $5,125,000 | $3,097,500 | $5,127,500 | **$14,980,000** |
| **Service Delivery** | $170,562 | $301,130 | $316,920 | $568,550 | **$1,357,162** |
| **Resources and Asset Management** | | | | | |
| **GRAND TOTALS** | **$2,854,692** | **$7,147,260** | **$6,095,260** | **$7,089,600** | **$22,892,812** |

# Appendix A: Inventory of Recreation Programs and Activities in Kawartha Lakes

## Municipally-led Programs

Table A-1 provides examples of programs that are provided by the municipality, including those that are structured and require registration, as well as drop-in/casual activities. Where data was available, average participation rates by activity were also included.

### Table A.1: Sample of Municipally-led Programs

| Type | Programs | Approximate Number of Sessions Offered Annually | Average Registration Rate (%) | Notes |
|---|---|---|---|---|
| **Aquatics** | • Baby Aquafitness<br>• Parent & Tot Swim Lessons - Level 1-3<br>• Children's Swim Lessons - Level 1-6 (Ages 3-6)<br>• Swimming Lessons for School-aged Children/Youth<br>• Beach Swim Lessons<br>• Lifeguard Training<br>• Swim Instructor Training<br>• Adult Level 1-3 Swim Lessons (Ages 15+)<br>• Private/Semi-Private/ Homeschool Lessons<br>• Aquatherapy<br>• Aquafitness and Aquayoga | 1517 | 75% | Highest registration rates in aqua therapy, children's swim lessons, and Aquafitness/ Aquayoga.<br><br>Lowest registration rates in baby aquafitness, swim instructor training/first aid, adult level 1-3 swim lessons, and beach swim lessons.<br><br>Waterfront programming was offered in the summer of 2024, but there was limited registration. |

| Type | Programs | Approximate Number of Sessions Offered Annually | Average Registration Rate (%) | Notes |
|---|---|---|---|---|
| **Arena Sports** | • Women's Recreational Hockey League<br>• Women's Ball Hockey | 1 | 100% | The Women's Recreational Hockey League was at capacity, with 132 players registered and 12 on the waitlist. Expanded to 10 teams for the 2024/2025 season.<br><br>Women's Ball Hockey had 60 registrants with 5 waitlisted. |
| **Fitness Classes** | • Strength & Cardio Based<br>• Yoga & Pilates<br>• Rehab Based | 79 | 85% | Nearly half of strength and cardio-based fitness classes were registered to capacity.<br><br>Pilates at Forbert Pool was almost always full, but also only had a capacity of 8-10 people, while Yoga at Victoria Park Armoury was less than capacity generally, but capacity was 30. |
| **Sports Programs** | • Pickleball (15-week program)<br>• Badminton | 3 | 100% | Pickleball sessions were only offered during the Fall of 2023, but as of 2024, indoor sessions were offered from September to March, and outdoor sessions were available from May – October. Drop-in badminton was also offered twice a week from September to May, 2024. |
| **Arts and Culture** | • Introduction to Digital Photography<br>• Capturing the Fall Landscape | 2 | 14% | |
| **Camps** | • Summer day camps<br>• March break camp | 30 | 92% | |

## Non-municipal Programs

Table A-2 provides examples of programs and activities that are offered by public agencies other than the municipality, including not-for-profit organizations, community-based volunteer groups, and commercial operators in Kawartha Lakes. While not an exhaustive inventory, the programs and activities outlined offer a sample of the recreational offerings available to residents and visitors beyond what is provided by the municipality.

### Table A.2: Sample of Non-municipal Programs

| Organizer | Type | Program |
|---|---|---|
| **Public Agencies** | Arts & Culture | • Programs such as story time, music-based activities, art classes, creative writing workshops, book clubs, and social gatherings. |
| | Seniors Programs | • Offerings including senior exercise classes and indoor/ outdoor walking programs. |
| **Not-for-Profit Agencies** | Youth programs | • Offerings such as day camps, music lessons, and indoor/ outdoor sports activities. |
| | Adult Sports Programs | • Indoor and outdoor leagues, recreational play, and tournaments for sports, including tennis, volleyball, basketball, ball hockey, and pickleball |
| | Drama Programs | • Community theatre productions (opportunities to audition) |
| **Community-based Volunteer Groups** | Ice Hockey Leagues | • 9+ minor hockey clubs across the municipality providing organized hockey leagues for children and youth<br>• 2+ men's hockey leagues |
| | Skating Clubs | • 5+ skating clubs across the municipality providing recreational and competitive skating programs |
| | Curling Clubs | • 6+ curling clubs offering opportunities for recreational and competitive curling |
| | Horticultural Organizations | • 7+ horticultural groups focused on gardening and landscaping activities across the municipality |
| | Basketball Leagues | • 1 children/youth basketball league |
| | Baseball/Softball Leagues | • 10+ minor baseball/softball clubs across the municipality providing organized leagues for children and youth<br>• 2+ adult baseball/softball organizations |

| Organizer | Type | Program |
|---|---|---|
| **Community-based Volunteer Groups** | Soccer Leagues | • 3+ minor soccer clubs providing organized leagues for children and youth |
| | Other Sports Clubs | • 12+ clubs offering other sports, such as lawn bowling, pickleball, cycling, lacrosse, badminton, swim club, rugby, ball hockey, and special Olympics programs |
| | Seniors Organizations | • 4+ seniors organizations providing social activities for older adults<br>• 2+ organizations providing sports programs for seniors, including slo-pitch, tennis, and hockey |
| | Nature and Outdoor Activities | • 5+ clubs promoting/leading activities such as hiking, birdwatching, snowmobiling, ATVing, and trail maintenance initiatives |
| | Hobbies and Crafts | • 3+ organizations focusing on activities such as weaving, rug hooking, and model railroading |
| | Service Clubs | • 13+ clubs across the municipality, with social, recreational, and service-based initiatives across multiple communities |
| | Other Clubs and Societies | • 4+ organizations supporting public speaking, youth cadets, agriculture activities, and more |
| **Commercial Operators** | Dance Studios | • 6+ organizations offering recreational and competitive dance programs for various styles. |
| | Visual Art Classes | • 1+ organization offering instruction in painting, drawing, and other artistic mediums |
| | Gyms | • 12+ gyms and/or fitness centres offering weight training, fitness classes, and yoga |
| | Golf Courses | • 14+ golf courses across Kawartha Lakes with various recreational and competitive leagues |
| | Other | • 8+ organizations offering other activities, such as gymnastics, diving, karate, jiu jitsu, boxing, and more. |

## Self-directed Activities

A variety of activities that are not formally organized but nevertheless rely on the availability of adequate recreational spaces and facilities to accommodate them also exist in the municipality. These activities are self-directed rather than being supported by instructors or facilitators. Because of the nature of these activities, it is difficult to produce a formal inventory of activities or related data on participation. Nevertheless, a list of examples of self-directed activities in Kawartha Lakes has been provided in Table A-3 below.

**Table A.3: Sample of Available Self-Directed Activities in Kawartha Lakes**

| Activity Type | Activity | Location Examples |
|---|---|---|
| **Nature-based Activities** | Hiking, Cross-country Skiing, Snowshoeing, Snowmobiling, ATVing, Off-road Motorcycles, Hunting, Birdwatching | • Ganaraska Trail<br>• Kawartha Trans Canada Trail<br>• Victoria Rail Trail<br>• Somerville Forest Tract<br>• Pontypool Forest Tract<br>• Emily Forest Tract<br>• Bobcaygeon Wilderness Park<br>• Ken Reid Conservation Area<br>• Balsam Lake Provincial Park<br>• Indian Point Provincial Park<br>• Queen Elizabeth II Wildlands |
| | Cycling | • Kawartha Trans Canada Trail<br>• Victoria Rail Trail<br>• Somerville Forest Tract<br>• Multiple On-road Cycling Routes Available |
| | Paddling, Fishing, Swimming, Boating, Stand-up Paddleboarding, Scuba Diving | • Scugog River<br>• Sturgeon Lake<br>• Pigeon Lake<br>• Many other rivers and lakes available |

| Activity Type | Activity | Location Examples |
|---|---|---|
| Sports-based Activities | Skating | • 10+ outdoor rink locations<br>• Logie Park Skating Loop<br>• 9 indoor ice pads at 8 arenas with the following opportunities for open skates:<br>• Public Skate<br>• Accessible Skate<br>• Skating - Parent & Tot<br>• Stick and Puck<br>• Ticket Ice<br>• Shinny<br>• Women's Shinny<br>• Youth Shinny<br>• Senior Shinny<br>• Senior Skate |
| | Swimming | • Two indoor aquatic facilities (Lindsay Recreation Complex and Forbert Memorial Pool) with the following opportunities for open swims:<br>• Adult Swims<br>• Fitness Swims<br>• Fun Swims<br>• 15 public beaches and beach parks<br>• 4 splash pads |
| | Racquet/Paddle Sports | • 8 outdoor tennis courts/12 outdoor pickleball courts<br>• Fenelon Falls Community Centre used for indoor pickleball<br>• 2 squash courts (Lindsay Recreation Complex)<br>• Drop-in badminton and pickleball |
| | Basketball | • 10+ outdoor basketball courts |
| | Beach Volleyball | • 2 outdoor volleyball courts (Woodville Ball Park and Garnet Graham Park) |
| | Disc Golf | • 9-hole disc golf course at Memorial Park, Lindsay |
| | Playground | • 65+ playgrounds |
| | Skateboarding, BMX, etc. | • 4 municipal skateparks<br>• BGC Kawarthas Skatepark |
| Non-sports-based Activities | Photography | • Numerous locations with scenic landscapes, wildlife, and historic sites throughout the municipality |

| Activity Type | Activity | Location Examples |
|---|---|---|
| **Non-sports-based Activities** | Museums | • Kawartha Lakes Museum & Archives<br>• Fenelon Falls Museum (Maryboro Lodge)<br>• Kinmount Model Railway and Kinmount Heritage Museum<br>• Kawartha Settlers' Village<br>• Boyd Heritage Museum |
| | Crafts and DIY Activities | • Kawartha Lakes Public Library weekly drop-in activities (e.g, weekly crafts, weekly creative building activities, drop-in knitting group, etc.) |

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# Appendix B: Programs and Events Benchmarking Results

Approaches to municipal recreation programming vary widely based on each community's needs, interests, and capacity, making it challenging to establish a standard for program provision across all municipalities. To address this, municipalities use several practices, including through a program inventory analysis, assessing current participation levels, and engaging the community to estimate future demand. These methods help create a tailored community-specific set of standards for programming.

Benchmarking is another valuable tool that can be used to compare a municipality's programs to those in similar communities, based on factors such as land area, growth pressures, population, and socio-demographics. While this can help highlight potential programming gaps, it is still important to consider that local conditions, preferences, economic factors, and available infrastructure ultimately shape what is desired and feasible. Additionally, if non-municipal organizations are already providing certain programs, it is counterproductive for the municipality to duplicate or compete with these existing programs.

As part of this Plan's preparation, a benchmarking exercise was conducted to compare the programming provided by the City of Kawartha Lakes with that of Norfolk County, Greater Sudbury, Chatham-Kent, and Quinte West. These municipalities were selected because they are all single-tier municipalities with large land masses. They each also have a relatively similar population/ number of households as Kawartha Lakes and experience a similar mix of growth pressures, waterfront resources, and tourism draw.

## Table B.4: Sample of Available Self-Directed Activities in Kawartha Lakes

| | Kawartha Lakes | Norfolk County | Greater Sudbury Area | Chatham-Kent | Quinte West |
|---|---|---|---|---|---|
| **Total Population (2021 Census)** | 79,247 | 67,490 | 166,004 | 103,988 | 46,560 |
| **Population Density (people per Km2)** | 26.1 | 42.2 | 52.1 | 42.4 | 94 |
| **Land Area (Km2)** | 3033.66 | 1597.68 | 3186.26 | 2451.9 | 495.45 |
| **Total Parks and Recreation Expenditure (2022)** | 5,538,718 | 3,917,832 | 15,797,546 | 5,793,812 | 2,742,708 |
| **Per Capita Parks and Rec Expenditure (2022)** | 66.5 | 57.43 | 94.63 | 55.46 | 59.39 |
| **Total Number of Indoor Program Locations** | 10 locations (e.g., arenas, pools, recreation/ community centres) | 13 locations (e.g., recreation/ community centres, pool, arenas, halls, local schools) | 25 locations (e.g., recreation/ community centres, sports complex, public library, local schools, arenas, pools) | 16 locations (e.g., community centre, youth centre, local schools) | The City does not provide direct programming. Programming is primarily provided by YMCA, 8 Wing Trenton Canadian Forces Base, Public Library, and commercial operators. |
| **Total Number of Outdoor Program Locations** | 3 locations (e.g., beaches for swim lessons) | 8 locations (e.g., trail locations for walking programs) | 17 locations (e.g., Ski Hill, Campground, and 15 playgrounds that are used to host day camps) | N/A | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample of Preschool Programs** | - Baby aquafitness<br>- Parent & tot swim lessons<br>- Pre-school swim lessons<br>- Parent and tot skates | - Drop-in music and movement class<br>- Pre-school swim lessons<br>- Public Skates<br>- Parent and Tot skates | - Parents and Tots Skating<br>- Family/Parents & Tots Swim<br>- Swim Lessons | - Parent and tot swim lessons<br>- Learn to Play Programs (Baseball and soccer)<br>- Skating lessons<br>- Tiny tot skates<br>- Parent and tot swim<br>- Public skates | |
| **Sample of Children's Programs** | - Swimming lessons (indoor and beach lessons)<br>-Public swims<br>- March Break Day Camp<br>- Summer Day Camp<br>- Public skates<br>- Stick and Puck | - Drop-in multi-sport programs<br>- Afterschool program<br>- Indoor floor hockey<br>- Swim lessons<br>- Public swims<br>- Holday day camps<br>- Summer day camps<br>- Public Skates<br>- Family stick and pucks | - Gymnastics<br>- Taikwondo<br>- Public skates<br>- Ski and Snowboard programs<br>- Neighbourhood playground day camps (20 different playgrounds and arenas used to host through July/ August)<br>- Day Camp at Camp Sudaca<br>- Children's visual arts classes<br>- Swim Lessons | - Multi-sport program<br>- Karate<br>- Tennis<br>- Skating lessons<br>- Public Skates<br>- Stick and puck<br>- Swimming lessons<br>- March Break Camps | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample of Youth Programs** | - Swimming lessons<br>- Lifesaving and leadership courses<br>- Drop-in and registered fitness programs<br>- Drop-in and registered pickleball programs<br>- Public skates<br>- Stick and puck<br>- Ticket ice<br>- Youth shinny<br>- Drop-in badminton<br>- Photography classes | - Drop-in multi-sport<br>- Indoor floor hockey<br>- Babysitting training courses<br>- Public skates<br>- Stick and puck<br>- Women's shinny<br>- Figure skating drop-in<br>- Inline/roller skating<br>- Swim lessons<br>- Lifeguard training<br>- Drop-in pickleball | - Taikwondo<br>- Intro to fitness<br>- Public skate<br>- Ski and Snowboard programs<br>- Camp councillor in training program<br>- Ski and snowboard camps<br>- Drop-in basketball<br>- Drop-in badminton<br>- Drop-in multi-sport<br>- Drop-in pickleball<br>- Public Swims<br>- Swim Lessons<br>- Lifeguard Training | - Karate<br>- Tennis<br>- Babysitting/first aid courses<br>- Public skates<br>- Stick and puck<br>- Shinny hockey | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample of Adult Programs** | - Swimming lessons<br>- Aquafitness/ aquatherapy programs<br>- Drop-in and registered fitness programs<br>- Drop-in and registered pickleball programs<br>- Public skates<br>- Drop-in badminton<br>- Photography classes<br>- Shinny<br>- Women's Shinny | - Drop in basketball<br>- Drop-in ball hockey<br>- Drop-in pickleball<br>- Pickleball workshops<br>- Indoor walking program<br>- Outdoor walking program<br>- Approximately 2 drop in fitness classes + 1 mindfulness/ stretching class per week<br>- Aquafit/therapy swims<br>- Public swim<br>- Drop in cooking classes<br>- Drop in craft class<br>- Public skates<br>- Stick and puck<br>- Women's shinny<br>- Figure skating drop-in | -Drop-in and Registered fitness programs<br>- Taikwondo<br>- Adult Shinny<br>- Adult Skating<br>- Indoor walking program<br>- Ski and Snowboard programs<br>- Art workshops<br>- Drop-in basketball<br>- Drop-in badminton<br>- Drop-in multi-sport<br>- Drop-in pickleball<br>- Aquafit/ Aquatherapy<br>- Public swims<br>- Adult Swim Lessons | - Basketball<br>- Volleyball<br>- Badminton<br>- Soccer<br>- Pickleball<br>- Aquafit<br>- Public swims<br>- Public skates<br>- Adult skates<br>- Shinny hockey | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample of Seniors' Programs** | - Aquafitness/ aquatherapy programs<br>- Drop-in and registered fitness programs<br>- Drop-in and registered pickleball programs<br>- Senior Skates<br>- Senior Shinny<br>- Drop-in badminton<br>- Photography classes | - Numerous walking groups (indoors and outdoors)<br>- Telephone-based social programs<br>- Local speakers and history talks (virtual program)<br>- Trivia and games<br>- Stretching/gentle exercise/aerobics programs<br>- Baking class<br>- Arts and Crafts<br>- Line Dancing<br>- Shuffleboard<br>- Cards<br>- Social Café<br>- Workshops (e.g., community legal clinic, seniors dental clinic, gardening workshop)<br>- Bus trips for adults 50+ (e.g., St. Jacobs Market Bus Trip, St. Lawrence Market, and Casa Loma Bus Trip)<br>- Aquafit/therapy swims<br>- public swims<br>- public skates | - Indoor walking program<br>- 65+ Shinny<br>- Art workshops<br>- Aquafit/ Aquatherapy<br>- Public Swims<br>- Adult skating<br>- Drop-in and registered fitness programs | - Pickleball<br>- Aquafit<br>- Public swims<br>- Walking program<br>- Public skates<br>- Shinny hockey | |

| | | | | | |
|---|---|---|---|---|---|
| **Sample of Events** | - Easter in the Park<br>- Concerts in the Park<br>- Milk Run (5km and 10km run)<br>- Kawartha Lakes Farmfest<br>- Financial support for community-led holiday celebrations (e.g., Canada Day celebrations, Holiday Parades) | - Halloween bash<br>- New year's eve skate<br>- Spooky splash swim<br>- Family day snow event | - Outdoor concerts<br>- Large scale events in community arena (e.g., Harlem Globetrotters, Fire & Ice Charity Hockey Game, Concerts, etc.)<br>- Holiday-based events (Holiday market, Santa Clause Parade, etc) | N/A | - Movies in the Park<br>- Quinte West Family Fest<br>- Canada Day Event<br>- Quinte West Holiday Market<br>- Quinte West Summer Pop-ups<br>- The Great Summer Carnival<br>- Touch the Truck Event<br>- Summer Concert Series<br>- Front Street Farmers Market<br>- Home Decorating Tours (Halloween and Christmas)<br>- Hops on the Water Craft Beer Festival |

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# Appendix C: Additional Recreation Trends

**Program Type:**

**Growing Emphasis on Outdoor Recreation**

Since the onset of the COVID-19 pandemic, many people have developed new interests in spending time outdoors, and it is likely these interests will remain high. In demonstration of this, a 2021 cross-country survey by Park People showed that parks and green spaces have become more important to Canadians' sense of connection to nature and that Canadians would like more opportunities to experience wild/natural spaces. The same survey demonstrated that 76% of Canadians want to see more community programming in parks and green spaces. And finally, a 2023 report showed a further increase of park use approximately 15% above 2020 pandemic levels.

Coupled with increased awareness and concern about climate change, it is likely that interest in outdoor programming will continue to rise as people, particularly youth, seek to reconnect with nature and obtain a better understanding of ecology and the environment. Consequently, the need to make use of existing assets and resources to encourage more residents and visitors to use parks, trails, and water routes has become increasingly apparent. And while many outdoor recreation activities can be effectively self-directed, there are also many social and educational benefits to offering more structured outdoor recreation programming. While the City of Kawartha Lakes has ample opportunities for self-directed outdoor recreation programming (see Appendix ?), the municipality does not provide any outdoor recreation programming.

**Demand for Drop-in and Unstructured Activities**

A 2023 study, which reviewed survey data from the master plans, needs assessments, and other similar types of strategic planning documents developed by 54 municipalities across Canada, determined that the top three barriers to participation were facility operating or programming hours being unsuitable, affordability, and a lack of time to participate. In many cases, organized recreation programs, particularly competitive sports, demand significant time for training, practices, travel, and league activities. However, as households face increasingly busy schedules, many are unable to commit to these types of structured activities.

As a result, a growing preference for casual, drop-in, and unstructured activities has been seen across the country, and municipalities are adapting their service delivery models by extending operating hours and increasing the availability of drop-in programs. The City of Kawartha Lakes currently offers a handful of drop-in programs, including badminton, pickleball, public skates, public swims, and ice programs.

## Interest in Park Related Tourism/ Sustainable Tourism

Many public parks are becoming key destinations that attract visitors, particularly parks suited for special events, festivals, or multi-sport facilities capable of hosting tournaments. The American Planning Association notes, "Parks are frequently the location of choice for festivals and events because they are often centrally located gathering places that are intended to facilitate recreation and can accommodate temporary infrastructure without major disruption of their normal functions." Parks have the capacity to generate economic benefits, and park tourists by extension frequently contribute revenue to local restaurants, hotels, snack shops, and stores.

A 2023 Parks Canada publication notes, "More Canadians than ever before are choosing natural and cultural heritage places for recreation and vacations. Domestic and international travelers alike are seeking authentic experiences, unique activities and a deeper connection to community and culture, especially Indigenous cultures and traditions (p. 4)." With the inclusion of unique amenities such as a zoo, museum, or art/cultural/ heritage pieces (e.g., sculptures, murals, landscape planting), parks can become tourist attractions. At this time, Kawartha Lakes provides only a limited number of events in parks, with those provided primarily targeting local residents.

## Digital Fatigue and Loneliness

The American Planning Association's 2025 Trend Report for Planners highlights a growing desire to reconnect in person, driven by increasing digital fatigue. Loneliness is also on the rise in communities across the world, the impacts of which have now been associated with significant physical and mental health challenges, including cardiovascular disease, dementia, stroke, depression, and anxiety.

The impact for parks and recreation professionals is a need to balance digital public engagement with face-to-face interactions that foster community connections and intergenerational relationships. At present, the City of Kawartha Lakes does not provide any virtual recreation programming, and there does not appear to be any explicit demand for it. Existing programs that intentionally foster community connections are also limited, however, with only a handful of community-focused events held annually.

## Interest in Endurance Sports

Endurance and ultra-endurance sports have grown in popularity over the past two to three decades. According to a report from the International Association of Ultrarunners and RunRepeat, global participation in ultra running events increased by an astounding 1,676% between 1996 and 2019. Factors driving this trend include the accessibility of endurance events, their appeal on social media, the measurable personal challenges they offer, and advances in training technology, such as fitness apps, online coaching, and sport psychology resources. Endurance and ultra-endurance sports can also draw participants by showcasing stunning natural landscapes, which can boost local tourism.

Kawartha Lakes currently hosts its annual Milk Run (5km and 10km runs) in Lindsay, while the Kawartha Lakes Classic Cycling Tour is hosted annually by a community group. These events do not offer significant appeal to racers who are seeking an endurance challenge or who are interested in a competitive atmosphere, but their success indicates an opportunity to offer new events of a similar nature that could appeal to both local residents and tourists.

**Pickleball's Rapid Growth**

While the pickleball trend is a North American-wide phenomenon, a national survey conducted in January 2023 indicates that there are around 1.37 million individual Canadians playing the sport (approximately 11% of the population), with more than half of those 1.37 million playing four or more times per month. This number is up from an estimated 350,000 in January 2020. The experience of other municipalities indicates that pickleball is currently among the most requested programs in Ontario communities, and there are a number of factors that will likely support continued growth in participation, including:

- Play, in terms of rules and physical intensity, is relatively easy;
- There is an all-ages appeal;
- National organizational commitment to growing participation;
- Improving recognition as a legitimate sport nationally and internationally, with both recreational and competitive categories;
- It can be played year-round indoors and outdoors, with appropriate facilities; and,
- Participants report that it is fun as well as physically beneficial.

Municipalities everywhere are responding to the increased demand for pickleball by quickly introducing dedicated pickleball and/or dual tennis/pickleball courts to facility supply. Pickleball courts are being added through combinations of new builds and repurposing existing tennis courts, as one tennis court can be converted to use as two pickleball courts. It is important to note, however, that many municipalities are now seeing conflicts between tennis and pickleball players over shared use of courts. In the past few years, Kawartha Lakes has introduced pickleball courts (dual or multi-use courts) and programming both indoors and outdoors several times a week.

**Participant Needs & Interests:**

**High Level of Inactivity in Children and Youth**

Physical activity has been shown to positively impact nearly all health and well-being indicators for children and youth, including physical fitness, bone health, quality of life, motor skill development, psychological well-being, and pro-social behavior. However, according to the Participaction Report Card on Physical Activity for Children and Youth (2024), only 39% of children and youth aged five to 17 meet the recommended 60 minutes of moderate-to vigorous-intensity physical activity per day on average.

Identified barriers to physical activity among children and youth include increased screen time, reduced opportunities for active transportation, limited access to green spaces, financial constraints, and time limitations. The COVID-19 pandemic has also had lasting effects on physical activity levels due to lockdowns, physical distancing, and the suspension of organized sports. Additionally, the rise in extreme weather events and natural disasters, such as forest fires, floods, and heatwaves, underscores the impact of climate change on physical activity. These events pose unique risks to children and youth, who are particularly sensitive to climate-related health hazards and often need to stay indoors to avoid them.

Additionally, parks and recreation professionals can provide important offerings for youth when school is not in session, including before and after school, during weekends, and over the summer break. These programs provide opportunities for youth to develop physical literacy, job-related skills, social bonds, and to engage in structured and enriching experiences.

Currently, youth-directed programming provided by the City of Kawartha Lakes is limited primarily to aquatics/lifeguard training and youth shinny, though there is youth-directed programming offered by many community-led sports organizations, as well as BGC Kawarthas and other commercial providers.

**Growing Need for Active Seniors Programming**

As a result of an aging population and a growing post-pandemic interest in recreation programs, municipalities across North America are experiencing increased demand for active seniors programming. A report produced by the National Recreation and Park Association indicated that 9 in 10 park and recreation agencies in the United States dedicate facilities, activities, and programming to older adults, with 44% of agencies targeting adults as young as 50 years old for their older adult offerings. According to this report, the most common park and recreation offerings to older adults included exercise classes; field trips, tours, vacations; arts and crafts classes; opportunities to volunteer in recreation centres; and events and festivals for older adults.

Kawartha Lakes' geographic features and proximity to the Greater Toronto Area also make it a popular location for retirees and near-retirees to live and/or visit. The 2024 Community Analysis for the City of Kawartha Lakes notes that the municipality has a lower labour force participation rate than that of the Province (57.5% compared to 66.0%), which is likely explained by the larger percentage of residents that are retired. Responding to the needs of this population, the municipality has provided some programming that is directed to seniors, such as pickleball, aquafit, and fitness classes, however many non-sport seniors programs are currently provided by community groups and other public agencies.

**Importance of Accessible Programming**

The 2022 Canadian Survey on Disability showed that 27% of Canadians aged 15 years and older had one or more disabilities that limited them in their daily activities - a 5% increase since 2017. This increase can be partially attributed to both the aging population and the large increase in mental health related disabilities among youth and working-age adults. In 2022, 72% of persons with disabilities reported that they experienced 1 or more of 27 types of barriers to accessibility, with barriers related to indoor and outdoor public spaces representing the most commonly experienced (56%).

Supporting accessibility means: "Removing the barriers faced by individuals with a variety of disabilities (including, but not limited to physical, sensory, cognitive, learning, mental health) and the various barriers (including attitudinal and systemic) that impede an individual's ability to participate in social, cultural, political, and economic life. Disabilities can be temporary or permanent. As we age our abilities change and therefore an accessible society is one designed to include everybody; both people with disabilities and people who self-identify as non-disabled."

Although facility improvements can be expensive and require long-term planning, the cyclical nature of program planning provides more opportunities to improve accessibility, inclusivity, and the adaptive nature of programs. Kawartha Lakes is working towards improving the accessibility of its programming and acknowledges that there are many areas within which the City can still improve.

**Need for Free and Low-Cost Recreation Opportunities**

In 2010, Canadian households spent an average of $1,600 per year on recreation services. By 2021, this number had dropped to $1,168. When adjusting for inflation, this represents an approximate 40% decrease in recreation spending over this 11 year period. Studies have shown that many Ontarians are struggling with affordability, and are more concerned about paying for basic necessities than saving or spending on nonessential services. Consequently, it is expected that an increasing need for free and low-cost recreation opportunities will be seen in communities across the country.

A 2022 study by the Maple Leaf Sports and Entertainment (MLSE) Foundation found that the cost of recreation programs and equipment were identified as a barrier to participation by 43% of respondents, with this trend being most notable amongst youth aged 6-10 and 19-29. This highlights the importance of providing free or low-cost recreation opportunities, particularly to the youth demographic. While Kawartha Lakes does provide some free programming, primarily in the forms of free swims, free skates, and community events, there are opportunities to improve or better communicate the opportunities that are available. The parks section also discusses supporting free/affordable recreation through the provision of open access park amenities.

## Importance of Supporting Women and Girls in Sports

Advocates for women in sport have long pushed for the rights of girls and women to have equal opportunities to play sports as boys and men. The 2024 Rally Report by Canadian Women & Sport demonstrates an encouraging trend in girls' participation in sport, with 63% of girls 6 to 18 reporting participation in organized team or individual sport at least weekly, compared to 68% of boys. Additionally, women's professional sports have taken off with the 2024 debut of the Professional Women's Hockey League, and the announcement of Canada's first Women's National Basketball Association (WNBA) team, and professional women's soccer league.

While this upward trend is encouraging, the 2024 Rally Report also demonstrated that there are gaps in terms of the frequency of girls participation in sports compared to boys. In fact, the 2024 Participation Report Card on Physical Activity for Children and Youth found that only 31% of girls (aged five to 17 years), compared to 57% of boys met the daily physical activity recommendation. Moreover, while nearly 4 in 10 girls aged 6 to 18 do not participate in sports, this number increases  to 5 in 10 by age 16.

The benefits of youth sports participation are well documented ; but, girls' participation in sports has also been linked to success later in life, with a study by Ernst and Young indicating that 94% of women who hold C-suite executive-level positions were former athletes. Similarly, research by Deloitte found that 85% of women who played sports attribute their career success to the skills they developed through sports participation - a statistic that rises to 91% for women in leadership positions and 93% among women who make over $100,000 annually.

Kawartha Lakes currently offers women's ball hockey and ice hockey leagues, which are in high demand, as well as ice times for women's shinny. There are also opportunities for girls to get involved in sports through community-led leagues and commercial operators, though fewer opportunities exist for girls than boys at this time.

## Growing Demand for Multi-Cultural Activities

Ontario is seeing a rapid shift in its population, with over 500,000 newcomers welcomed to the province from July 2023 to July 2024. By 2030, it is anticipated that immigration will account for all of Canada's net population growth. This rise in immigration is not only transforming the country's demographics, but also making clear the need to support immigrants as they integrate and adapt to life in Ontario.

Recreation opportunities offer significant promise in supporting newcomers' settlement satisfaction and helping to create a sense of community cohesion. In fact, the Institute for Canadian Citizenship conducted a survey about newcomer activities and interests, in which 87.3% of respondents strongly agreed (59.7%) or somewhat agreed (27.6%) that participating in activities that make them feel comfortable and welcome increases their sense of belonging and connection to Canada, and 95.6% indicated they would like to increase their participation

or attendance in social and recreational activities. Another study found that immigrants who are engaged in more outdoor activities reported a better sense of belonging and satisfaction with life in Canada, with outdoor experiences having a notable capacity to foster new memories that facilitate adaptation and attachment to new natural environments.

According to the 2021 Statistics Canada Census, just 1.4% of Kawartha Lakes residents are immigrants who arrived in Canada after 2000. However, as the municipality continues to grow, the number of newcomers is expected to rise, along with the demand for related resources.

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# Appendix E: Trends in Hockey Participation

Data released in September 2021 by Statista on the total number of registered ice hockey players in Canada from 2010/11 to 2020/21 show a 26% increase in registrations from 2010/11 to 2014/15, from 572,411 to a peak of 721,504, after which numbers declined over time by 16% to 607,951 in 2019/20. 2020/21 registrations of 345,481 reflect the impact of COVID.[1]

A 3-part TVO report entitled 'End of an ice age, Part 1: Is youth hockey dying?'[2] looks at the reasons for declining participation in hockey among youth, using the City of Toronto as an example - where, despite anticipated population growth of 500,000 over the next 20 years, the number of arenas will be reduced. These include factors on both the demand and supply side of the equation.

**In terms of demand:**

- outside the hockey community, which is - in itself - healthy, the number of Canadians participating in hockey is stagnate or declining
- despite growth in girls' hockey, overall youth participation is down considerably
- the concept of recreation is evolving
- demographic changes are generating demand for sports other than hockey and there is no guarantee that Canadians will be interested in playing, simply because it's Canada's national sport (e.g., in Toronto soccer, basketball and cricket are experiencing unmet demand)

**In terms of supply:**

- old facilities are sometimes rink-only buildings and are not full NHL regulation size, which are no longer state-of-the-art recreation facilities
- the professionalization of youth hockey has driven up the cost barrier to entry for new players, makes it more competitive, and requires a greater time commitment - resulting in fewer entrants and more dropouts, as it is no longer fun
- privately operated arenas are attracting use away from public facilities

"At any level above house league, children can suddenly find themselves playing many hours a week all year long. Parents essentially live in arenas, shelling out huge sums of money for extra coaching, specialized training, and tournaments." (End of an ice age, Part 3: Why youth hockey can still be saved)[3]

1 https://www.statista.com/statistics/282125/number-of-registered-ice-hockey-players-in-canada/
2 Matt Gurney, Jan 7, 2020. (https://www.tvo.org/article/end-of-an-ice-age-part-1-is-youth-hockey-dying)
3 Matt Gurney, Jan 9, 2020. (https://www.tvo.org/article/end-of-an-ice-age-part-3-why-youth-hockey-can-still-be-saved)

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# Appendix F: Municipal and Not-for-Profit Community and Meeting Rooms

Table F.5: Municipal Community and Meeting Rooms[1]

| Location | Facility Name | Year Built (age) & Accessibility | Total Sq. Ft.* | Number and Capacity of Rooms | Features | | |
|---|---|---|---|---|---|---|---|
| | | | | No. | Capacity | | |
| | | | | | < 100 | >100 | |
| **Lindsay** | | | | | | | |
| **Lindsay (arena)** | Lindsay Recreation Complex | 2012 (13) elevator | - | 1 | | 180 | kitchen; bar; AC |
| **Lindsay** | Victoria Park Armoury | 1913 (112) ramps and accessible parking | 29,796 | 2 | 60 | 650 | tiled floor for seniors' multi-use; kitchen; bar; sound system; stage; AC large room only |
| **Totals** | | | | **3** | **1** | **2** | |
| **Northwest** | | | | | | | |
| **Bolsover** | Bolsover Community Centre | 1901 (124) accessible | 4,370 | 1 | 82 | | kitchen; bar; stage; sound system |
| **Baddow** | Baddow Community Centre | accessible | 1,200 | 1 | 60 | | kitchen; stage; sound system |
| **Coboconk** | Coboconk Lions Hall (within the Coboconk Community/Municipal Centre) | accessible | | 1 | | 175 | stage; kitchen; bar; sound system; AC; library & washroom in municipal service centre upstairs |

1 Information is provided for municipal community and meetings rooms in Kawartha Lakes that are part of Parks and Recreation's portfolio. There are other municipal facilities in Kawartha Lakes that serve as community spaces that are outside parks and recreation (e.g., libraries, service centres) and, therefore, are not part of this assessment.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Fenelon Falls (arena)** | Fenelon Falls CC | 2012 (13) accessible | - | 2 | 30 | 473 | commercial kitchen; bar; sound system; pickleball courts |
| **Norland** | Norland Old School Hall | 1950 (75) accessible | | 1 | 50 | | AC |
| | Norland Recreation Centre | 1970 (55) budget in place for washrooms | 9,222 | 1 | | 250 | kitchen; sound system; AC |
| **Sebright** | Carden C.C. | 1982 (43) accessible | 7,704 | 1 | | 178 | kitchen; bar; stage; AC |
| | Dalton CC | 1945 (80) accessible | 3,416 | 1 | 83 | | kitchen |
| **Woodville (arena)** | Woodville/Eldon CC | 1977 (48) | | | | | new lobby area used for gathering |
| | Woodville Town Hall | lift to basement and upstairs | small | 1 | | 134 | stage; kitchen; bar; Lions use basement |
| **Totals** | | | | **11** | **6** | **5** | |
| **Northeast** | | | | | | | |
| **Burnt River** | Burnt River Somerville CC | 1985 (40) accessible | 10,000 | 2 | 60 | 250 | stage; kitchen; bar; sound system; AC |
| **Kinmount** | Kinmount Community Centre | 1909 (116) accessible | 6,342 | 2 | small | 118 | kitchen; bar; stage; AC |
| **Totals** | | | | 4 | 2 | 2 | |
| **Southeast** | | | | | | | |
| **Janetville** | Janetville Community Centre | 1960 (65) accessible | 4,005 | 1 | | 135 | kitchen; bar; stage |
| **Omemee (arena)** | Emily/Omemee CC | 1974 (51) not accessible | - | 1 | | 225 | kitchen; bar; sound system; AC |
| | Coronation Hall | accessible (excluding washrooms) | 2,128 | 1 | | 140 | kitchen; stage; good acoustics; |
| **Bethany /Manvers (arena)** | Manvers CC | 1978 (47) washrooms; budget in place for lift | - | 1 | | 220 | kitchen; bar; stage; sound system |
| **Bobcaygeon (arena)** | Bobcaygeon/Verulam Community Centre | 1954 (71) elevator | - | 1 | | 200 | not available Sept. through March |
| **Totals** | | | | **5** | **0** | **5** | |
| **Southwest** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Totals** | | | | **5** | **0** | **5** | |
| **Southwest** | | | | | | | |
| **Cambray** | Fenelon Township CC | 1982 (43) accessible | 8,696 | 1 | | 258 | kitchen; bar; stage sound system; AC |
| **Little Britain (arena)** | Little Britain CC | 1977 (48) elevator | - | 1 | | 350 | kitchen; bar; stage; AC; public library |
| **Oakwood (arena)** | Oakwood CC | 1977 (48) elevator | - | 1 | | 242 | commercial kitchen; bar; stage; sound system; AC |
| **Totals** | | | | **3** | **0** | **3** | |
| **Municipal Total** | | | | **26** | **9** | **17** | |

*from 2019 DC study; was not shown for rooms that are part of the LRC or arenas

## Table F.6: Not-for-Profit Community and Meeting Rooms

| Facility | Existing Facility Supply | | |
|---|---|---|---|
| | **name** | **main facility components** | **amenities/other** |
| **Lindsay** | | | |
| | Lindsay Curling Club | Upstairs hall (cap. 103)<br>Downstair room (cap. 77) | catering kitchen; licensed; accessible; home of Lindsay Lions |
| **Northwest** | | | |
| | Fenelon Falls Curling Club | hall/lounge: 1,200 sf.<br>table seating cap 64; meeting cap. 84 | large commercial kitchen; licensed; not accessible |
| | Kirkfield District Lions Club | hall | stage, kitchen |
| **Northeast** | | | |
| **Southeast** | | | |
| | Dunsford Community Centre | 10,000 square feet<br>large hall (cap. 360)<br>small hall (cap. 150)<br>library | kitchen, bar |
| | Bobcaygeon Curling Club and Recreational Facility | large hall/lounge<br>meeting room | kitchen; bar; licensed; fully accessible |
| | Pontypool Community Centre | hall (cap. 125 seated) | kitchen, bar, stage, partially accessible; Ontario Early Years playgroup |
| | Bobcaygeon and District Lions Club | hall | |
| | Fowler's Corners and District Lions Club | hall (cap. 80) | catering kitchen, accessible, additional basement space |
| | Omemee Lions**<br>Omemee Curling and Recreation Club** | hall/lounge (cap. 150)<br>off-season rink floor (cap. 350) | catering kitchen |
| **Southwest** | | | |
| | Oakwood Curling Club | curling rink<br>no information available online regarding halls, etc. | |

*from available web-based information; ** same location

# Appendix G: Towards the Development of a Staffing Metric for New Parkland Acquisition in the Central Area

**Purpose:** The purpose of this methodology is to develop appropriate metrics to estimate the amount of additional staff time (measured in hours) that would be required to properly maintain any additional parkland that was acquired by the municipality in the Central area. An additional use of the methodology is to estimate the current shortfall of labour (again measured in hours) to properly maintain the municipality's current inventory of parkland.

**Approach:** After discussion with municipal staff, it was determined that only lands in the 'Central' area of the municipality would be considered, as these were the ones with the most regular maintenance requirement. (The total parks area in the 'Central' area of Kawartha Lakes amounts to 274.5 acres – 42% of the total inventory of 653.6 acres throughout the municipality.) As well, to be consistent, only staff time attributable to the maintenance of parkland in the Central Area would be considered.[1]

Note that all figures have been rounded to the first decimal place.

**Calculation Methodology:** The analysis follows a series of steps:

• establish current inventory: The majority of parkland in the Kawartha Lakes system in the Central area (in terms of the maintenance standard level) consists of lands in the L1 category (note that there are no parklands in the L4 or 'Other' category in the Central area):

| Category of Parkland | Total Amount of Parkland in KL Inventory in Central Area* (acres) | % of Total Acreage |
|---|---|---|
| L1 | 255.6 | 93.1% |
| L2 | 16.3 | 5.9% |
| L3 | 2.7 | 1.0% |
| L4 | 0 | 0.0% |
| Other (parkettes, natural areas) | 0 | 0.0% |
| **Total Area** | 274.53 | 100.0% |

* from Current Parkland Inventory (spreadsheet), Kawartha Lakes

1 Parkland acquisition in the North and South parts of the municipality will likely have extra requirements to take into account the additional travel time and cost of reaching these more remote areas. Each would need to be estimated separately based upon its distance from the nearest supply depot and the difficulty of reaching it. It is suggested that an approach would be to calculate maintenance requirements as though it were in the Central area of the municipality and then add the estimated additional travel time cost on a case-by-case basis.

- determine maintenance standard and implied effort: Moreover, because land in the L1 category has by far the most intensive maintenance requirement, it consumes an even higher proportion of staff resources; an estimate of the total amount of staff time can be calculated in the table below. Note that 'cuts' refers to not only grass cutting, but also litter removal, horticultural maintenance, occasional tree pruning, line trimming, as well as average travel time etc. to the site. For the purpose of this assessment, a 'cut' is assumed to be a standard unit of work.

| Category of Parkland | Maintenance Standard* | Assumed Average or Standard | Total Cuts (average for cuts per acre per season [year] times no. of acres in category) | Total Effort (i.e., % of total cuts) |
|---|---|---|---|---|
| **L1** | 15-22 cuts per season | 20 cuts per acre | 5,111 | 96.8% |
| **L2** | 8-10 cuts per season | 10 cuts per acre | 163 | 3.1% |
| **L3** | maximum of 3 cuts per season | 3 cuts per acre | 8 | 0.2% |
| **L4** | maximum of 2 cuts per season | 2 cuts per acre | 0 | 0.0% |
| **Other** | unstated, but minimal maintenance; assume 1 'cut equivalent' per season | 1 cut per acre | 0 | 0.0% |
| **Total Cuts** | - | - | 5,282 | 100.0% |

* from Jenn Johnson, Kawartha Lakes Parks and Recreation Department

- determine total staff effort on parks maintenance: The total amount of staff time allocated to park maintenance (as defined above) in the Central area is estimated to be 40,440 hours.[1]

- calculate distribution of staff effort: Assuming the distribution of these hours follows that of the percentage of total effort above, this implies the total hours for each category of parkland, and the hours required per acre, to be as follows:

| Category of Parkland | Distribution of Total Effort (i.e., % of total cuts) | Implied Total Hours Spent on this Category of Parkland (percentage of total effort times total hours) | Total Inventory (Acres) | Actual Hours Spent per Acre (i.e., total hours spent on that category of parkland divided by the number of acres in that category in the inventory) |
|---|---|---|---|---|
| **L1** | 96.8% | 39,132 | 255.6 | 153.1 |
| **L2** | 3.1% | 1,246 | 16.3 | 76.6 |
| **L3** | 0.2% | 62 | 2.7 | 23.0 |
| **L4** | 0.0% | 0 | 0 | 0 |
| **Other** | 0.0% | 0 | 0 | 0 |
| **Total** | 100.0% | 40,440 | 274.53 | 147.3 |

1 Calculated from proposed PR Workforce Plan 2026-2028 by summing all part-time, seasonal and summer hours for parks, forestry and horticulture operations in the Central Area. Municipal staff estimated that 50% of the total hours for arborists and the urban forester should also enter into this calculation. No 'Trails and Cemeteries' staff time is considered.

- assess current vs. target levels of effort: However, we understand that a common perception in the parks area is that the department is understaffed and that more hours should actually be spent on park maintenance that is actually the case. This is borne out by the fact that the previous benchmarking work shows that Kawartha Lakes staffing complement per person was about 89% of the benchmark average of other comparable municipalities – accordingly, the target hours per acre is raised by 12%[1] to account for this discrepancy.

| Category of Parkland | Actual Hours Spent per Acre | Target Hours Spent per Acre (rounded) (actual hours increased by 12% to compensate for current estimated shortfall) | Current Estimated Shortfall in Hours per acre (target minus actual) | Total Inventory (Acres) | Total Shortfall (Hours) (shortfall in hours times the acreage in that category – rounded) |
|---|---|---|---|---|---|
| **L1** | 153.1 | 171.5 | 18.4 | 255.6 | 4,696 |
| **L2** | 76.6 | 85.7 | 9.2 | 16.3 | 150 |
| **L3** | 23.0 | 25.7 | 2.8 | 2.7 | 7 |
| **L4** | 0 | 0 | n/a | 0 | n/a |
| **Other** | 0 | 0 | n/a | 0 | n/a |
| **Total** | 147.3 | 165.0 | 17.7 | 274.53 | 4,853 |

1 This is the inverse of the amount of the current shortfall. For example, if a quantity is only 89% of a given target level that represents 100%, it needs to be raised by 12% of its current quantity to hit that target level.

- establish current shortfall: As per the calculation above, the current shortfall in terms of the labour required to maintain the current parks inventory at a reasonable benchmark standard is just over 4,800 hours, or approximately 2.3 FTEs (assuming that 1 FTE = 2,080 hours ; i.e., 52 weeks times 40 hours per week). In other words, approximately 4,800 additional hours should be added to the existing complement of labour for parks maintenance, to bring Kawartha Lakes up to the benchmark standard seen in comparable communities in the Central area.

- establish recommended target amounts going forward: It is recommended that for the acquisition of any new parkland, the target ratios calculated below be used. These are calculated on both a 'per acre' and 'per hectare' basis:

| Category of Parkland | Target Hours Spent per Acre Acquired (rounded) | Target Hours Per Hectare Acquired (rounded) (2.471 acres = I ha) | Implied Hectares Covered per FTE[1] (rounded) |
|---|---|---|---|
| **L1** | 172 | 425 | 5 |
| **L2** | 86 | 213 | 10 |
| **L3** | 26 | 64 | 32 |
| **L4** | n/a | n/a | n/a |
| **Other** | n/a | n/a | n/a |

1 At a ratio of 2,080 hours per FTE. So, for example, one FTE (2,080 hours per year) could cover approximately 5 hectares of parkland maintained at an L1 standard (2,080 divided by the 425 hours required to maintain one hectare of parkland).

**Using the Ratios:** Examples of how to use the ratios in the Central area are presented below:

| Example | Calculation | Result (Additional Staff Time Required) |
|---|---|---|
| **• acquiring an additional 1.5-hectare parcel to be designated as L1** | 1.5 hectares times 425 hours per hectare | an additional 638 hours of staff time |
| **• acquiring an additional 5.0-hectare parcel to be designated as L2** | 5.0 hectares times 213 hours per hectare | an additional 1,065 hours of staff time |
| **• acquiring an additional 3 hectares of land to be designated as L3** | 3.0 hectares times 64 hours per hectare | an additional 192 hours of staff time |

Note as well that the above calculations consider only staff time required, and do not take expenses (e.g. gas for lawnmowers, vehicle depreciation, etc.) into account.

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# Appendix H: Overview of Delivery Models for Parks and Recreation Services

**1. Municipal Department Model (Direct Service Delivery)**

This is the most common model, where the municipality directly owns, operates, and manages parks and recreation services.

- **Structure:** A Parks and Recreation Department (or Community Services Department) manages the services, typically reporting to the Chief Administrative Officer (CAO) or City Manager.
- **Staffing:** Municipal employees provide programming, facility maintenance, and park operations.
- **Funding:** Services are funded through municipal taxes, grants, and user fees.
- **Examples:**
    - City of Toronto: Parks, Forestry & Recreation Division.
    - City of Ottawa: Recreation, Cultural, and Facility Services.

**Advantages:**

- Direct control and accountability: The municipality maintains full oversight of service quality and standards.
- Consistency and reliability: Uniform policies, procedures, and service levels.
- Public ownership: Public access and affordability are prioritized over profit.
- Integration with other municipal services: Easier coordination with public works, planning, and other departments.

**Disadvantages:**

- Higher operating costs: Full-time staff, pensions, and benefits increase expenses.
- Limited flexibility: Bureaucratic processes can slow decision-making.
- Potential inefficiency: Public sector operations may lack the cost-efficiency of private sector management.

**2. Commission or Board Model**

In this model, an arms-length board or commission oversees parks and recreation services. The board may include municipal representatives, citizens, and stakeholders.

- **Structure:** The board operates semi-independently but is accountable to the municipal council.
- **Staffing:** The board may hire its own staff or contract municipal employees.
- **Funding:** Combination of municipal contributions, grants, and user fees.

- **Examples:**
    - Stratford, ON – Stratford's Parks Board manages parks operations independently from the city's general administration.
    - Greater Sudbury, ON – The Sudbury Arena Commission oversees arena operations.

**Advantages:**

- Increased flexibility: Boards can make operational decisions more quickly than municipal departments.
- Community representation: Boards often include citizens, ensuring local interests are considered.
- Reduced municipal workload: Board handles day-to-day operations

**Disadvantages:**

- Potential for less oversight: Boards may operate with less direct accountability to Council.
- Inconsistent service quality: Service levels may vary if different boards manage various facilities.
- Governance complexity: Overlapping jurisdiction or unclear roles can cause confusion.
- Reliance on board competence: Effectiveness depends on board expertise and decision-making.

**3. Non-Profit or Community-Based Model**

In this model, non-profits or community groups deliver certain recreation services or operate facilities, often under agreements with the municipality.

- **Structure:** The municipality may own the facilities, but a non-profit manages them.
- **Staffing:** Staffed by non-profit employees and volunteers.
- **Funding:** Combination of municipal funding, grants, donations, and program revenue.
- **Examples:**
    - YMCA partnerships in several Ontario municipalities (e.g., YMCA manages recreation centers with municipal funding).
    - Community sports clubs operating local facilities under long-term leases.

**Advantages:**

- **Cost efficiency:** Non-profits often rely on volunteers, reducing staffing costs.
- **Community engagement:** Local groups have direct ties to the community, fostering greater involvement.
- **Flexibility and innovation:** Non-profits may be more adaptable to new trends or service needs.
- **Fundraising potential:** Non-profits can access grants and donations unavailable to municipalities.

**Disadvantages:**

- Inconsistent service quality: Service standards may vary between different non-profits.
- Limited oversight: The municipality has less control over day-to-day operations.

- Financial instability: Non-profits may struggle with funding, affecting long-term service sustainability.
- Volunteer dependence: Over-reliance on volunteers can lead to operational instability.

**4. Public-Private Partnership (P3) Model**

This model involves a collaboration between the municipality and private sector companies for the development, maintenance, or operation of recreation facilities or services.

- **Structure:** The municipality enters into a contract with a private partner.
- **Staffing:** May involve municipal employees, private employees, or a combination.
- **Funding:** Private sector investment combined with public funds. The private partner may generate revenue from the service.
- **Examples:**
    - Markham Pan Am Centre – Developed through a P3 agreement, where private partners participated in funding and operations.
    - Brantford's Wayne Gretzky Sports Centre – Managed through a partnership with a private management company.

**Advantages:**

- **Cost-sharing:** Reduces municipal capital investment by leveraging private sector funding.
- **Efficiency and expertise:** Private companies may bring operational efficiencies and specialized skills.
- **Innovation:** Private sector involvement can drive innovation in programming or facility design.
- **Reduced financial risk:** The private partner assumes part of the financial risk.

**Disadvantages:**

- **Profit-driven priorities:** Private partners may prioritize profitability over community interests.
- **Reduced public control:** The municipality has less influence over daily operations.
- **Long-term financial obligations:** P3 agreements may lock municipalities into long-term financial commitments.
- **Service affordability risks:** Private partners may introduce higher user fees.

**5. Regional or Shared Service Model**

In some areas, especially smaller municipalities or rural regions, parks and recreation services are delivered through inter-municipal partnerships or regional service bodies.

- **Structure:** Two or more municipalities jointly fund and oversee service delivery.
- **Staffing:** Shared employees or separate teams operating under one agreement.
- **Funding:** Shared costs among municipalities.

- **Examples:**
    - Niagara Region – Certain recreation services are delivered regionally across multiple municipalities.
    - Lanark County – Collaborative recreation programming across smaller townships.

**Advantages:**

- **Economies of scale:** Sharing resources reduces costs.
- **Improved service coverage:** Regional coordination can enhance service delivery across smaller or rural municipalities.
- **Standardized services:** Helps maintain consistent service levels across jurisdictions.
- **Efficient use of resources:** Shared facilities and programs avoid duplication.

**Disadvantages:**

- **Complex governance:** Requires clear agreements and coordination between municipalities.
- **Reduced local autonomy:** Individual municipalities may have less say in service decisions.
- **Equity challenges:** Service levels may not be evenly distributed across all participating municipalities.
- **Potential for disputes:** Disagreements over funding contributions or service priorities.

**6. Contracted or Outsourced Model**

Some municipalities contract out parks maintenance, programming, or facility management to private companies.

- **Structure:** The municipality retains ownership but contracts private companies for day-to-day operations.
- **Staffing:** Private company employees.
- **Funding:** Municipal payments and service fees.
- **Examples:**
    - Vaughan, ON – Outsourced some recreation program delivery.
    - Mississauga, ON – Certain parks maintenance services are contracted.

**Advantages:**

- **Cost efficiency:** Private sector involvement can reduce municipal staffing and operational costs.
- **Access to expertise:** Private companies bring specialized skills and efficiencies.
- **Flexibility:** Contracts allow for targeted, temporary, or specialized service delivery.
- **Reduced municipal liability:** Contractors assume operational risks.

**Disadvantages:**

- **Profit over service quality:** Private companies may prioritize cost-cutting, potentially lowering service quality.
- **Reduced public control:** The municipality has limited influence over day-to-day operations.
- **Contractual risks:** Poorly written contracts may result in legal or financial disputes.

- **Labour issues:** Staff may face reduced wages or job insecurity.

**7. Hybrid Models**

Some municipalities use a combination of models, e.g., direct delivery for core services but partnerships or outsourcing for specific programs or facilities.

- **Example:**
    - City of Hamilton – Operates public parks directly but contracts some maintenance to private companies and partners with non-profits for recreation programs.

**Advantages:**

- **Balanced service delivery:** Allows municipalities to retain control over core services while outsourcing or partnering for specialized services.
- **Cost management:** Hybrid models can optimize efficiency by combining public oversight with private or non-profit delivery.
- **Enhanced service variety:** More diverse programs and facilities through partnerships.
- **Flexibility and scalability:** Easier to adapt to changing community needs.

**Disadvantages:**

- **Complex administration:** Multiple service models can complicate governance and oversight.
- **Inconsistent service quality:** Variations in delivery models may create inconsistencies.
- **Coordination challenges:** Communication and collaboration between public, private, and non-profit partners can be difficult.

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# Appendix I: Policy Examples

**Examples of Community Engagement Policies**

Several Ontario municipalities have established community engagement policies to involve residents in decision-making processes and ensure transparent governance. These policies govern aspects of community engagement for all aspects of municipal service provision, including parks and recreation services. They include:

1. **City of Mississauga:** Mississauga's Community Engagement Strategy outlines methods for involving the community in decisions affecting them, aiming to strengthen transparency and accountability. See: https://www.mississauga.ca/publication/community-engagement-strategy/?utm

2. **City of Toronto:** Toronto conducted a Public Engagement Review to assess and improve its engagement methods, focusing on inclusivity and accessibility in public consultations. See: https://www.toronto.ca/community-people/get-involved/public-engagement-review/?utm

3. **City of Guelph:** Guelph's Community Engagement Framework sets standards for designing, implementing, and evaluating community engagement, emphasizing transparency and inclusivity. See: https://guelph.ca/plans-and-strategies/community-engagement-framework/?utm

4. **City of Hamilton:** Hamilton's Public Engagement Policy, approved in January 2024, aims to ensure consistency, transparency, accountability, equity, and inclusivity in all City-led public engagement processes. See: https://www.hamilton.ca/city-council/plans-strategies/strategies/engaging-your-city/public-engagement?utm

5. **City of London:** London's Community Engagement Policy outlines the city's commitment to inclusive processes, ensuring quality communication and citizen involvement. See: https://london.ca/council-policies/community-engagement-policy?utm

6. **Town of Newmarket:** Newmarket's Community Engagement Policy emphasizes an inclusive process to inform stakeholders about decisions, fostering two-way communication. See: https://www.newmarket.ca/TownGovernment/Documents/Community%20Engagement%20Policy.pdf?utm

7. **City of Kitchener:** Kitchener's Community Engagement Policy defines the process of involving the community in decision-making, highlighting transparency and mutual respect. See: https://www.kitchener.ca/en/resourcesGeneral/Documents/COR_COMM_Community_Engagement_Policy.pdf?utm

8. **City of Vaughan:** Vaughan's Stakeholder and Community Engagement Strategy commits to involving citizens, businesses, and stakeholders in municipal decisions, guided by best practices from the International Association of Public Participation. See: https://www.vaughan.ca/sites/default/files/Engagment%20Strategy_Final.pdf?utm

These policies reflect the municipalities' dedication to fostering meaningful dialogue with their communities, ensuring that public input informs local governance and decision-making.

**Examples of Digital Accessibility Policies**

Digital accessibility policies ensure that online services and digital content are accessible to all residents, including those with disabilities. This is particularly important for the provision of information about parks and recreation facilities and programs, as they are one of the most frequently consulted and used municipal services. Examples include:

1. **City of Toronto:** Toronto's Multi-Year Accessibility Plan (2020-2025) includes commitments to digital accessibility, such as ensuring that the city's websites and web applications incorporate the foundations of the City of Toronto Digital Accessibility Standard. See: https://www.toronto.ca/wp-content/uploads/2021/02/94fc-MYAP-Status-Report-2020-to-2024.pdf?utm

2. **City of Mississauga:** Mississauga's 2023–2028 Multi-Year Accessibility Plan outlines initiatives like conducting annual reviews of the city's digital strategy to reflect current best practices in digital accessibility. See: https://www.mississauga.ca/wp-content/uploads/2023/05/Multi-Year-Accessibility-Plan-2023-2028.pdf?utm

3. **City of Hamilton:** Hamilton's Multi-Year Accessibility Plan (2020-2025) includes the development of a Digital Accessibility Policy to ensure that accessibility is integrated into the city's digital services and content. See: https://www.hamilton.ca/sites/default/files/2022-11/myap-2020-2025.pdf?utm

4. **City of Ottawa:** Ottawa's Accessibility Policies and Procedures address digital accessibility by providing guidance on accessible formats and communication supports to ensure information is available to all residents. See: https://app06.ottawa.ca/calendar/ottawa/citycouncil/occ/2012/04-11/fedco/02d%20-%20Accessible%20Formats%20and%20Communication%20Supports%20ProcedureMar23%20final%20DOC%204.htm?utm

5. **City of Kitchener:** Kitchener's Accessibility Plan emphasizes the city's commitment to building an inclusive community by providing accessible digital services and information. See: https://www.kitchener.ca/en/accessibility.aspx?utm

These policies demonstrate the municipalities' dedication to creating inclusive digital environments, ensuring that all residents have equitable access to online services and information.

**Examples of Volunteer Management Policies**

Several Ontario municipalities have established volunteer management policies to effectively coordinate and support volunteer activities within their communities. Examples include:

1. **Municipality of Kincardine:** Their Volunteer Management Policy outlines the framework for managing volunteers, detailing the types of work assigned, expected quality of work, and the responsibilities and rights of volunteers and the municipality. See: https://www.kincardine.ca/media/lupcq5zn/admin02-volunteer-management-policy.pdf?utm

2. **Town of The Blue Mountains:** This policy provides guidelines for

recruiting, training, and managing volunteers to enhance town program delivery, ensuring effective support and accommodation of accessibility requirements. See: https://www.thebluemountains.ca/sites/default/files/2021-09/B-3-8-FAF-20-109-Volunteer-Policy.pdf?utm

3. **Municipality of Hastings Highlands:** Their Volunteer Policy includes procedures for volunteer applications, outlines responsibilities, and emphasizes adherence to municipal policies and laws during volunteer work. See: https://www.hastingshighlands.ca/media/u01piv1h/2020-017-volunteer-policy.pdf?utm

These policies serve as frameworks for municipalities to manage volunteer involvement effectively, ensuring that both volunteers and the communities benefit from well-structured programs.

**Examples of Environmental Sustainability Policies**

Several Ontario municipalities have developed environmental sustainability policies to guide their efforts in addressing climate change and promoting sustainable practices. Here are some examples:

1. **City of Toronto:** Toronto's "TransformTO" is a comprehensive climate action strategy aiming for net-zero greenhouse gas emissions by 2040. The plan focuses on areas such as buildings, transportation, waste, and natural systems to achieve its goals. See; https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/

2. **City of Ottawa:** Ottawa's "Climate Change Master Plan" outlines the city's approach to reducing greenhouse gas emissions and adapting to climate change. It sets targets and actions for both mitigation and adaptation efforts. See: https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/climate-change-master-plan

3. **Region of Waterloo:** The "TransformWR" strategy is a collaborative initiative aiming to reduce greenhouse gas emissions in the Waterloo Region by 80% by 2050. It focuses on areas like transportation, building energy efficiency, and waste management. See: https://climateactionwr.ca/wp-content/uploads/2021/07/Final-TransformWR-Stragegy.pdf

4. **City of Hamilton:** Hamilton's "Climate Action Strategy" provides a framework for reducing emissions and preparing the community for climate impacts. It includes actions related to energy use, transportation, and natural environment protection. See: https://www.hamilton.ca/home-neighbourhood/environmental-stewardship/environmental-plans-strategies/hamiltons-climate

5. **City of Mississauga:** Mississauga's "Climate Change Action Plan" outlines the City's commitments to reducing greenhouse gas emissions and enhancing resilience to climate change through various initiatives and policies. See: https://www.mississauga.ca/publication/climate-change-action-plan/

These policies reflect the municipalities' commitments to environmental sustainability and provide frameworks for action on climate change and related challenges.

## Examples of Customer Service Policies

Municipal parks and recreation departments in Ontario have established various customer service policies to ensure high-quality experiences for residents. Examples from other municipalities include:

### City of Toronto

Complaints & Compliments Process: Toronto has a structured process for handling feedback, acknowledging concerns within one business day and aiming to resolve complaints within 14 days. This process includes multiple channels for submission, such as email, phone, fax, mail, and in-person visits. See: https://www.toronto.ca/city-government/accountability-operations-customer-service/city-administration/staff-directory-divisions-and-customer-service/parks-forestry-recreation/parks-forestry-recreation-complaints-compliments/?utm

### City of Hamilton

- Recreation Customer Service: Hamilton provides detailed customer service desk hours for each recreation facility, ensuring residents know when and where they can receive assistance. The city also offers clear guidelines on program transfers, waitlists, age policies, and non-resident surcharges. See: https://www.hamilton.ca/things-do/recreation/recreation-customer-service?utm

### Town of Oakville

- Customer Service Standards and Customer Conduct Policy: Oakville is committed to delivering exceptional, equitable, and accessible customer service. The Town's policy outlines values such as accountability, dedication, honesty, innovation, respect, and teamwork. It also establishes procedures for customer service standards, expectations for appropriate conduct by customers, and processes for handling complaints and compliments. See: https://www.oakville.ca/town-hall/policies-procedures/customer-service-standards-and-customer-conduct-policy/?utm

### Township of Zorra

- Customer Service Standards: Zorra's strategic plan focuses on strengthening customer service by enhancing communication, ensuring fair and consistent treatment, and aligning with corporate values like trust and respect. The Township encourages feedback through emails or online forms and reviews customer service performance annually. See: https://www.zorra.ca/our-township/customer-service-standards/?utm

These examples illustrate the commitment of Ontario municipalities to providing structured and responsive customer service within their parks and recreation departments.

# Appendix J: Benchmarking Analysis of Kawartha Lakes Parks and Recreation Provision

Approach to the Analysis

A benchmarking analysis was undertaken to determine how Kawartha Lakes compares with similar communities in terms of expenditure on parks and recreation. 'Similar communities' were deemed to be single-tier municipalities between approximately 20,000 and 150,000 permanent resident population, so Kawartha Lakes, with a permanent population of nearly 80,000, is approximately in the middle of this range. In total, in Ontario, fourteen single-tier municipalities (including Kawartha Lakes) fall into this category; these are:

- Belleville, City
- City of Thunder Bay
- Brantford, City
- Cornwall, City
- City of Guelph
- Sault Ste. Marie, City
- City of Kingston
- City of Greater Sudbury
- City of Peterborough
- Prince Edward County
- Kawartha Lakes
- Quinte West, City
- Norfolk County
- Chatham-Kent

To ensure comparable figures, municipal expenditures on parks and recreation as reported in the Ontario Ministry of Finance's Financial Information Return[1] (FIR) for 2022 was used. (As of the time of writing, data for 2023 was not available for all municipalities, so 2022 is the most recent complete year for this data.) Four categories of municipal expenditure are considered to be the total of 'parks and recreation expenditures': parks expenditures; recreation expenditures; recreation facility expenditures (golf, marina, ski hills, etc.); and 'other recreation facility expenditures'. Permanent resident populations for 2022 were calculated based upon the 2021 census populations updated to 2022 by using the annual growth rate from 2016 to 2021, and from this, per capita expenditures on parks and recreation were calculated.

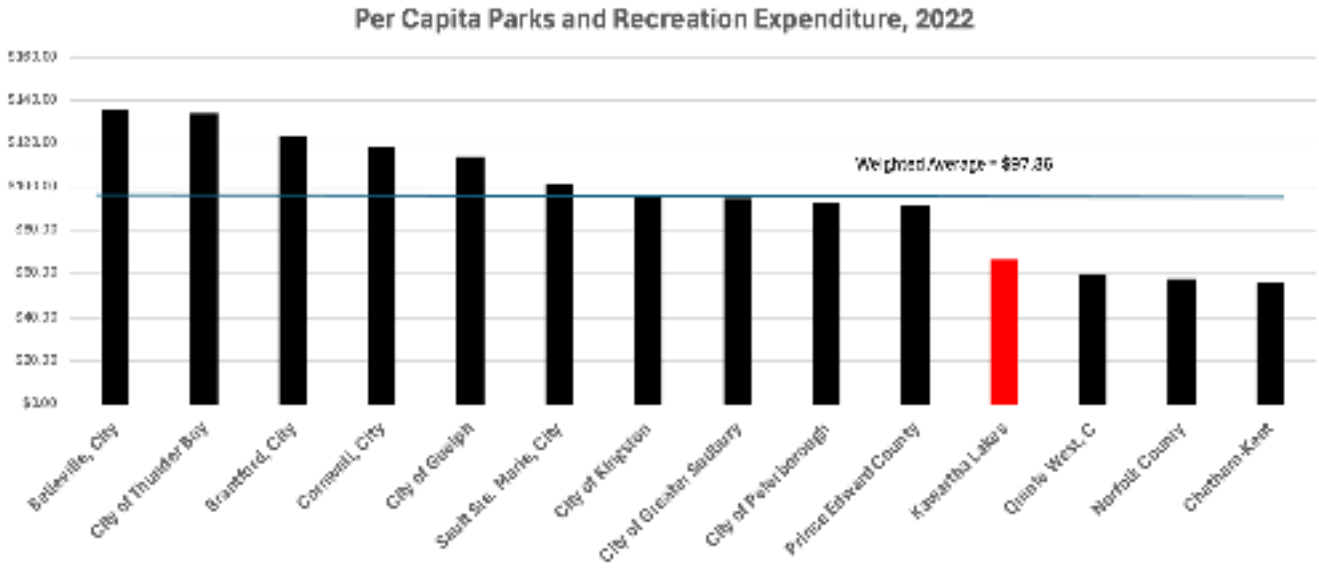
The 2022 FIR reports also contain information on staffing (permanent full-time; part-time and seasonal). From this data, estimates of how Kawartha Lakes compares to the benchmark communities on staffing levels were also examined.

1 See: https://data.ontario.ca/dataset/financial-information-return-fir-for-municipalities

Finally, the total resource base of the municipalities (total revenues, reflecting their total 'wealth') was examined to determine how parks and recreation expenditures compared on this measure.

**Expenditures Comparison**

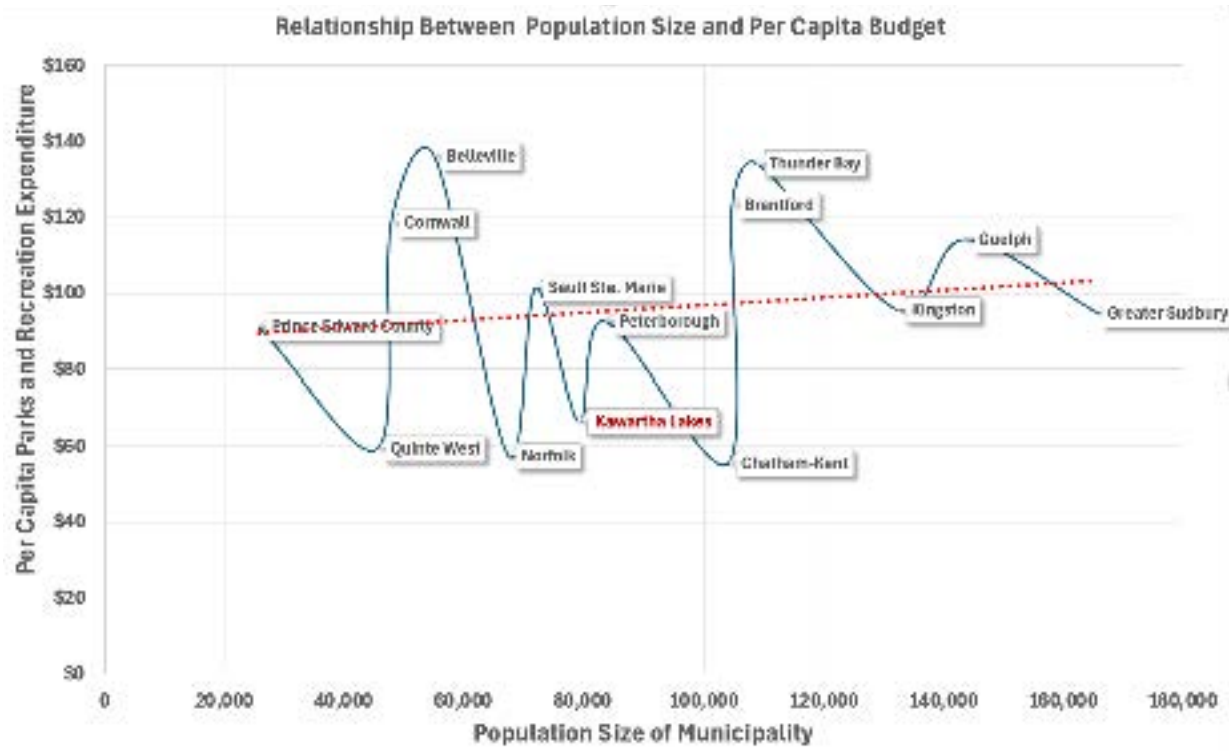
The graph below shows how total expenditures on parks and recreation in Kawartha Lakes compares to the benchmark set on a per capita expenditure basis:




As the chart shows, the range of per capita expenditures is from approximately $55 to $136, with a weighted average of approximately $97. Kawartha Lakes is towards the lower end of this range, with an average expenditure of approximately $67. One implication of this is that if Kawartha Lakes were to fund its parks and recreation programs and facilities at the same per capita level as the average, this would imply another $30 of expenditure per person.[2] Multiplied by the permanent resident population of the municipality (say 83,000) this would imply an additional nearly $2.5 million to the parks and recreation budget, bringing Kawartha Lakes up to the average of the benchmark set.

2 i.e., the weighted average of $97 for all benchmark communities less the current expenditure of Kawartha Lakes of $67 (= $30).

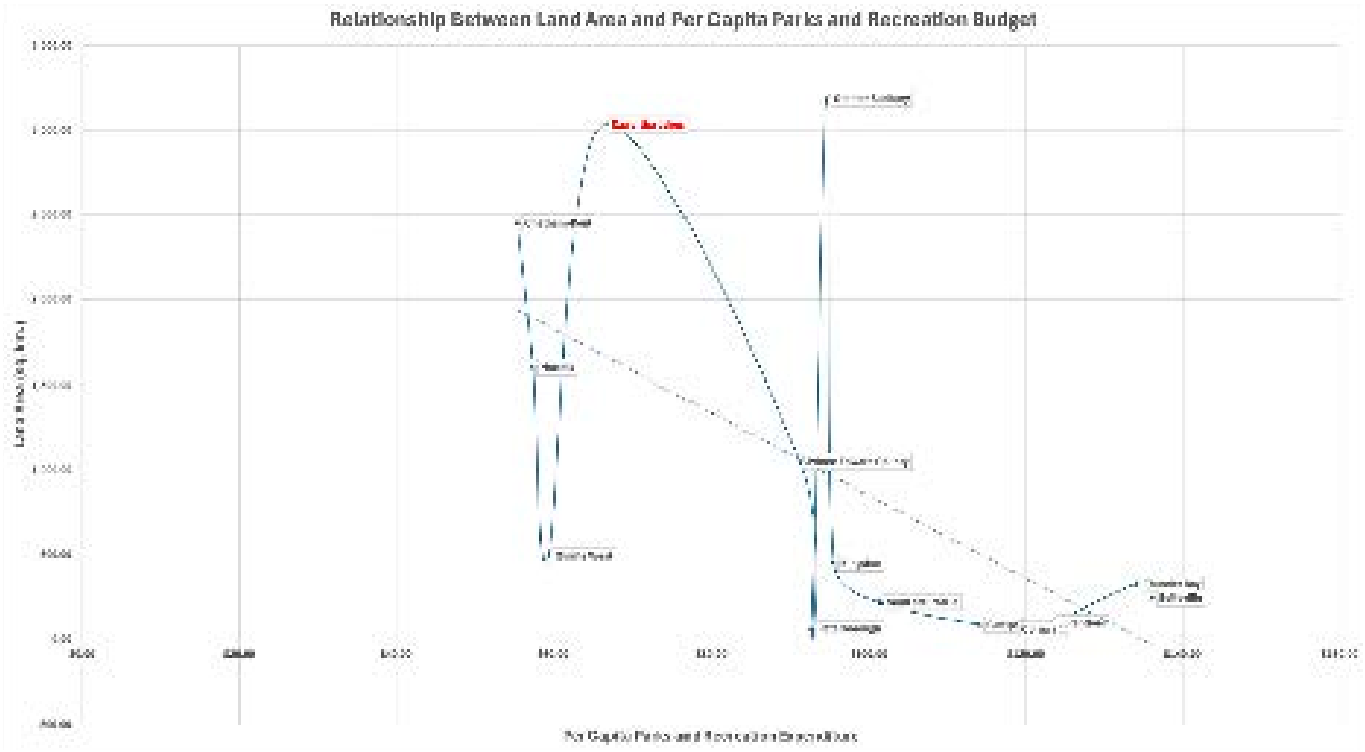
The difference in range of per capita expenditures does not appear to be influenced by overall population size of the municipality, as shown by the graph below:




As this graph shows, while there is a slight trend upward in terms of larger municipalities having higher per capita expenditures, this is by no means a determining or defining characteristic. Belleville, one of the smallest municipalities in the benchmark set, has the highest per capita expenditure, while Chatham-Kent, one of the largest, has the lowest. The correlation between population size and per capita expenditure is only 0.13: not significant.

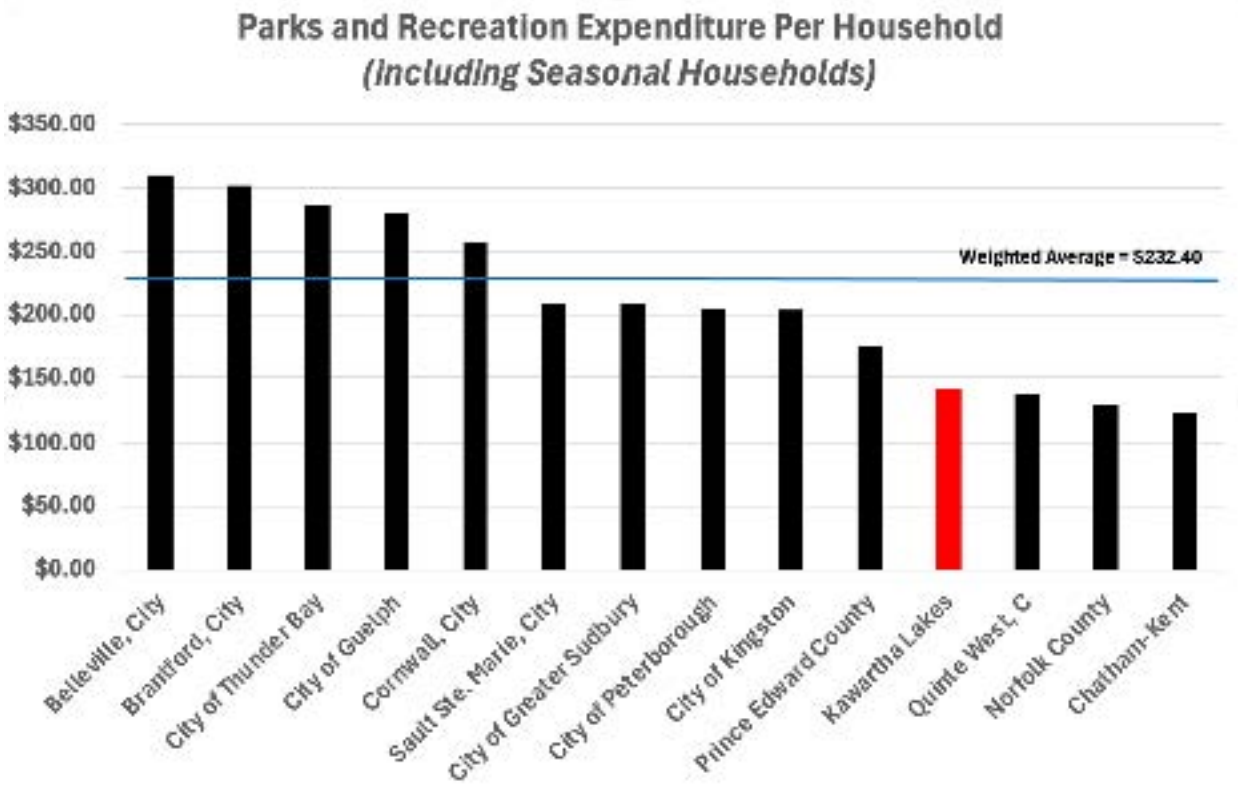
Another hypothesis might be that per capita expenditure is related to size of the municipality in terms of land area. Here there is actually an inverse relationship between the two variables, suggesting that, if anything, per capita expenditure decreases with increasing land area. However, again the relationship is only moderately significant - the correlation is -0.60. And, as suggested by the graph below, there is large variation in the data.

The difference in range of per capita expenditures does not appear to be influenced by overall population size of the municipality, as shown by the graph below:




Still another possibility is that higher parks and recreation expenditures are related to having higher seasonal populations. Seasonal residences (cottages or camps) are calculated as the difference between total households as counted by the Census and total resident households by the same count. Kawartha Lakes has one of the highest percentages of seasonal households in the benchmark set (16%), next only to Prince Edward County (at 16.4%). Clearly, however, additional households simply reduces the per household expenditure and widens the gap:

The per household expenditure (including seasonal households) for Kawartha Lakes is approximately $142, some $90 below the average for all the benchmark set. If this comparison were used to bring Kawartha Lakes up to the average for the entire group of benchmark municipalities, it would imply an addition to the budget of some $3.5 million.[1]

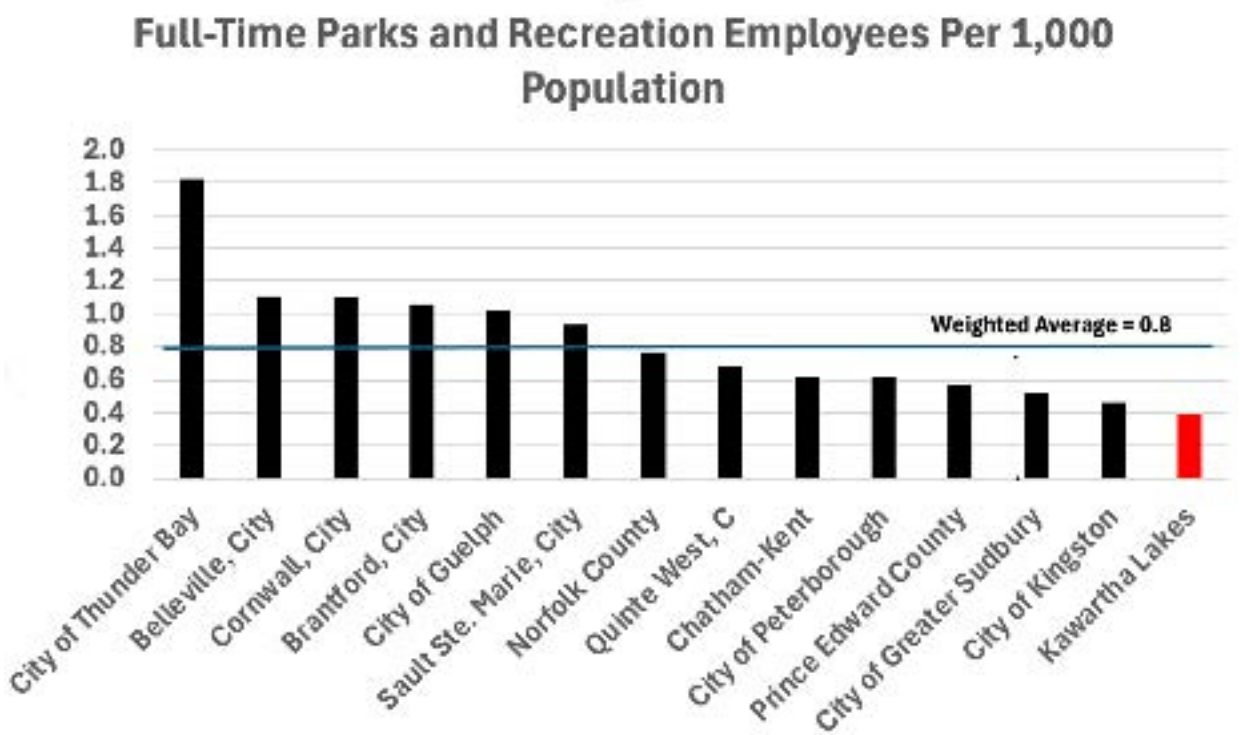


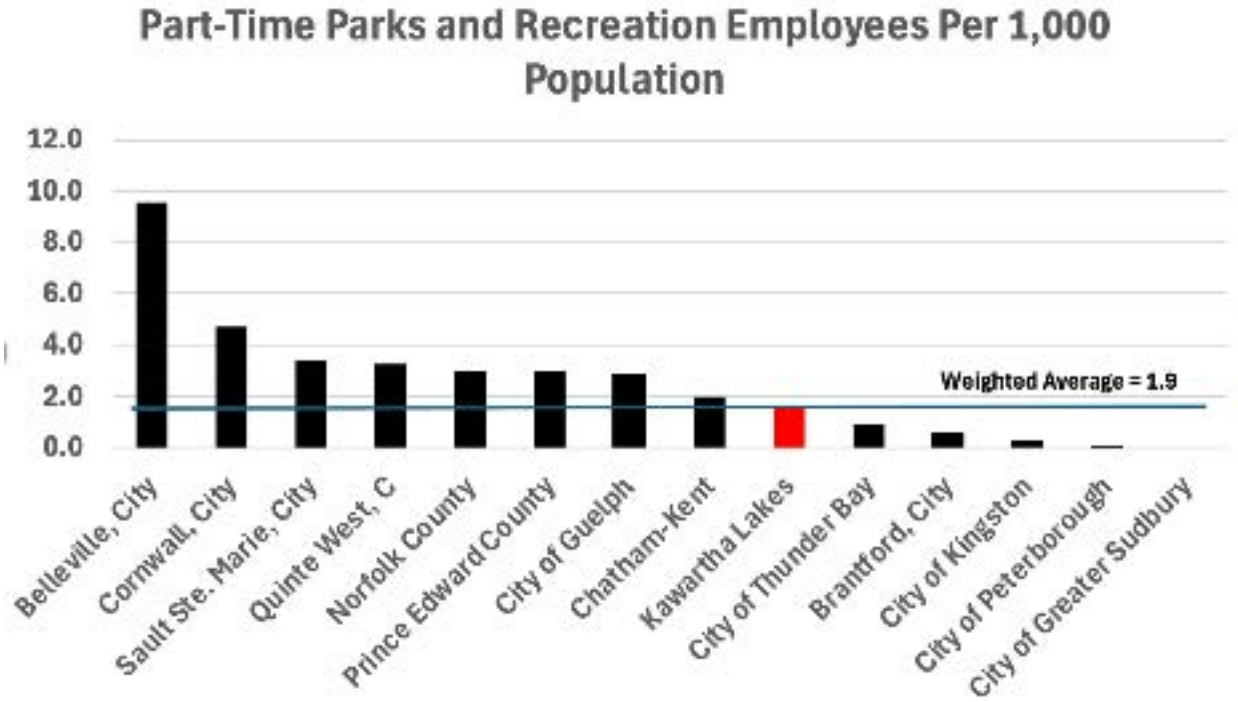

1 Calculated as: an increment of $90 per household (including seasonal households) times 39,000 households (approximately, including seasonal households) in Kawartha Lakes.

**Staffing Comparison**

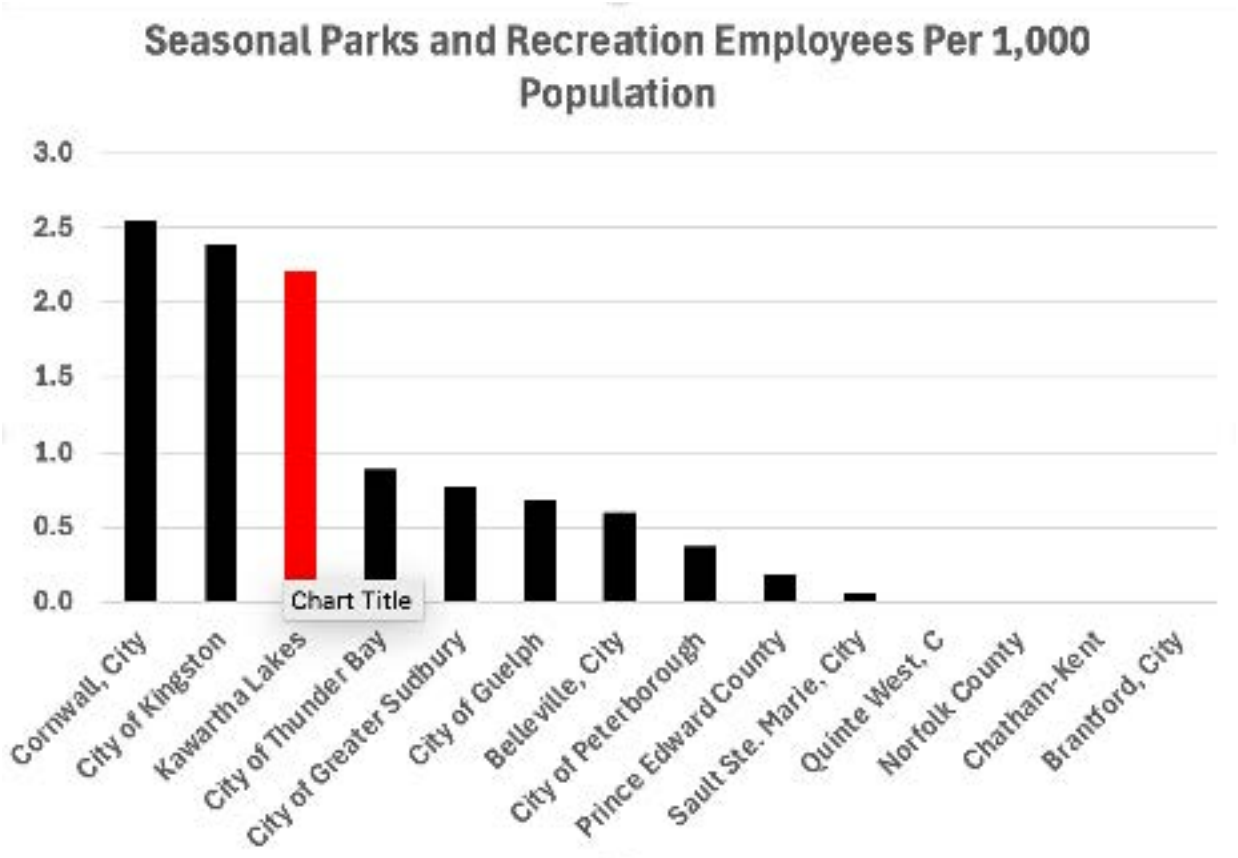
Another benchmark comparison undertaken was in terms of parks and recreation employees per capita. This is a less perfect measure than budget as it may reflect fundamentally different philosophies in terms of how municipalities choose to fund parks and recreation programs and services. Some, for example, prefer a direct service model, where the majority of parks and recreation services are provided directly by the municipality, which requires a relatively large number of staff employed to deliver those programs. In contrast, other municipalities choose to provide funding to community groups and organizations, letting them choose their own staff and volunteers to administer programs (assuming, of course, that certain performance criteria are met). In these latter cases, staffing costs will not be as high, but direct expenditures to community organizations will likely be relatively large. Total per capita expenditures for two municipalities with different philosophies in this regard may well be comparable, even though the mix of staffing costs and non-staffing costs may differ greatly. Accordingly, 'total expenditures' is the more robust measure. Nonetheless, a comparison of staffing complements may yield some useful insights.

The chart below shows the comparison of the benchmark set in terms of full-time employees. It shows that Kawartha Lakes is considerably below the benchmark average of 0.8 full-time employees per 1,000 permanent residents, at about half the ratio (0.4 full-time employees per 1,000 population).



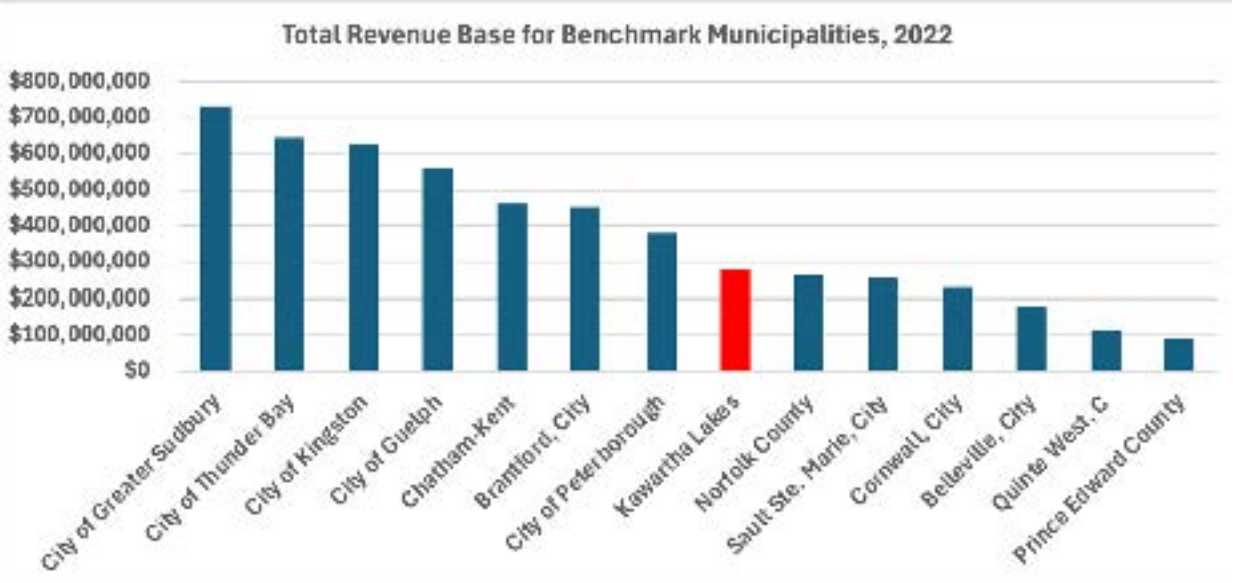



And, finally, in terms of seasonal staff, Kawartha Lakes actually compares quite well. Note however, that four municipalities reported having no seasonal staff, so that will pull down the average considerably. Also, the definition of 'seasonal staff' (in terms of the amount of time involved per staff member) varies considerably.




**Relative Wealth of Municipalities in the Benchmark Set**

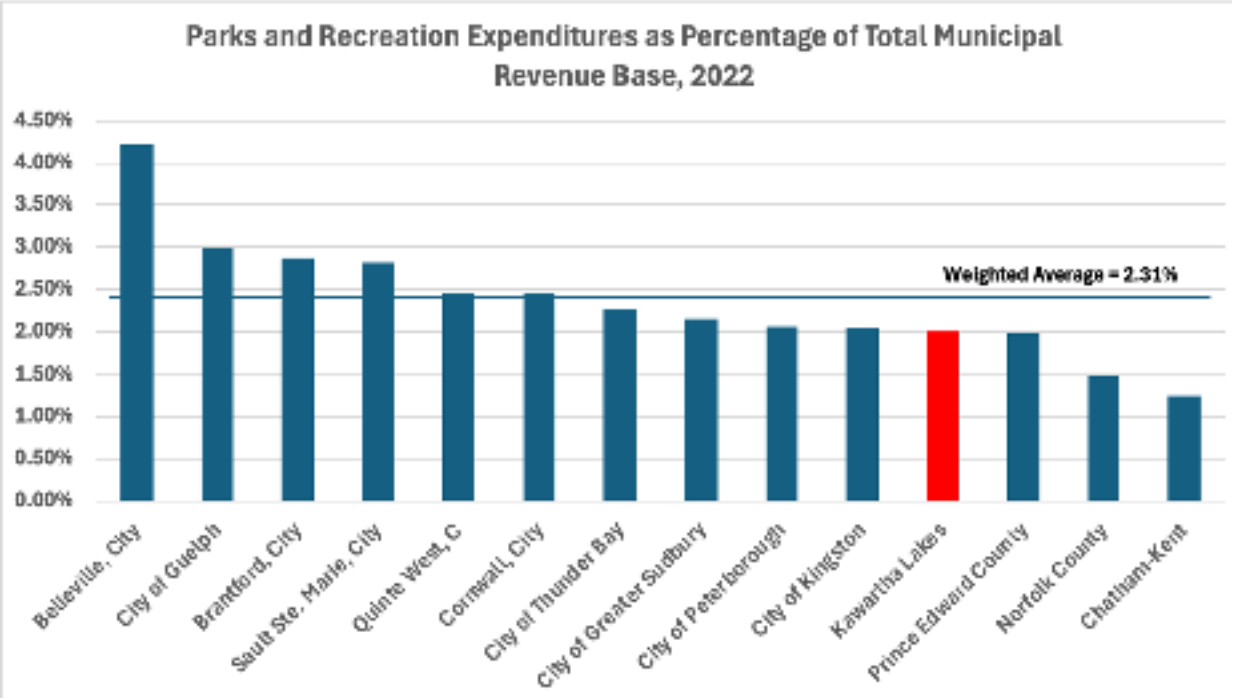
Another explanatory factor could be the fact that these benchmark municipalities have different revenue bases (from residential, commercial and industrial taxation; government transfers; sales of licences, fees and permits; etc.). In essence, some municipalities are 'richer' than others and thus may be able to afford a higher level of expenditure. The chart below shows that this indeed is the case, where the revenue bases for the various municipalities in the benchmark set range from a low of just under $100 million for Prince Edward County, to a high of over $700 million for the City of Greater Sudbury. Kawartha Lakes is in the lower half of this distribution, with a total revenue base of approximately $277 million. So naturally it could be surmised that a higher revenue base would be associated with higher per capita levels of parks and recreation expenditure.




However, if we examine parks and recreation expenditures as a percentage of the total revenue base, the data appear to tell a similar story as to what was seen previously. The chart below shows these figures for the benchmark set. The weighted average for all municipalities is 2.31%: that is, municipalities spent on average 2.31% of their revenue base on parks and recreation services. For Kawartha Lakes, the level of expenditure was just 2.0%. By the same logic as was employed previously, if Kawartha Lakes spent 2.31% of its revenue base upon parks and recreation its budget would be approximately $900,000 higher than it actually is.[1] Again, this metric shows that, all things being equal, Kawartha Lakes does not support its parks and recreation activities to the same relative extent as similar benchmark municipalities.

1 i.e., if Kawartha Lakes spent the benchmark average of 2.31% of its revenue base upon parks and recreation services and programs, its budget for such services in 2022 would have been approximately $6.4 million. Its actual budget for these services in that year was approximately $5.5 million, implying a 'shortfall' of nearly $900,000.

C




## Conclusion

This analysis has shown that, on several measures, Kawartha Lakes underfunds its parks and recreation services relative to similar single-tier municipalities within the population range of 20,000 to 150,000. Depending upon the measure used, the amount of this underfunding ranges from just under $1 million to $3.5 million. (The higher end of this range considers the fact that there is a considerable influx of seasonal residents into the municipality.) In any event, this analysis appears to support some budget increase for parks and recreation services. This will be an important consideration in the parks and recreation plan developed here.

# Appendix K: Framework for Assessing Marketing Practices

Marketing and promotion of municipal parks and recreation facilities in Ontario should be strategic, inclusive, community-driven, and digital-forward. Municipalities are increasingly expected to demonstrate the value of recreation, drive engagement, and ensure equity in access. The following is a checklist of best practices in the marketing of parks and recreation services in Ontario municipalities:

**1. Develop a Strategic Marketing Plan**

- Align with the municipality's strategic and recreation master plans.
- Identify key goals: awareness, participation, community engagement, revenue, etc.
- Include target audiences, messaging strategies, channels, budget, and performance metrics.
- Use seasonal or thematic campaigns (e.g., "Get Outside This Winter!" or "Summer in the Park").

**2. Know Your Audience**

- Segment audiences: families, youth, older adults, newcomers, Indigenous communities, etc.
- Use demographic and psychographic data from:
    - Census
    - Parks usage surveys
    - Registration data
- Tailor messages and programs to reflect community needs and cultural diversity.

**3. Embrace Digital and Social Media**

- Prioritize social media platforms: Facebook, Instagram, Twitter/X, YouTube, TikTok (for youth).
- Use engaging content: short videos, behind-the-scenes footage, user testimonials, "how-to" reels.
- Promote upcoming events and programs with targeted ads.
- Ensure the municipal website is mobile-friendly, up to date, and easy to navigate.

**4. Community Engagement and Co-Promotion**

- Partner with local schools, sports leagues, community centres, and Indigenous groups.
- Use word-of-mouth marketing: empower ambassadors and volunteers to promote programs.
- Host pop-up booths at festivals, farmers markets, and school events to spread awareness.
- Cross-promote with public libraries, transit, tourism offices, and health units.

**5. Equity, Diversity & Inclusion (EDI) in Messaging**

- Use inclusive imagery and language.
- Translate materials into common local languages (especially for newcomers).
- Spotlight programs for underrepresented groups: e.g., adaptive recreation, seniors, low-income families.
- Align with the AODA (Accessibility for Ontarians with Disabilities Act).

**6. Youth and Family Engagement**

- Run school program promotions with flyers or PE instructor partnerships.
- Launch family-friendly challenges or contests on social media (e.g., scavenger hunts in parks).
- Create activity guides or passports for kids to collect stamps for visiting multiple parks.

**7. Program Guides and Seasonal Calendars**

- Produce print and digital recreation guides, delivered quarterly or seasonally.
- Highlight registration dates, featured programs, and facility updates.
- Offer a searchable online activity catalog with filters by age, interest, or location.

**8. Collect and Use Feedback**

- Use post-program surveys, social media polls, and quick QR code feedback kiosks at facilities.
- Track satisfaction, unmet needs, and suggestions for improvement.
- Incorporate feedback into future programming and communications.

**9. Promote Subsidies and Access Programs**

- Publicize fee assistance programs (e.g., Jumpstart, Leisure Access Pass, municipal subsidy programs).
- Make eligibility info easy to find and digest.
- Remove stigma by positioning subsidies as "for everyone who needs a little help."

**10. Monitor and Measure Success**

- Track KPIs:
  - Website visits
  - Registration numbers
  - Social media engagement
  - Facility usage
  - Event attendance
- Use tools like Google Analytics, Meta Insights, and program registration software.

# Appendix L: Funding Sources

**Provincial Funding Sources**

1. **Community Partnership and Development Fund:** Administered by the City of Kawartha Lakes, this fund provides financial assistance for beautification projects, cultural initiatives, and special events within the municipality. Eligible applicants include registered charities, not-for-profit organizations, and municipal volunteer management boards. The application deadline is October 31 annually for projects and events scheduled for the following calendar year.

2. **Community Sport and Recreation Infrastructure Fund (CSRIF):** Launched by the Ontario government in 2024, CSRIF is a $200 million initiative aimed at helping communities revitalize existing sport and recreation facilities and build new ones. The fund has two streams:

    - Repair and Rehabilitation Stream: Offers grants between $150,000 and $1 million for upgrading existing facilities. Projects must be completed within 24 months. The application deadline was October 29, 2024.

    - New Build Stream: Provides up to $10 million for constructing new facilities or replacing those at the end of their lifespan. Applications are accepted on an ongoing basis until funding is fully allocated, with projects required to be completed by March 31, 2027.

3. **Ontario Trillium Foundation's Community Building Fund:** This fund supports non-profits and Indigenous communities in the arts, culture, heritage, tourism, sport, and recreation sectors. It offers two streams:

    - Operating Stream: Provides operating relief to help organizations remain viable.

    - Capital Stream: Supports the repair, renovation, or retrofitting of existing sport and recreation facilities. At the time of writing (April 2025) the grant application periods for both streams are closed.

4. **Ontario Inclusive Community Grants Program:** This program offers funding to municipalities and local organizations for projects that contribute to building inclusive and accessible communities. The application period for the 2024-2025 cycle opened on April 9, 2024.

5. **Ministry of Tourism, Culture and Gaming:** This ministry supports tourism and cultural experiences, and champions participation in sport and recreation activities across Ontario. They offer various grants to assist organizations in these sectors.

**Private Foundations**

Several foundations in Ontario support municipal parks and recreation programs and services. Notable examples include:

1. **KidSport Ontario:** This organization provides grants to help remove financial barriers that prevent children from participating in organized sports. Municipalities and community organizations can collaborate with KidSport to support local youth sports initiatives.

2. **Weston Family Foundation:** Formerly

known as The W. Garfield Weston Foundation, this foundation focuses on initiatives related to healthy ecosystems and healthy aging. They have funded projects aimed at conserving natural spaces and enhancing community well-being, which can include support for parks and recreational areas.

3. **Ontario Arts Foundation:** Established in 1991, this non-governmental, not-for-profit organization encourages and facilitates private giving to the arts in Ontario. They oversee numerous endowments supporting a wide range of arts initiatives.

4. **Laidlaw Foundation:** Based in Toronto, the Laidlaw Foundation focuses on supporting initiatives that address social inequities, with an emphasis on youth engagement, Indigenous communities, and the arts.

# Appendix M: Best Practices in Municipal Asset Management for Parks and Recreation Facilities

Municipal asset management for parks and recreation facilities in Ontario should follow both provincial guidelines and industry best practices to ensure effective, sustainable, and cost-efficient operations. Here are the key best practices, tailored to Ontario's legislative and funding landscape:

1. **Align with Ontario's Asset Management Planning Regulation (O. Reg. 588/17):** Under the **Infrastructure for Jobs and Prosperity Act,** municipalities are required to:
    - Develop and maintain asset management plans (AMPs) for all municipal infrastructure, including parks and recreation facilities.
    - Include levels of service, lifecycle strategies, and financial strategies in their AMPs.
    - Meet staged deadlines (e.g., full implementation for all asset classes by 2025).
2. **Inventory and Data Collection:** Maintain a complete and accurate inventory of assets including:
    - Playgrounds, sports fields, trails, courts, community centres, washrooms, splash pads, etc.
    - Record location, age, condition, usage levels, and maintenance history.
    - Use tools like GIS mapping, condition assessments, and mobile data collection apps.
3. **Condition Assessment and Risk Management**
    - Perform regular condition assessments (visual inspections, structural analysis).
    - Use risk matrices to prioritize assets based on likelihood of failure and impact.
    - Apply standardized rating scales (e.g., FCM's or NAMS' condition grades).
4. **Lifecycle Costing and Long-Term Planning**
    - Identify full lifecycle costs: acquisition, operation, maintenance, renewal, and disposal.
    - Develop capital forecasting tools (e.g., 10-20 year forecasts).
    - Use software like CityWide, PSD Citywide, or Assetic for financial modeling.
5. **Define Levels of Service (LOS)**
    - Define technical LOS (e.g., turf height, lighting standards, facility hours).
    - Collect community input on community LOS expectations.
    - Use surveys, consultations, or platforms like JumpIn Kawartha Lakes to gather feedback.

6. **Preventative Maintenance Programs**

    - Implement scheduled maintenance plans to reduce emergency repairs and extend asset life.
    - Track maintenance with CMMS (Computerized Maintenance Management Systems).

7. **Climate Change and Sustainability Considerations**

    - Assess climate-related risks (e.g., flooding of sports fields, heat stress on turf).
    - Integrate green infrastructure (e.g., permeable trails, shade trees, native plantings).
    - Align with Ontario's Climate Change Strategy and FCM's Climate Lens.

8. **Community Engagement and Equity**

    - Ensure inclusive access for diverse populations, including accessibility under AODA.
    - Engage the public in decision-making—especially for service level setting and prioritization.
    - Balance high-use urban parks with smaller rural or underserved areas.

9. **Performance Monitoring and Continuous Improvement**

    - Track KPIs like user satisfaction, downtime, cost per use, etc.
    - Use benchmarking tools (e.g., Ontario Recreation Facilities Association (ORFA) or Recreation Facilities Association of Ontario (RFAO) data).
    - Update AMPs every 5 years as required.

10. **Integration Across Departments**

    - Coordinate with planning, public works, finance, and recreation departments.
    - Link AMP to the municipal budget, strategic plan, and development charges background studies.

# Committee of the Whole Report

| | |
|---|---|
| **Report Number:** | **ENG2025-020** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **Angeline Street North Municipal Class Environment Assessment (EA) Completion** |
| **Description:** | |
| **Author and Title:** | Corby Purdy, Manager Infrastructure, Design and Construction |

## Recommendation(s):

**That** Report ENG2025-020, **Angeline Street North Municipal Class Environment Assessment (EA) Completion**, be received;

**That** the preferred solution of widening Angeline Street North from Kent Street to Colborne Street from a 3 lane cross section including a centre two way left turn lane, to a 5 lane cross section including a centre two way left turn lane be supported;

**That** the preferred solution 2B of expanding Angeline Street and Kent Street intersection be supported;

**That** the preferred solution 3 of expanding Angeline Street and Colborne Street intersection be supported;

**That** Staff be directed to file the endorsed project file report for the legislated 30 day comment period; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

**Department Head:** _____

**Financial/Legal/HR/Other:**_____

**Chief Administrative Officer:**_____

**Background:**

At the Council Meeting of Nov 22, 2016, Council adopted the following resolution:

**RESOLVED THAT** Report ENG2016-032, Kent St. Corridor Study EA, be received;

**THAT** Council supports the preferred solutions as outlined in Appendix "A" in this report – Project File to improvements to the Kent St Corridor, in Lindsay; and

**THAT** Staff be authorized to file the EA report for the legislated 30 day comment period.

And at the Council Meeting of February 21, 2017 Council adopted the following resolution:

**RESOLVED THAT** Report ENG2017-002, **Colborne St. Corridor Study EA Update,** be received;

**THAT**; Council endorse the preferred solution for Widening Colborne Street West from the West limits at Hwy 35 to west of St. Charles Street to a four lane cross-section with an off street multi-use path. **(Carried)**

**THAT**; Council endorse the preferred solution for traffic control improvements at the intersection of St. Joseph Road and Colborne Street as well as geometric improvements. **(Carried)**

**THAT** ; Council endorse the preferred solution of installing traffic signals at the intersection of William St. and Colborne Street as well as geometric improvements. **(Carried)**

**THAT**; Council endorse the preferred solution for a three lane cross-section from west of St. Charles St. to Angeline St / Colborne St intersection. **(Carried)**

**THAT**; Council endorse the preferred solution for improvements to the intersection of Colborne St and Angeline St. **(Carried)**

**THAT**; Council endorse the preferred solution for installation of traffic lights at the intersection of Albert St and Colborne St. **(Carried)**

**THAT**; Council endorse the recommendation in the EA report for bike lanes in both directions within the existing cross-section on Colborne St from the intersection of Angeline St to west of Victoria Ave. **(Motion Failed)**

**THAT**; Council endorse the recommendation in the EA report for a 2 m sidewalk on Colborne Street, east of Angeline Street as well a new sidewalk section on the south side of Colborne St between Victoria Ave and Cambridge St. **(Carried)**

**THAT**; Council endorse the recommendation for a future EA corridor study to be done on Angeline St. **(Carried)**

**THAT**; Staff be authorized to file the EA report for a 45 day review period. **(Carried)**

This report addresses council direction.

These corridor studies provided broad recommendations for intersection improvements at Angeline St/Kent St and Angeline/Colborne St. After Council endorsement of the studies, a stand alone Municipal Class Environmental Assessment is required to identify and evaluate specific alternatives using the broad recommendations of the corridor studies as a base.

To further review and address capacity constraints at both Kent / Angeline Street and Colborne / Angeline Street intersections, and Angeline Street corridor from Kent Street to Colborne Street, in accordance with the purchasing policy, the consulting firm Ainley Group was retained through RFP 2018-71-CP Design Services for Colborne Street West and Angeline Street North. This environmental impact study was completed to review existing conditions, re-evaluate potential intersection improvement options, consult with stakeholders, and define recommended alternatives for each respective location. A notice of study commencement was issued on February 15, 2019.

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

## Rationale:

As outlined in the study, four alternatives were evaluated for the Kent St/Angeline St intersection and three alternatives were evaluated for the Angeline St/Colborne St intersection . These alternatives presented variations to lane configuration, capacity, and shifts in alignment in order to offer a range of solutions for capacity to handle future traffic, land use constraints, property impacts, and cost. Alternatives that could not accommodate future traffic volumes were rejected. The remaining alternatives were evaluated based on operational performance, safety, noise, property impacts, natural environment, cultural environment and cost.

The preferred alternative was further refined after the review of existing infrastructure uncovered concerns for the ventilation structures and vehicles access for the Ross Memorial Hospital, commercial property constraints, and the discovery of potential disruption to the integrity of underground parking infrastructure. New alternatives were presented and evaluated using the same criteria as the previous evaluation, now with all the constraints known.

Ultimately, alternative 2B was selected as the technically preferred solution for the Kent St/Angeline St intersection and the Angeline St corridor between Kent St and Colborne St. For the intersection of Angeline St/Colborne St, Alternative 3 was recommended as the preferred alternative.

Combined, the recommended alternatives are summarized as:

- Kent St W/Angeline St Intersection
    - Northbound Lanes - 1 left turn, 1 thru, 1 combined thru/right turn
    - Southbound Lanes - 1 left turn, 2 thru, 1 dedicated right turn
    - Eastbound Lanes - 1 left turn, 2 thru, 1 dedicated right turn
    - Westbound Lanes - Existing Conditions (1 left turn, 1 thru, 1 combined thru/right turn)

- Colborne St W/Angeline St N  Intersection
    - All approaches – 1 left turn, 1 thru, 1 dedicated right turn
    - Eastward shift of alignment to minimize property impacts

- Angeline St North Corridor (from Kent St W to Colborne St N)
    - Northbound Lanes – 2 thru
    - Southbound Lanes – 2 thru
    - Centre Lane – Shared left turn

Although being initiated following commencement of this Municipal Class Environmental Assessment, 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 would be possible from Colborne Street to north of Ross Memorial hospital.

## Other Alternatives Considered:

The EA outlines various alternatives that offer a wide range of advantages and disadvantages when considering capacity to handle future traffic, land use constraints, property impact, and cost. Through the EA process, and public/stakeholder engagement, the recommended solution is thoroughly vetted.

## Alignment to Strategic Priorities

This report aligns with the strategic priorities of:

Healthy Environment – The preferred alternatives feature a multi-use path to encourage active transportation.

An Exceptional Quality of Life – Improving mobility across all transportation modes that is safe, connected, sustainable, affordable, and accessible for residents.

A Vibrant and Growing Economy – The preferred alternatives recognize the strategy of balancing community impact while supporting goods movement, tourism, and growth.

Good Government – The preferred alternatives allow responsible and practical expansion of the transportation network.

## Financial/Operation Impacts:

This report has no immediate financial impacts. The detailed design has already been budget and awarded to Ainley Group through competitive process.

## Servicing Implications:

The recommendations associated with this report will sufficiently address the existing need to expand Kent / Angeline intersection, Colborne / Angeline intersection and Angeline Street North between Kent Street and Colborne Street.

## Consultations:

Supervisor, Traffic Management

Director, Engineering and Corporate Assets

## Attachments:

Appendix A –ATMP Discussion Memorandum

App A - ATMP Discussion Memorar

Appendix B - Air Quality Assessment for Ross Memorial Hospital Ground Level Intakes Report

App B - Air Quality Assessment for Ross

Appendix C - Vibration Assessment - Ambassador Apartments Parking Garage

App C - Vibration Assessment - Ambas

Appendix D - Stage 1 Arch.  Assessment Report and Stage 2 Arch. Assessment Report

App D - Stage 1 Arch.  Assessment R

Appendix E - Traffic Evaluation Memorandum

App E - Traffic Evaluation Memorar

Appendix F - Tree Inventory and Assessment

App F - Tree Inventory and Asses

## Appendix G – Consultation

App G - Consultation.pdf

## Appendix H - PIC Summary Report #1

App H - PIC Summary Report #1.

## Appendix I - PIC Summary Report #2

App I - PIC Summary Report #2.pdf

## Appendix J - Preferred Alternative Figures

App J - Preferred Alternative Figures.p

## Appendix K - 18545-2 - Project File Report - Angeline Street North (Updated Final)

18545-2 - Project File Report - Angelir

**Department Head email: jrojas@kawarthalakes.ca**

**Department Head: Juan Rojas, Director of Engineering and Corporate Assets**

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# Memorandum

**To:** Corby Purdy
Manager, Infrastructure Design and Construction

**From:** Alex Wilkinson, P.Eng.

**Date:** May 15, 2025

**Reference:** Angeline Street North Reconstruction MCEA
Discussion related to the Active Transportation Master Plan
Ainley File No. 18545-2

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This memorandum has been prepared to discuss how the recommendations of the Active Transportation Master Plan (ATMP) relate to the Preliminary Preferred Alternative (PPA) of the separate Municipal Class Environmental Assessment (MCEA) process being completed for the Angeline Street North Reconstruction project.

After identifying the relevant recommendations of the ATMP, this memorandum evaluates the feasibility of their implementation within the PPA at the future detailed design stage.

This document is intended to serve as a reference for the discussion purposes of City of Kawartha Lakes (City) staff associated with the conception and/or implementation of the ATMP and/or PPA.

## Background

Starting in 2021, after the commencement of the Angeline Street North Reconstruction MCEA in 2019, the City undertook the establishment of the ATMP. The City's ATMP, also branded as *Kawartha Moves*, states its intent as follows:

- Provide guidance on improving active travel at the City-wide level;
- Identify recommendations to inform future policy development and delivery put high-level policy directions form the Official Plan into action; and,
- Provide guidance to inform implementation tools, tactics, policies and programs.

Per the ATMP, "[it] is not intended to be a stand-alone document; it was developed as a flexible and adaptable tool that can be used by all municipal staff who have a role in the planning, design and implementation of [Active Transportation]-related initiatives… it is an optimistic and aspirational document which provides ambitious targets for infrastructure implementation, policy and program development, and capacity building".

The ATMP was completed such that it satisfies the engagement and technical requirements of the MCEA process (separate from that of the Angeline Street North

Reconstruction project). Therefore, many of the projects identified by it are considered "pre-approved" and able to be implemented immediately, pending municipal budget allocation.

The vision statement of the ATMP was developed, following input from the City's ATMP Task Force and other stakeholders, as follows:

> *Active transportation in Kawartha Lakes is planned, designed and implemented with equity, sustainability accessibility and feasibility in mind.*

In May 2024, and about the same time as Public Information Centre #2 of the Angeline Street North Reconstruction MCEA presented its PPA, the final ATMP document was published. The PPA is generally as shown by the combination of figures provided as **Appendix A**: Alternative 2B of the "Kent Street Intersection and Main Corridor Alternatives", and Alternative 3 of the "Colborne Street Intersection Alternatives".

The Problem Statement of the Angeline Street North Reconstruction MCEA, is 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 EA studies for these intersections provided preferred intersection improvements which will be considered as part of this study for the Angeline Street North corridor.*

The Opportunity Statement of the Angeline Street North Reconstruction MCEA, 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.*

As outlined by its Problem and Opportunity Statements, the Angeline Street North Reconstruction MCEA's primary focus 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 West and Colborne Street West).

Resultingly, the goal of the MCEA is to evaluate the benefit of design alternatives on their improvement to vehicular traffic conditions.

## ATMP Recommendations within MCEA Project Site

The improvements/recommendations envisioned by the ATMP for the subject section of the Angeline Street North corridor, include both walking and biking facilities, as shown on the ATMP figures provided as **Appendix B** and summarized by **Table 1**.

**Table 1: Facility Improvements Recommended 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 West intersection |
| | Separated Bicycle Lane | • East leg of the Kent Street West intersection |
| **Walking** | Walkability Improvement | • Entirety of subject section of Angeline Street North |
| | Intersection Improvement | • Colborne Street West intersection<br>• Kent Street West intersection |
| | Sidewalk – One Side | • Angeline Street North between Colborne Street and Chadwin Drive<br>• West leg of the Colborne Street West intersection |
| | Traffic Calming | • West leg of the Colborne Street West intersection |

**Tables 2A and 2B** provide an expanded description of the proposed relevant cycling and walking improvements, respectively, as summarized from Section 4 of the ATMP and its reference materials.

**Table 2A: Expanded Description of Recommended Cycling Facility Improvements**

| Facility Type | Proposed Improvement | Expanded Description |
|---|---|---|
| **Cycling** | Multi-Use Path | • "A two-way path that is horizontally and vertically separated from the travelled portion of the roadway by a curb and buffer."<br>• Multi-Use Path width:<br>  ○ Recommended: 3.5 - 4.0 m<br>  ○ Minimum: 3.0 m (2.4 m in constrained areas).<br>• Buffer width between roadway and Multi-Use Path (excl. curb):<br>  ○ For two-way facility on ≤ 60 km/h posted speed limited<br>  ○ Desired: 1.5 m - 2.5 m<br>  ○ Suggested minimum: 0.6 m<br>• **Resulting absolute min. width requirement: 3.0 m** |
| | Separated Bicycle Lane | • "An on-road facility designated by pavement marking and signage for exclusive use by people riding bikes. Can be marked with a single line, or 'buffered' pavement marking to create additional horizontal separation."<br>• Separated Bicycle Lane width:<br>  ○ Recommended: 1.8 m +1.0 m buffer<br>  ○ Minimum: 1.5 m + 0.3 m buffer<br>• **Resulting absolute min. width requirement: 1.8 m**<br>• Note: per the ATMP's guidance, standard bicycles lanes have the same recommended and minimum lane widths but the buffer is considered options<br>  ○ Resulting absolute min. width requirement: 1.5 m |

The discussion provided by this memorandum considers the absolute minimum width requirements of the cycling facilities, per **Table 2A**. This is believed to be appropriate in evaluating their feasibility at this stage. Increased widths can be considered at the detailed design stage, where practical.

**Table 2B: Expanded Description of Recommended Walking Facility Improvements**

| Facility Type | Proposed Improvement | Expanded Description |
|---|---|---|
| **Walking** | Walkability Improvement | • "Consist of enhanced design treatments to accommodate the safe and comfortable movement of pedestrians. These features may vary depending on the space that is available and the length of the corridor."<br>• Street furniture – benches, waste bins, bike racks, planters, lighting, signage/wayfinding, public art.<br>• Landscaping – trees, grass, other plantings.<br>• Increased separation between sidewalks and roads, wider sidewalks<br>• Accessibility improvements. |
| | Intersection Improvement | • Enhanced pavement markings (e.g., ladder crosswalks), intersection cycling treatments (e.g., cross-rides, bicycle signals, conflict zone markings, bike boxes), tighter curb radii at corners, curb extensions, pedestrian refuges/centre medians/median extensions, accessibility features (e.g., tactile surfaces, audible pedestrian signals, curb cuts/ramps, signal timing adjustments).<br>• Identified location should also be studied for other controlled crossing improvements, based on traffic and other multi-modal needs, and implemented as appropriate based on these broader transportation goals. |
| | Sidewalk – One Side | • Should consist of a pedestrian through zone, or clear width, of no less than 1.5 m, with no obstructions at any point, and wider (1.8 m+) where feasible, especially where higher numbers of pedestrians are anticipated. |
| | Traffic Calming | • "Measures along roadways to manage and slow the speed of motor vehicles. Reduced traffic speeds increase safety for all road users, especially vulnerable pedestrians and cyclists, improving visibility, decreasing the likelihood of serious collisions and injuries, while also contributing to a more comfortable atmosphere for walking and cycling."<br>• Examples: speed humps/cushions/tables, reduced speed limits, automated speed enforcement, raised crossings/intersections, curb extensions to narrow roadway or create chicanes, traffic islands or circles, signage (e.g., dynamic speed signs). |

The Angeline Street North Reconstruction MCEA endeavours to implement its recommendations to the greatest degree feasible, while recognizing that the ATMP "is an optimistic and aspirational document which provides ambitious targets". Also, as previously mentioned, the primary objective of the Angeline Street North Reconstruction MCEA is to address vehicular traffic demands along the corridor.

For the current MCEA project, site constraints and project objectives are expected to preclude the implementation of some of the ATMP's recommendations. **Table 3** on Pages 8-11 provides discussion and assessment of the anticipated feasibility of implementing each of the ATMP's recommendations as part of the PPA. It should be understood that the discussion provided herein is subject to confirmation at the detailed design stage.

## Summary of Evaluation

In review of **Table 3**, 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 North (between Colborne Street West 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 accomodate future installation, if necessary, without major revisions);
- Accessibility features, and crossing pavement markings at the Colborne Street West and Kent Street West intersections;
- Relatively tighter curb radii at the Colborne Street West intersection (to the extent currently envisioned by the PPA); and,
- MUPs at the following locations:
    - Each leg of the Colborne Street West intersection;
    - The west leg of the Kent Street West intersection; and,
    - Along Angeline Street North, to the north of the Kent Street West intersection.

Of these ATMP features, the MUPs are the only aspects expected to significantly alter 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 West intersection, MUPs are not believed to be feasible (nor the separated bicycle lane within the east leg). The ATMP envisioned an inter-connected network of MUPs at a community-wide level, comprised of links such as those

recommended within the project area. The absence of MUPs at the Kent Street intersection may therefore significantly reduce the overall connectivity of the planned network.

The MUP along Angeline Street North appears to be feasible for either side of the right-of-way to a south limit near the “Province of Ontario Building” (322 Kent Street West) and ambulance bay entrance of Ross Memorial Hospital. Perhaps termination of the MUP at this location is acceptable to the City as it still provides connectivity to major features along the corridor such as Ross Memorial Hospital, the Town & Country Centre and the residential area at Chadwin Drive; implementing the planned network to the greatest degree feasible. However, terminating the MUP abruptly with no connection to other ATMPs may yield safety concerns or other implications. Beyond the current MCEA process, there may be future opportunities to extend the MUP from the location described above through Site Plan Control processes. Additional connections through/along adjacent properties could be secured as part of the requirements of future planning applications. The limit to which the MUP extends south along the Angeline Street North corridor would require determination by City staff through evaluation of these considerations, potentially for both immediate reconstruction and ultimate development timeframes.

Further considerations are also required for the MUP-feasible locations, including, but not limited to:

- In almost all MUP-feasible locations, the absolute minimum MUP and buffer widths, 2.4 m and 0.6 m, respectively, are expected to be necessary.
- No existing cycling facilities are believed to be located adjacent to the project area and available with which to connect.
- East leg of Colborne Street West intersection
    - Previous corridor study did not recommend an MUP
    - North side – impact to existing entrances and property features, and potential conflict with public transit
    - South side – relocation of hydro poles required
- Main Angeline Street North corridor:
    - West side – restoration of the Town & Country Centre (T&CC) parking lot, or relocation of hydro poles required, and potential difficulties for users of the shared entrance between the T&CC and medical professional building.
    - East side – minor road realignment from that shown in PPA required.

## Closure and Next Steps

The PPA of the Angeline Street North Reconstruction MCEA process, is subject recommendations from the ATMP. It is believed that the incorporation of only a portion of the ATMP recommendations into the PPA is feasible from the evaluation provided by **Table 3**.

Most notably, only a portion of the recommended locations for MUPs within the project are believed to be feasible. For the locations that are expected to be feasible, conditions may not be as desirable as that anticipated by the ATMP.

In addition to general comments, it is requested that City staff provide direction specifically on the desired level/strategy of implementation for the active transportation elements within the project area, in consideration of the discussion provided herein.

**Table 3: Assessment of the Feasibility of the Active Transportation Master Plan's Recommendations in Relation to the Preliminary Preferred Alternative**

| Facility Type | Proposed Improvement | Location | Feasibility | Discussion |
|---|---|---|---|---|
| **Cycling** | Multi-Use Path | West and East legs of the Colborne Street West intersection | Likely | Adequate space appears to exist within the right-of-way (ROW) limits of these intersection legs to accommodate the additional width of a multi-use path (MUP). It should be noted that while the previously completed corridor study (2020) for Colborne Street West proposed the construction of an MUP extending westerly from the Angeline Street north intersection, it did not recommend a bicycle path or MUP easterly from the Angeline Street North intersection towards Victoria Street.<br><br>For the west leg, the likely location of the MUP is along the south side of the roadway as it will result in fewer removed trees and impacts to private property features (e.g., driveways, stairways, retaining walls) relative to the north side.<br><br>For the east leg, the MUP could be located along the north side if the potential conflict with the existing public transit stop located there is considered acceptable; further to the east, restoration of existing driveways would be required as well as the removal of existing landscaping features within the ROW (114 Colborne Street West). Construction of the MUP along the south side is also possible but may increase the grade of the already steep entrances of Colborne Lodge; further to the east, conflicts with utility poles may require their relocation (increasing construction costs and complexities). |
| | | North leg of the Colborne Street West intersection | Likely | The increased width associated with an MUP, relative to the sidewalk currently proposed by the PPA, is expected to be accommodated along the east side of the roadway, without requiring additional property.<br><br>An MUP along the west side of the roadway is less desirable: the number of properties subject to land expropriation would be increased from that currently anticipated by the PPA, up to three trees would need to be removed, and the existing commercial business (Economy Wheels Nissan/ National Car Rental) would likely lose several parking spaces for a lot that appears to already by operating near its capacity. |
| | | South leg of Colborne Street West intersection, and main Angeline Street North corridor | Likely | It's believed that an MUP could be supported on either side of the roadway for a majority of the project corridor's length without significantly worsening impacts to private landowners from that anticipated by the PPA. The preferred side would mostly be governed by the conditions at the bounding intersections.<br><br>Within the south leg of the Colborne Street West intersection, the west side of the roadway could accommodate the MUP without increasing the property requirements of the PPA. An MUP along the east side maybe able to maintain the current extent and number of private landowners subject to land expropriation if the roadways alignment is shifted minorly to the west of that shown by the PPA.<br><br>The addition of an MUP along the west side of the main Angline Street South corridor may shift the limit of the roadway's cross-section further into the parking lot of the Town & Country Centre (T&CC) that fronts Angeline Street North. As a result, where existing parking spaces were expected to be maintained by the PPA through the installation of a toe wall, the parking spaces would need to be relocated to accommodate an MUP. From precursory review of the T&CC, site, it appears that the parking spaces could be translated westerly within the parking lot while still maintaining an adequate driving aisle width to access them. The addition of the MUP along the west side of Angeline Street North is therefore expected to increase impacts to the T&CC, but the impacts could likely be mitigated through a greater degree of site restoration. The MUP could be constructed closer to the curb but would require the relocation of the existing hydro poles located there. Regardless, an MUP along the west side of Angeline Street would increase the project's construction costs and complexities.<br><br>The T&CC and medical professional building to its north share an entrance along the west ide of Angeline Street North. Comments were received from members of the public during the consultation efforts for the MCEA, related to the shared entrance and how its use is sometimes found to be difficult given its configuration. The construction of an MUP across this shared entrance may worsen these concerns from existing conditions. It should be noted, however, that Site Plan Approval is currently being sought for the property located across from the shared entrance and a median may possibly be installed in front of it. The median may alleviate some of the observed difficulties with this shared entrance, possibly to a degree great enough to offset that resulting from an MUP being constructed across it. |

**Table 3 (cont.): Assessment of the Feasibility of the Active Transportation Master Plan's Recommendations in Relation to the Preliminary Preferred Alternative**

| Facility Type | Proposed Improvement | Location | Feasibility | Discussion |
|---|---|---|---|---|
| **Cycling *(cont.)*** | Multi-Use Path *(cont.)* | North leg of the Kent Street West intersection | Unlikely | The spatial constraints along both sides of the roadway are significant with the sidewalk widths currently envisioned by the PPA, prior to considering the increased width of a potential MUP.<br><br>Along the east side, the increased width of an MUP would be expected to severely impact the access of emergency vehicles into the ambulance bay area of Ross Memorial Hospital. The detailed design of the current PPA will require careful mitigation of potential decrease in the already narrow asphalt width within this area; the MUP may decrease the width to an unmitigable degree.<br><br>Along the west side, the current PPA expects to be able to maintain the parking lot entrance of Dentistry on Kent; however, to maintain an acceptable grade for the entrance, the loss of 1-2 parking spaces is anticipated. To accommodate the increased width of an MUP, more parking spaces may need to be removed, in addition to expanding the land requirements from the private property. The additional land requirements would also increase the ROW to a width greater than the uniform one planned along the remainder of the corridor.<br><br>Sometimes, a roadway can accommodate an MUP along one of its sides within the same overall width as a roadway having a sidewalk on each side, as the combined width of two sidewalks is generally equal to the width of one MUP. The issue is that the roadway is not able to be shifted easterly or westerly to maintain the same location within the ROW for this leg. For the subject leg, its position is governed by the need to maintain alignment with the south leg. A major consideration of the MCEA process, and as discussed in the following section of this table, the range of alignments available to the south leg are limited due to the conflict with the underground parking structure of Ambassador Apartments at the southeast corner of the intersection. |
| | | South leg of the Kent Street West intersection | Unlikely | The east sidewalk of the PPA extends into land that is currently private property and over top of the existing underground parking structure. To mitigate the potential for its increased loading on the underground parking structure, the sidewalk is proposed to be constructed over a cantilevered concrete slab extending outwards from the ROW. The increased width associated of an MUP would subject a greater amount of the underground structure to the already considerable technical and property/easement requirements within this quadrant. Similarly, this is mostly what governs the PPA's alignment for the south leg.<br><br>The west sidewalk is anticipated to extend into land that is currently private property and require a significant portion of the existing front-yard and driveway areas. The increased width associated with an MUP is expected to further increase driveway grades and reduce available front-yard areas. Further south of the intersection, the increased width of an MUP along the west side of the road may require the modification/removal of existing retaining walls to accommodate it; at this stage, the removal/modification of these existing walls is expected to be avoided. |
| | | West leg of the Kent Street West intersection | Likely | An ample amount of area appears to be available along either side of the roadway to accommodate an MUP. In light of the discussion provided above, a lack of connectivity with other feasible MUP locations is anticipated. |
| | Separated Bicycle Lane | East leg of the Kent Street West intersection | Unlikely | Along the south side of the roadway, exists a small surface-level parking area used by Ambassador Apartments. The existing parking area is likely sub-standard by its depth from the roadway and lack a driving aisle, but appears to be well-used for the building's short-term parking purposes. The increased asphalt width required to support an eastbound bicycle lane, would be require shifting the sidewalk further into this parking area, thereby jeopardizing use of the parking area.<br><br>Along the north side of the roadway, expropriation of a portion of the Ross Memorial Hospital lands, and the loss of 2-3 of its parking spaces, is anticipated to support the current PPA. Expropriation is generally limited to the area of the curb radius in the adjacent northeast intersection quadrant. The increased asphalt width required to support a westbound bicycle lane, would be expected to result in the loss of 2-3 more parking spaces. Additionally, the length of frontage subject to expropriation would increase by 25-30 m. |

**Table 3 (cont.): Assessment of the Feasibility of the Active Transportation Master Plan's Recommendations in Relation to the Preliminary Preferred Alternative**

| Facility Type | Proposed Improvement | Location | Feasibility | Discussion |
|---|---|---|---|---|
| **Walking** | Walkability Improvement | Colborne Street West intersection and Kent Street West intersection | Partial | **Likely –** Pending detailed design, the increased sidewalk widths are expected to be feasible.<br><br>**Unlikely –** As noted previously, spatial constraints exist within these areas and the additional requirements associated with accommodating landscaping and street furniture features, is expected to worsen the impacts to adjacent landowners. For this reason, the feasibility of including the noted features (see **Table 2B**) at these locations is believed to be unlikely. |
| | | Remainder of Project Area | Likely | A greater degree of space is available within the areas outside of the intersections. The inclusion of street furniture, landscaping and improved sidewalks are expected to be possible, pending confirmation through detailed design. The potential conflict between the spatial requirements of walkability improvement features and MUPs should be considered as part of this confirmation. |
| | Intersection Improvement | Colborne Street West intersection and Kent Street West Intersection | Partial | **Likely**<br>The PPA's road configuration is intended to be supportive of the noted accessibility features (see **Table 2B**) at both intersections.<br><br>Pavement markings for ladder crossing and cross-rides are believed to be implementable for the PPA with minor, if any, modification to the intersections' configurations.<br><br>The PPA currently includes relatively tight curb radii for the Colborne Street West, primarily as a result of spatial constraints. Further reduction in curb radii is likely not feasible without impacting vehicle maneuvering at the intersection.<br><br>**Unlikely**<br>The cycling-related pavement markings (i.e., bicycle box, conflict zones) are not believed to be appropriate for these intersections, as cycling infrastructure is proposed to consist of MUPs, with the exception of the east leg of the Kent Street West intersection. At this leg, a bicycle lane is recommended by the ATMP but, as discussed elsewhere in this table, its feasibility is believed to be limited.<br><br>At the Kent Street West intersection, the proposed curb radii are the governed by the movement of large design vehicles (e.g., tractor-trailers) through the atypical alignments of the intersection legs; the potential for tighter curb radii is severely limited as a result.<br><br>The intersections of the PPA are proposed to be signal-controlled so the benefit of median refuges are not considered to be significant; or, in some legs, would require the addition/widening of medians, which have implications to adjacent private property and large vehicle maneuvering, as discussed elsewhere in this table.<br><br>Curb extensions are typically employed near intersections on roadways that have parking lanes along their sides, and the curb extension utilize the space that the parking lane would otherwise use; visually and physically narrowing the road to reduce pedestrian crossing distances and calming traffic. The PPA does not propose parking lanes within the intersection areas and the addition of parking lanes (or simply the widening of asphalt) to implement curb extensions is expected to have significant impact to the land requirements from neighbouring properties. |
| | Sidewalk – One Side | Angeline Street North between Colborne Street and Chadwin Drive | Likely | Under existing conditions, a sidewalk exists along the easterly side of Angeline Street North throughout this portion. Along the west side, there is no sidewalk adjacent to the T&CC commercial property.<br><br>The PPA currently envisions sidewalk being constructed/reconstructed along both the east and west sides of this road section. |

**Table 3 (cont.): Assessment of the Feasibility of the Active Transportation Master Plan's Recommendations in Relation to the Preliminary Preferred Alternative**

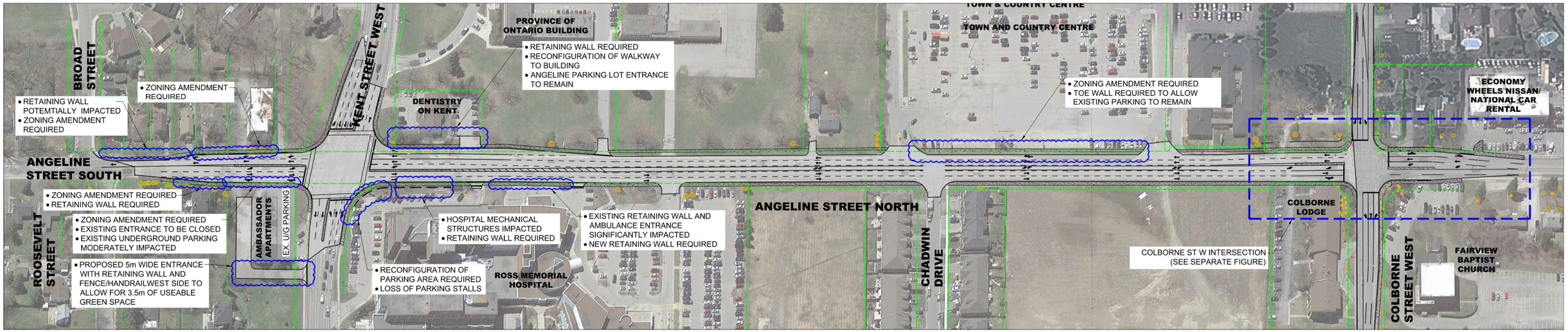
| | | | | |
|---|---|---|---|---|
| **Walking** ***(cont.)*** | Sidewalk – One Side *(cont.)* | West leg of the Colborne Street West intersection | Partial | The addition of a sidewalk along the north side of the roadway would not increase the land expropriation currently envisioned there by the PPA.<br><br>The driveway of 115 Angeline Street North is currently sloped towards the house, and the addition of a sidewalk would increase the emergency spill elevation for surface runoff draining from the site. Additionally, the grade of the driveway appears to already be considerably steep (and near an intersection), but subject to increase due to the elevation gained, and grading transition distance lost, by the addition of a sidewalk. During detailed design, mitigative measures such as a "French drain" within the boulevard could provide improved flooding relief.<br><br>There exists a retaining wall within the 115 Angeline Street North property that may be subject to reconstruction in order to support the PPA. The addition of a sidewalk along the north side of the roadway may be possible if the scope of the wall's restoration is increased.<br><br>In summary, the potential for a sidewalk along the north side of the roadway is still considerable enough that re-evaluation of its feasibility at the detailed design stage should be considered.<br><br>In lieu of this, the PPA considers the construction of an MUP along the south side of the roadway which is expected to improve conditions for pedestrian users. |
| | Traffic Calming | West leg of the Colborne Street West intersection | Unlikely | It should be noted that the PPA relates only to the west leg of the intersection. Some of the traffic calming measures recommended along Colborne Street West by the ATMP may be more appropriate with increased separation from its intersection with Angeline Street North.<br><br>For example, speed humps/cushions/tables are not considered appropriate within the approach as it may significantly impact the expected performance of the intersection.<br><br>Similarly, traffic circles and raised intersections/cross-walks are likely not appropriate for the intersection of two arterial-class roadways.<br><br>The spatial requirements of a roundabout would be significantly greater than that of the intersection configuration envisioned by the PPA.<br><br>The current posted speed limit for the intersection approach is 40 km/h. Given how relatively low the posted speed limit currently is, it is assumed that the idea for a reduced speed limit is more applicable to the section of road to the west of the subject one where the posted speed limit is greater (50 km/h).<br><br>Automated speed enforcement and dynamic speed signs could be incorporated into the intersection's design; however, speeding occurrences are believed to be more characteristic of mid-block areas and the benefit of enforcement infrastructure may be better realized at those locations.<br><br>The areas appropriate for chicanes are believed to be those outside of the transition areas of intersection approaches containing multiple lanes and are not considered further.<br><br>A traffic island/median is not required within this leg to accommodate traffic signals. Therefore, the addition of a traffic island/median is expected to increase the road width from that envisioned by the PPA, which has several implications that are believed to preclude it from further consideration. If this additional width was realized along the south side of the roadway, expropriation of the private property located there would be required; this frontage is not expected to be required to support the current PPA. For the north side of the roadway, it is subject to the same issues as were considered for the sidewalk potentially being located there. The City's priority for either a sidewalk or the traffic island/median would likely need to be decided as the feasibility of one is expected to be limited for one of the features; the inclusion of both is believed to be severely infeasible without major revisions and mitigative considerations. Regardless, the potential implications for the alignment with the opposite, east leg of the intersection, would need to be considered. |

# Appendix A

## Preliminary Preferred Alternative Figures:

- Kent Street Intersection and Main Corridor Alternatives – Alternative 2B
- Colborne Street Intersection Alternatives – Alternative 3

# KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

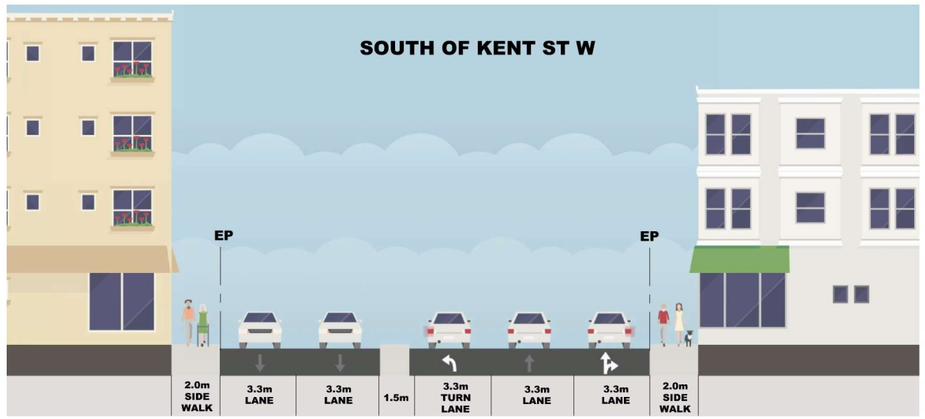



EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

## 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**

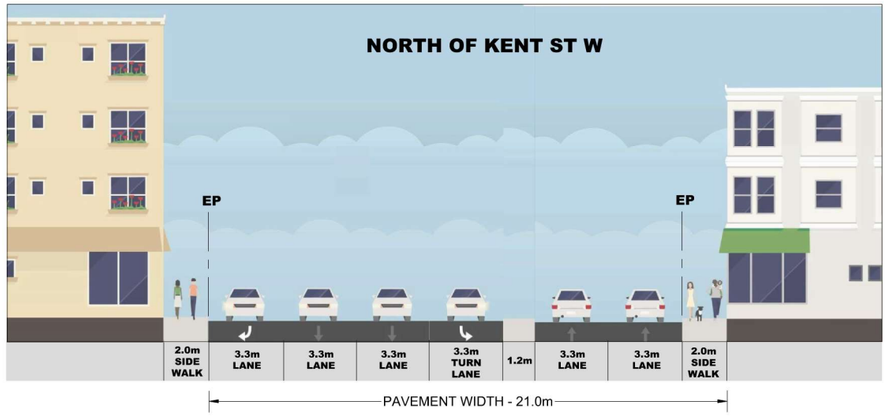
### SOUTH OF KENT ST W



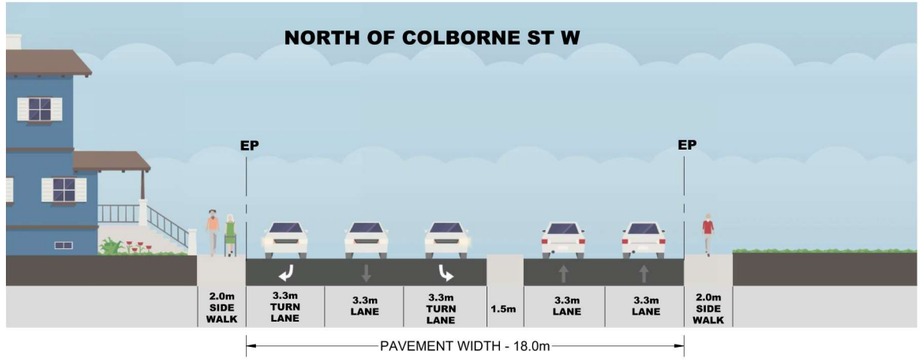

### SOUTH OF COLBORNE ST W




### NORTH OF KENT 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).

# COLBORNE STREET INTERSECTION ALTERNATIVES

| ALT. No. | COLOUR OUTLINE | DESCRIPTION OF ALTERNATIVE | TREES REMOVED | UTILITY POLES RELOCATED |
|---|---|---|---|---|
| 1 | RED | WESTWARD SHIFT AT COLBORNE INTERSECTION | 14 | 9 |
| 2 | VIOLET | CENTERED AT COLBORNE INTERSECTION | 14 | 9 |
| 3 | BLUE | EASTWARD SHIFT AT COLBORNE INTERSECTION | 14 | 9 |

ALTERNATIVE - 1
ALTERNATIVE - 2
ALTERNATIVE - 3

ANGELINE STREET NORTH

COLBORNE STREET WEST

COLBORNE LODGE

ECONOMY WHEELS NISSAN/ NATIONAL CAR RENTAL

FAIRVIEW BAPTIST CHURCH

#153 COLBORNE ST W

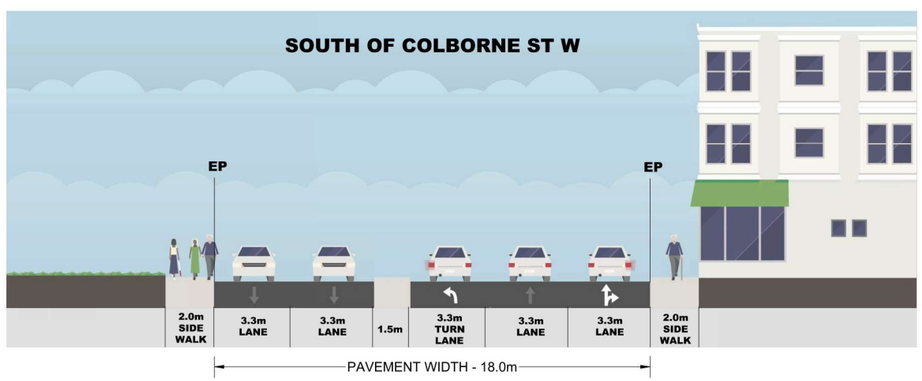
#133 COLBORNE ST W

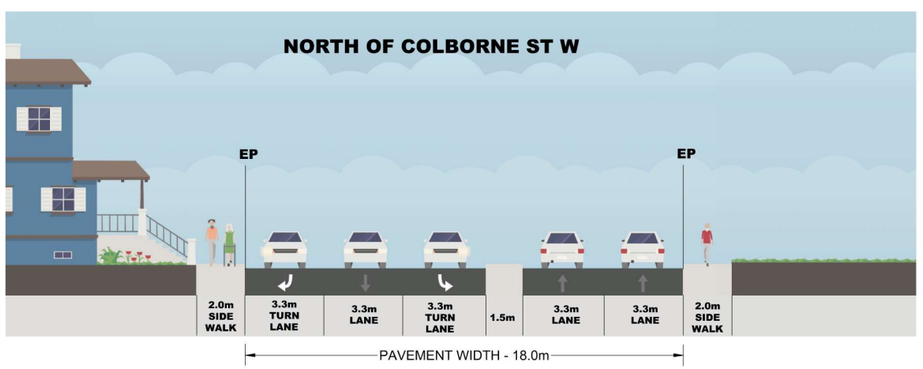
NORTHWEST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- SEPARATION OF ROAD FROM 115 ANGELINE STREET'S HOUSE AND WALKWAY IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- ALTERNATIVES 1 AND 2 ELIMINATE EXISTING PARKING SPACE FOR 115 ANGELINE STREET
- EXISTING COMMERCIAL PROPERTY IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES

SOUTHEAST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- TOE/RETAINING WALL REQUIRED FOR ALTERNATIVES 2 AND 3
- EXISTING FENCE IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- EXISTING BOLLARD AND LIGHT STANDARD POTENTIALLY IMPACTED BY ALTERNATIVE 3
- RELOCATION OF EXISTING SIDEWALK CONNECTION REQUIRED FOR ALL ALTERNATIVES

NORTHEAST QUADRANT:
- ALTERNATIVES 2 AND 3 HAVE GREATER IMPACT ON EXISTING CHURCH PARKING (NOTE: EXISTING PARKING LOCATED WITHIN MUNICIPAL ROW)

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




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

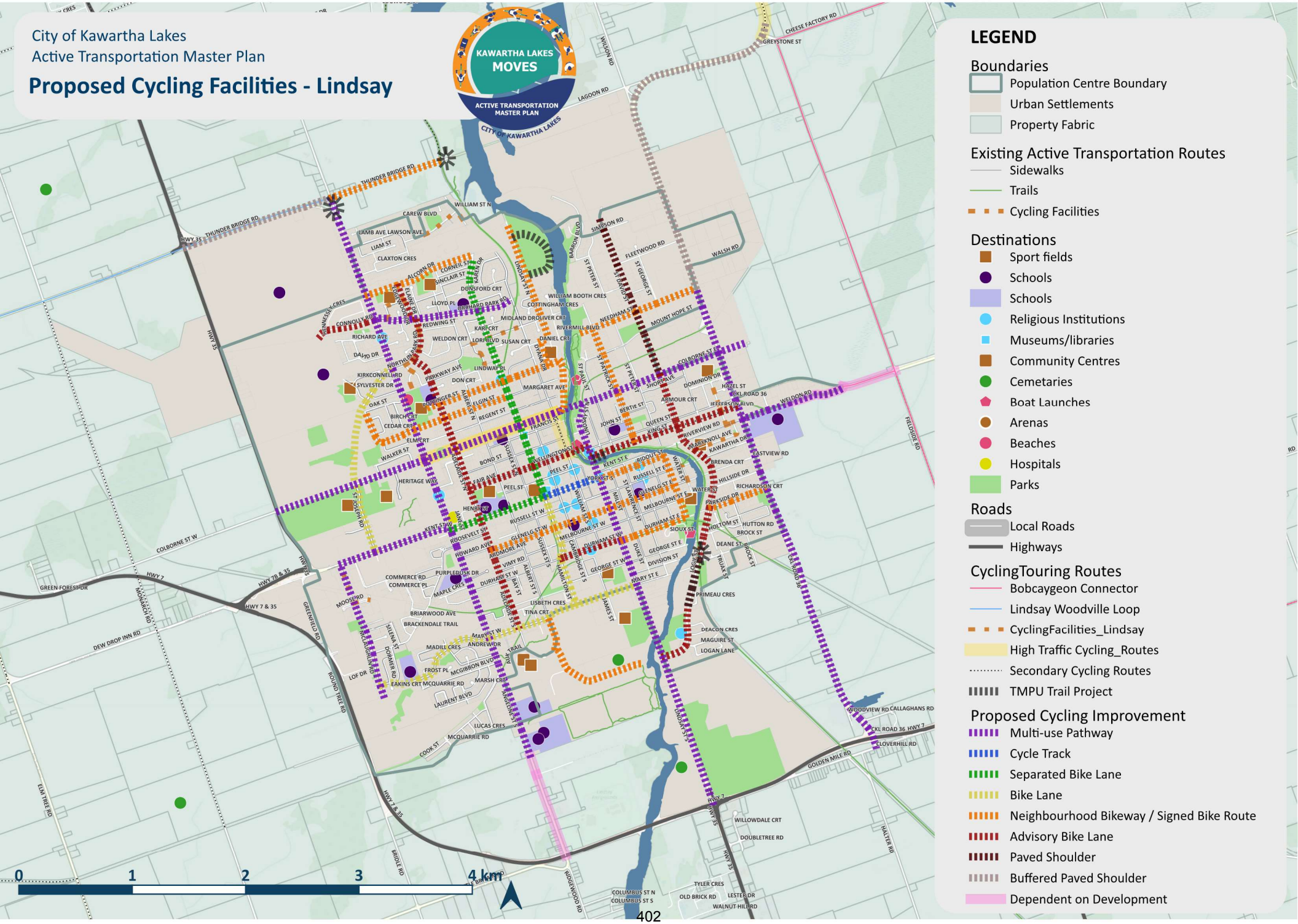
# Appendix B

## Active Transportation Master Plan Figures:

- Proposed Cycling Facilities - Lindsay
- Proposed Walking Facilities - Lindsay

City of Kawartha Lakes
Active Transportation Master Plan

# Proposed Cycling Facilities - Lindsay




## LEGEND

### Boundaries
- Population Centre Boundary
- Urban Settlements
- Property Fabric

### Existing Active Transportation Routes
- Sidewalks
- Trails
- Cycling Facilities

### Destinations
- Sport fields
- Schools
- Schools
- Religious Institutions
- Museums/libraries
- Community Centres
- Cemeteries
- Boat Launches
- Arenas
- Beaches
- Hospitals
- Parks

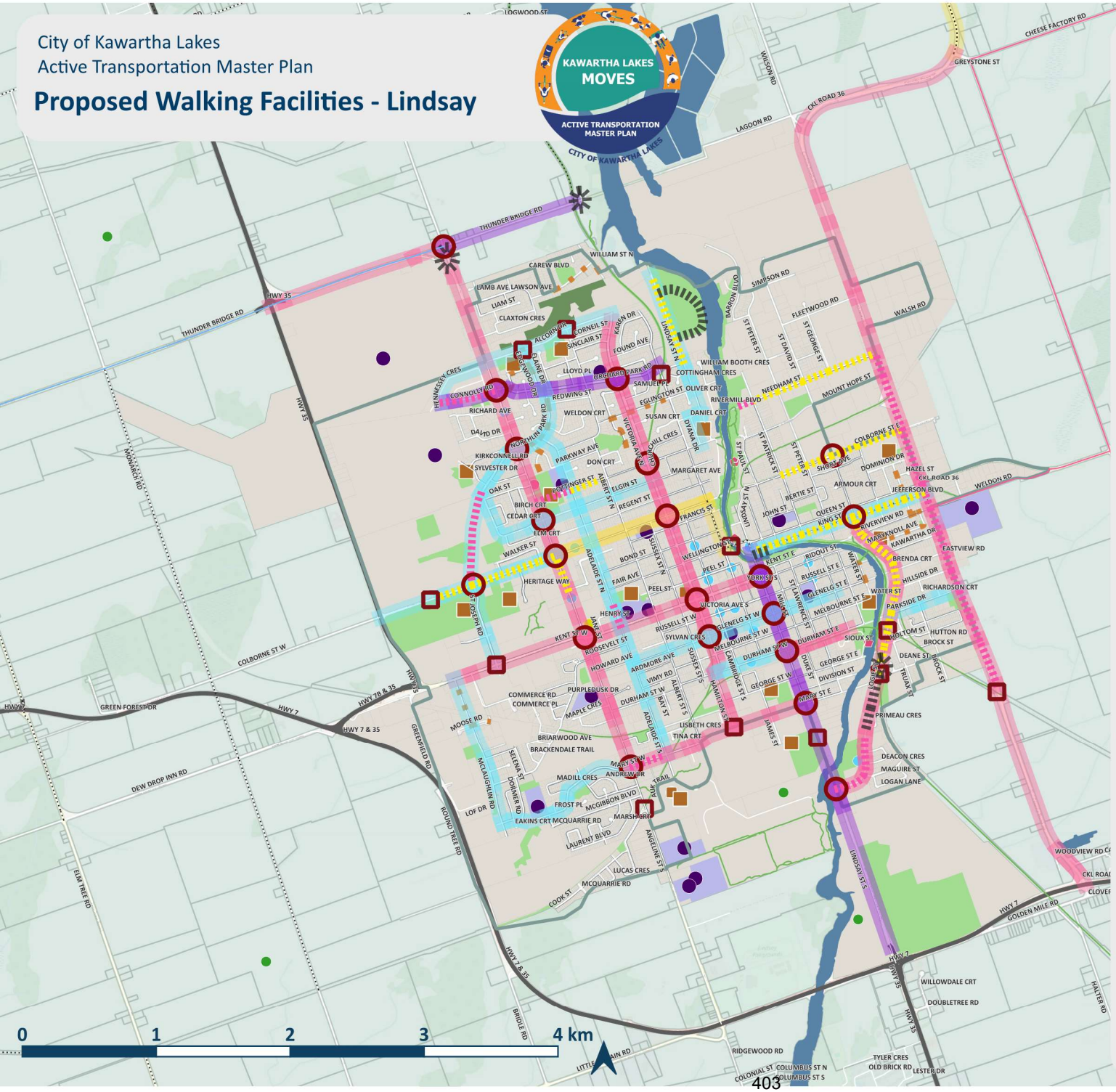
### Roads
- Local Roads
- Highways

### CyclingTouring Routes
- Bobcaygeon Connector
- Lindsay Woodville Loop
- CyclingFacilities_Lindsay
- High Traffic Cycling_Routes
- Secondary Cycling Routes
- TMPU Trail Project

### Proposed Cycling Improvement
- Multi-use Pathway
- Cycle Track
- Separated Bike Lane
- Bike Lane
- Neighbourhood Bikeway / Signed Bike Route
- Advisory Bike Lane
- Paved Shoulder
- Buffered Paved Shoulder
- Dependent on Development

City of Kawartha Lakes
Active Transportation Master Plan

# Proposed Walking Facilities - Lindsay




## LEGEND

### Boundaries
- Population Centre Boundary
- Property Fabric
- Urban Settlement Boundary

### Existing Active Transportation Routes
- Sidewalks
- Trails
- Cycling Facilities

### Destinations
- Sport fields
- Schools
- Schools
- Religious Institutions
- Museums/libraries
- Community Centres
- Cemetaries
- Boat Launches
- Arenas
- Beaches
- Hospitals
- Parks
- Natural Areas

### Roads
- Local Roads
- Highways

### CyclingTouring Routes
- Bobcaygeon Connector
- Lindsay Woodville Loop
- CyclingFacilities_Lindsay
- High Traffic Cycling_Routes
- Secondary Cycling Routes
- TMPU Trail Project

### Proposed Walking Improvement
- Sidewalk (both sides)
- Sidewalk (one side)
- Traffic Calming
- Walkability Improve
- Walkability Improve and Traffic Calming
- Intersection Improvement
- Mid block Improvement

# Staff Memo

A message from Mark Jull, Supervisor of Policy Planning

**Date:** **May 28, 2025**
**To:** **Corby Purdy, Manager of Infrastructure, Design and Construction**
**From:** **Mark Jull, Supervisor of Policy Planning**
**Re:** **Comments on Angeline Street North Reconstruction MECA Memo dated May 15, 2025**

## Comments

Thank you for circulating the above noted memo regarding potential active transportation infrastructure to be incorporated into Angeline Street North Reconstruction project and discussing it at our Active Transportation Implementation Group meeting on May 21, 2025.

Policy Planning offers the following comments:

1. We appreciate the flexibility to explore implementing recommendations from the Active Transportation Master Plan, which was endorsed by Council in 2024, even though the Angeline Street North Reconstruction project commenced in 2019.
2. The Memo explains the recommendations and role of the Active Transportation Master Plan. We can offer the following comments with regard to the City's Official Plan:
    a. Under the General Principles of Growth Management within the City's Official Plan are policies specific to increasing the modal share for transit, walking, and cycling.
    b. One of the Objectives of the Urban Settlement Designation is to provide active transportation, and within this Designation is direction to enhance infrastructure and maximize opportunities for active transportation.
    c. Within the policies for transportation in the Urban Settlement Designation are cohesive set of Active Transportation policies including encouraging the expansion and improvement of the cycling network and that reconstruction of roads shall include safe, convenient, and attractive pedestrian systems.

3. There is policy support for all active transportation facilities and features bulleted under "Summary of Evaluation" on page 6 of the Memo.
4. We would prefer to see the MUP extend to Kent Street, but understand there are limitations on the feasibility. We accept the Memo's suggestions for where the MUP would terminate. While it may terminate 'abruptly,' we see this as progress towards implementing the broader network.
5. Implementing the MUP on the east side of Angeline appears preferable to the west side to reduce potential conflicts with driveways.
6. We would appreciate an opportunity to comment at the detailed design stage. Ideally, drawings could be brought to a future Active Transportation Implementation Group meeting.

Thank you for the opportunity to comment. Please let me know if you have any questions.

Mark Jull
Supervisor, Policy Planning

NAPSCI
NORTHERN APPLIED SCIENCES INC.

May 1, 2025

Alex Wilkinson, P.Eng.
Project Engineer
Ainley Group
50 Grant Timmins Drive, Suite 1
Kingston, Ontario K7M 8N2

**RE: Air Quality Assessment for Ross Memorial Hospital Ground Level Intakes**
**Ainley Group – Kent Street West and Angeline Street Intersection Improvements**
**Project Ref. 24-095**

Dear Mr. Wilkinson:

Northern Applied Sciences Inc. (NAPSCI) has prepared this document to present Ainley Group (Ainley) the results of the *Air Quality Assessment* for the ground level intakes associated with Ross Memorial Hospital at 10 Angeline Street North in Lindsay, Ontario.

## 1.0 BACKGROUND

The Angeline Street North corridor in Lindsay, Ontario has been identified in the City of Kawartha Lakes Transportation Master Plan as requiring improvements in order to meet the projected 2031 traffic demands. Ainley is undertaking the detailed design activities and the Municipal Class Environmental Assessment (MCEA) for the proposed reconstruction of Angeline Street North.

During the consultation process of the MCEA, concerns were raised about the potential air quality impacts to the Ross Memorial Hospital ground level vents located in proximity to Angeline Street North. The vents serve a boiler room at the Hospital. Although the vents have been observed during recent site visits as exhausts, correspondence with the Hospital indicates that the vents may occasionally function as intakes under certain building conditions. NAPSCI therefore made the conservative assumption that the vents were valid intake receptors and conducted a preliminary air quality impact study to evaluate the impacts as a result of the redesigned and reconstructed Angeline Street North.

## 2.0 SCOPE OF ASSESSMENT

Ross Memorial Hospital is located at the northeast corner of Kent Street and Angeline Street, with the ground-mounted vents located west of the hospital, approximately 6.5 m east of the curb of the northbound lanes of Angeline Street. Based on the proximity of the Hospital ground-mounted vents to the intersection and that the proposed road improvements are primarily associated with intersection improvements, the assessment was limited to the air quality impacts from the vehicular traffic at the intersection and the segments of Kent Street West and Angeline Street within 300 m of the intersection.

## 3.0 METHODOLOGY

Onroad vehicle emissions from Kent Street, Angeline Street and the signalized intersection of these two roads are primarily the result of fuel combustion from vehicles, with particulate emissions also from brakewear and tirewear of the travelling vehicles. Emissions from vehicles vary based on several parameters, including the vehicle type (i.e., cars, medium trucks, heavy trucks), speed, engine/fuel type and vehicle activity (i.e., acceleration, deceleration, idling, cruising).

The chosen methodology for assessing the impacts from onroad vehicular traffic is based on the guidance provided in the Ministry of Transportation (MTO) document "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.

In accordance with the MTO document, the following contaminants of concern were considered as part of this assessment:

- $PM_{2.5}$
- $PM_{10}$
- Carbon Monoxide (CO)
- Nitrogen Dioxide ($NO_2$)
- Acetaldehyde
- Formaldehyde
- 1,3-Butadiene
- Benzene
- Benzo(a)pyrene
- Acrolein

The applicable air quality criteria for each of the contaminants of concern are summarized in Table 1-1 in Attachment 1. The only ambient air monitoring station within a 50-km radius of the Project site is the ambient air monitoring station located in Peterborough, which only monitors for PM2.5 and NO2. A summary of the 3-year ambient air monitoring data for PM2.5 and NO2 from the Peterborough station is summarized in Table 1-2 in Attachment 1.

The following scenarios were assessed to evaluate the impacts of the intersection improvements:

- **Scenario 1**: Impacts from the existing traffic conditions for year 2027 under the existing intersection configuration (Baseline Scenario)
- **Scenario 2**: Impacts for forecasted traffic conditions for year 2051 under the existing intersection configuration (Future No-Build Scenario)
- **Scenario 3**: Impacts for the forecasted traffic conditions for year 2051 for the Preferred Alternative build (Future Build Scenario)

Emissions factors associated with fuel combustion (running tailpipe exhaust, running crankcase exhaust), breakwear and tirewear were estimated using U.S. EPA's Motor Vehicle Emission Simulator (MOVES) model, which is an MTO-approved emissions model for assessing emissions from transportation projects. The latest version of the MOVES emission model, MOVES5, was used to estimate the vehicular emission factors. A summary of model configuration and inputs are summarized in Table 1-3 in Attachment 1.

Traffic volumes and flow patterns for years 2027 and 2051 were obtained from the traffic study prepared by Ainley for the intersection improvements. The Traffic Study assessed the peak morning, mid-day and afternoon hours. To be conservative, this assessment used the maximum hourly traffic volumes to assess the worst-case air quality impacts.

Vehicle compositions, in terms of passenger vehicles, medium-duty vehicles and heavy-duty vehicles, were obtained from the turning movement counts from the Traffic Study. The vehicle compositions from the existing traffic conditions were assumed to be the same for years 2027 and 2051.

The MOVES model contains default historical and projected compositions of vehicles by fuel type, including electric vehicles. As electric vehicle adoption rates vary based on region, including between metropolitan areas and smaller towns, the default vehicle composition by fuel types was adjusted using total vehicle registration data for Peterborough county and electric vehicle registration data for Lindsay. Electric vehicles were estimated to be 0.3% of the total passenger vehicles in Lindsay in 2022 based on the available data, and were estimated to increase linearly to 25% in 2051. In absence of any existing data and forecasts, electric medium-duty trucks were conservatively estimated to be 0% in 2027 and increase to 5% in 2051, while electric heavy-duty trucks were conservatively set to 0% for all assessment years.

Refer to Table 1-4 in Attachment 1 for a summary of each individual component of the intersection ("link") and the corresponding road, traffic and signal data obtained from the Traffic Study or calculated based on the available information. The emission factors calculated using the MOVES5 model are summarized in Table 1-5 in Attachment 1 and are in terms of mass [grams] per vehicle-distance [km] travelled.

The emission factors were used in conjunction with the traffic volumes, length of each link, signal timing data and other traffic data to calculate the emission rates in terms of mass [g] per time [seconds] per unit area [m2]. The calculated emission rates, summarized in Table 1-6, were inputted into an air dispersion model to predict the worst-case air quality impacts at the Hospital's ground-mounted vents. For this preliminary assessment, the AERMOD air dispersion model was used to predict the impacts at the Hospital's ground-mounted vents from the vehicular activity at the intersection and connecting roads. AERMOD was chosen since the US-EPA has replaced the CAL3QHCR model as an approved model for transportation air dispersion and now recommends AERMOD. A summary of the model inputs for the road segments (links) are summarized in Table 1-6.

Air dispersion model was set-up in accordance with the Ministry of the Environment, Conservation and Parks (MECP) air dispersion modelling guidance and US EPA documents. The "RLINE" source type in AERMOD was developed by the U.S. EPA for near-surface (i.e., near-road) applications including mobile source modelling. Pre-processed five-year regional meteorological dataset obtained from the MECP was used with the model. The AERMOD model using the RLINE source type was set to 'FLAT' terrain in accordance with U.S. EPA's recommendations for transportation projects.

## 4.0 RESULTS AND DISCUSSION

The modelled impacts at the Hospital's ground-mounted vents for the three scenarios are summarized below in Table 1. Modelled impacts are normally added to the existing ambient monitored levels to determine the predicted cumulative impact of each compound at the receptors. Due to insufficient parameters monitored by the ambient monitoring stations within a 50-km radius of the Project Site, ambient concentrations were not added to the modelled impacts.

**Table 1: Modelled Impacts at Most Affected Sensitive Receptor (Ground Vent)**

| Contaminant | Averaging Period | Ambient Air Quality Criteria (AAQC) | AAQC Reference | 2027 - Existing Impacts | | 2051 - No Build Scenario | | 2051 - Build Scenario | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum Impact at Receptor [1] | Percent of AAQC | Maximum Impact at Receptor [1] | Percent of AAQC | Maximum Impact at Receptor [1] | Percent of AAQC | Percent Change from 2051 No-Build Scenario |
| | | (ug/m³) | | (ug/m³) | (%) | (ug/m³) | (%) | (ug/m³) | (%) | (%) |
| $PM_{Total}$ | 24-hour | 120 | Ontario AAQS | 2.95 | 2% | 7.14 | 6% | 5.42 | 5% | -24% |
| $PM_{10}$ | 24-hour | 50 | Ontario AAQS | 2.95 | 6% | 7.14 | 14% | 5.42 | 11% | -24% |
| $PM_{2.5}$ | 24-hour | 27 | Canada AAQS | 3.05 | 11% | 4.83 | 18% | 3.71 | 14% | -23% |
| | Annual | 8.8 | Canada AAQS | 0.53 | 6% | 1.34 | 15% | 0.933 | 11% | -30% |
| CO | 1-hour | 36200 | Ontario AAQS | 1,386 | 4% | 3012 | 8% | 2932 | 8% | -3% |
| | 8-hour | 15700 | Ontario AAQS | 1,197 | 8% | 2637 | 17% | 1940 | 12% | -26% |
| $NO_2$ | 1-hour | 400 | Ontario AAQS | 176.1 | 44% | 403.2 | 101% | 366.2 | 92% | -9% |
| | | 79 | Canada AAQS[2] | 149.3 | 189% | 354.0 | 448% | 290.3 | 367% | -18% |
| | 24-hour | 200 | Ontario AAQS | 64.5 | 32% | 149.2 | 75% | 127.7 | 64% | -14% |
| | Annual | 22.6 | Canada AAQS | 15.48 | 69% | 37.37 | 165% | 29.2 | 129% | -22% |
| 1,3-Butadiene | 24-hour | 10 | Ontario AAQS | 2.98E-02 | 0% | 7.71E-02 | 1% | 5.52E-02 | 1% | -28% |
| | Annual | 2 | Ontario AAQS | 8.20E-03 | 0% | 2.25E-02 | 1% | 1.42E-02 | 1% | -37% |
| Acetaldehyde | ½-hour | 500 | Ontario AAQS | 5.52E-01 | 0% | 1.73E+00 | 0% | 9.25E-01 | 0% | -47% |
| | 24-hour | 500 | Ontario AAQS | 1.52E-01 | 0% | 3.98E-01 | 0% | 2.77E-01 | 0% | -30% |
| Acrolein | 1-hour | 4.5 | Ontario AAQS | 3.96E-02 | 1% | 1.29E-01 | 3% | 6.33E-02 | 1% | -51% |
| | 24-hour | 0.4 | Ontario AAQS | 1.30E-02 | 3% | 3.51E-02 | 9% | 2.26E-02 | 6% | -36% |
| Benzo(a)pyrene | 24-hour | 0.00005 | Ontario AAQS | 2.75E-04 | 551% | 6.80E-04 | 1361% | 5.22E-04 | 1044% | -23% |
| | Annual | 0.00001 | Ontario AAQS | 7.14E-05 | 714% | 1.89E-04 | 1886% | 1.28E-04 | 1279% | -32% |
| Benzene | 24-hour | 2.3 | Ontario AAQS | 2.80E-01 | 12% | 6.96E-01 | 30% | 5.37E-01 | 23% | -23% |
| | Annual | 0.45 | Ontario AAQS | 7.38E-02 | 16% | 1.96E-01 | 43% | 1.34E-01 | 30% | -32% |
| Formaldehyde | 24-hour | 65 | Ontario AAQS | 2.08E-01 | 0% | 5.47E-01 | 1% | 3.71E-01 | 1% | -32% |

[1] Does not include ambient air quality concentrations
[2] Per CAAQS, 98th percentile of 1-hour modelled concentrations

### 4.1 Results for Baseline Scenario

Under the baseline scenario (existing roadway configuration for the year 2027), the impacts at the ground-mounted vents are lower than the applicable ambient air quality criteria for all contaminants with the exception of the following:

- NO2 meets the applicable AAQC for the 24-hour and annual averaging periods and meets the applicable Ontario AAQC for the 1-hour. However, the NO2 impacts are predicted to be higher than the 1-hour Canada AAQC.
- Benzo(a)pyrene, which is a surrogate for Polycyclic Aromatic Hydrocarbons (PAHs) is predicted to be higher than the applicable 24-hour and annual averaging period AAQC.

### 4.2 Results for No-Build Scenario for Year 2051

Under the no-build scenario for year 2051, in which the forecasted year 2051 traffic volumes utilize the existing road configuration, the impacts at the ground-mounted vents are lower than the applicable ambient air quality criteria for all contaminants with the exception of the following:

- NO2 meets the applicable AAQC for the 24-hour averaging period. However, the NO2 impacts are predicted to be higher than both the 1-hour Canada AAQC and Ontario AAQC, as well as higher than the annual AAQC.
- Benzo(a)pyrene, which is a surrogate for Polycyclic Aromatic Hydrocarbons (PAHs) is predicted to be higher than the applicable 24-hour and annual averaging period AAQC.

The impacts of all contaminants at the ground-mounted vents under the no-build scenario are higher than the baseline scenario.

### 4.3 Results for Build Scenario for Year 2051

Under the build scenario for year 2051, in which the forecasted year 2051 traffic volumes utilize the built preferred alternative road improvements, the impacts at the ground-mounted vents are lower than the applicable ambient air quality criteria for all contaminants with the exception of the following:

- NO2 meets the applicable AAQC for the 24-hour averaging period and meets the applicable Ontario AAQC for the 1-hour. However, the NO2 impacts are predicted to be higher than the 1-hour Canada AAQC and the annual AAQC.
- Benzo(a)pyrene, which is a surrogate for Polycyclic Aromatic Hydrocarbons (PAHs) is higher than the applicable 24-hour and annual averaging period AAQC.

The impacts of all contaminants at the ground-mounted vents under the build scenario are higher than the baseline scenario but lower than the no-build scenario.

It should be noted that the AAQC for road projects are non-regulatory values that are intended to be used as indicators of air quality. Predicted impacts higher than the AAQC from road projects are not necessarily indicative of adverse impact or a cause for concern but may inform potential mitigative strategies and design alternatives where appropriate.

## 5.0 FINDINGS AND CONCLUDING REMARKS

This assessment has the following findings:

1. The dispersion modelling suggests that the proximity of the Hospital's ground-mounted vents to the road and intersection may potentially have existing elevated air quality impacts of NO2 and Benzo(a)pyrene.

2. Impacts to the Hospital's ground-mounted vents are lower under the Build Scenario relative to the No-Build Scenario for all contaminants.

3. The build scenario improves overall air quality impacts by reducing congestion and idling periods.

It is recommended that these findings be shared with Ross Memorial Hospital. If there are any further questions, please do not hesitate to contact us.

Respectfully,
**Northern Applied Sciences Inc.**

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Attachment 1 – Supporting Calculation and Data Tables

**ATTACHMENT 1**

**Table 1-1: Contaminants of Concern and Applicable Air Quality Criteria**

| Contaminant | Averaging Period | Air Quality Criteria ($ug/m^3$) | Source |
|---|---|---|---|
| $PM_{Total}$ | 24 hour | 120 | Ontario AAQS |
| $PM_{10}$ | 24 hour | 50 | Ontario AAQS (interim) |
| $PM_{2.5}$ | 24 hour | 27 | CAAQS [1] |
| | Annual | 8.8 | CAAQS [2] |
| CO | 1 hour | 36,200 (30 ppm) | Ontario AAQS |
| | 8 hour | 15,700 (13 ppm) | Ontario AAQS |
| $NO_2$ | 1 hour | 400 | Ontario AAQS |
| | | 112.9 (60 ppb) | CAAQS (2020) |
| | | 79.0 (42 ppb) | CAAQS (2025) |
| | 24 hour | 200 | Ontario AAQS |
| | Annual | 32.0 (17 ppb) | CAAQS (2020) |
| | | 22.6 (12 ppb) | CAAQS (2025) |
| 1,3-Butadiene | 24 hour | 10 | Ontario AAQS |
| | Annual | 2 | Ontario AAQS |
| Acetaldehyde | ½ hour | 500 | Ontario AAQS |
| | 24 hour | 500 | Ontario AAQS |
| Acrolein | 1 hour | 4.5 | Ontario AAQS |
| | 24 hour | 0.4 | Ontario AAQS |
| Benzo(a)pyrene | 24 hour | 0.00005 | Ontario AAQS |
| | Annual | 0.00001 | Ontario AAQS |
| Benzene | 24 hour | 2.3 | Ontario AAQS |
| | Annual | 0.45 | Ontario AAQS |
| Formaldehyde | 24 hour | 65 | Ontario AAQS |

[1] $PM_{2.5}$ 24-hour CAAQS is a 3-year average of the 98th percentile of daily 24-hour concentrations

[2] $PM_{2.5}$ annual CAAQS is a 3-year average of the annual concentrations

**Table 1-2: Background Air Quality Concentrations**

| Contaminant | Averaging Period | Air Quality Criteria ($ug/m^3$) | Background Concentration ($ug/m^3$) | % of Criteria |
|---|---|---|---|---|
| $PM_{Total}$ | 24 hour | 120 | N/A [2] | -- |
| $PM_{10}$ | 24 hour | 50 | N/A [2] | -- |
| $PM_{2.5}$ [3, 4] | 24 hour | 27 | 16.96 | 63 |
| | Annual | 8.8 | 6.22 | 71 |
| CO | 1 hour | 36,200 | N/A [2] | -- |
| | 8 hour | 15,700 | | -- |
| $NO_2$ | 1 hour | 79 | 85.5 | 108 |
| | 24 hour | 200 | 51.7 | 26 |
| | Annual | 22.6 | 8.5 | 38 |
| 1,3-Butadiene | 24 hour | 10 | N/A [2] | -- |
| | Annual | 2 | | -- |
| Acetaldehyde | ½ hour | 500 | N/A [2] | -- |
| | 24 hour | 500 | | -- |
| Acrolein | 1 hour | 4.5 | N/A [2] | -- |
| | 24 hour | 0.4 | | -- |
| Benzo(a)pyrene | 24 hour | 0.00005 | N/A [2] | -- |
| | Annual | 0.00001 | | -- |
| Benzene | 24 hour | 2.3 | N/A [2] | -- |
| | Annual | 0.45 | | -- |
| Formaldehyde | 24 hour | 65 | N/A [2] | -- |

[1] Not monitored at any ambient monitoring stations within 50 km of Project

[2] Not monitored at any ambient monitoring stations within 50 km of Project

[3] $PM_{2.5}$ 24-hour CAAQS is a 3-year average of the 98th percentile of daily 24-hour concentrations

[4] $PM_{2.5}$ annual CAAQS is a 3-year average of the annual concentrations

**Table 1-3: MOVES Setup and Input Parameters**

| Parameter | Inputs & Selections |
|---|---|
| Scale Panel | Model Type: Onroad |
| | Domain/Scale: Project |
| | Calculation Type: Emission Rates |
| Time Spans | Years: 2027 (Existing) and 2051 (future) |
| | Hour: 11:00 AM to 12:00 PM (Peak Hour) |
| Geographic Bounds | Region: Zone & Link, Michigan Clare County |
| Source Use Type & Fuel Combination | Default Combinations: Passenger Vehicles (Gasoline, Diesel, Ethanol, Electricity), Single Unit Short-haul Truck (Gasoline, Diesel, CNG, Electricity), Combination Long-haul Truck (Gasoline, Diesel, CNG, Electricity) |
| Road Type | Urban unrestricted access |
| Pollutants | $PM_{2.5}$, $PM_{10}$, CO, $NO_2$, Acetaldehyde, Formaldehyde, 1,3-Butadiene, Benzene, Benzo(a)pyrene and Acrolein |
| Age Distribution | MOVES default for years 2027 & 2051 |
| Fuel | MOVES default with the exception of the compostion of electric passenger vehicles which were reduced to 0% for 2016 with linear growth to 25% for 2051 |
| Meteorology Data | Data from Environment Canada for Peterborough meteorological station |
| Hotelling | N/A |
| I/M Programs | N/A |
| Retrofit Data | N/A |
| Generic | N/A |
| Links | Based on link length of 1 mile and link volume of 1, for average speeds in miles for five links |
| Link Source Types | Based on peak hour traffic data and composition from Ainley |
| Link Drive Schedules | N/A |
| Off-Network | N/A |

**Table 1-4: Model and Calculation Summary Data**

**ASSESSMENT SCENARIO 1: 2027 EXISTING ROAD CONFIGURATION**

***Free-flow Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | Estimated Average Link Velocity (m/s) | Estimated Average Link Velocity (km/h) | VSP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| S1_SB_Arr_Cru | 2027_4 | 478 | 95.5 | 1.9 | 2.6 | 50 | 0 | 13.89 | 50.00 | 1.69 |
| S1_SB_Arr_Dec | 2027_1 | 478 | 95.5 | 1.9 | 2.6 | 50 | 0 | 6.94 | 25.00 | 0.59 |
| S1_SB_Dep_Acc | 2027_3 | 460 | 94.8 | 1.7 | 3.5 | 50 | 0 | 6.94 | 25.00 | 14.51 |
| S1_SB_Dep_Cru | 2027_4 | 460 | 94.8 | 1.7 | 3.5 | 50 | 0 | 13.89 | 50.00 | 1.69 |
| S1_NB_Arr_Cru | 2027_4 | 409 | 97.7 | 1.2 | 1.1 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| S1_NB_Arr_Dec | 2027_1 | 409 | 97.7 | 1.2 | 1.1 | 50 | 0 | 6.94 | 25.00 | 0.58 |
| S1_NB_Dep_Acc | 2027_3 | 476 | 97.1 | 1.2 | 1.7 | 50 | 0 | 6.94 | 25.00 | 14.01 |
| S1_NB_Dep_Cru | 2027_4 | 476 | 97.1 | 1.2 | 1.7 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| S1_WB_Arr_Cru | 2027_5 | 827 | 97.8 | 1.1 | 1.1 | 50 | 1 | 13.89 | 50.00 | 3.11 |
| S1_WB_Arr_Dec | 2027_1 | 827 | 97.8 | 1.1 | 1.1 | 50 | 1 | 6.94 | 25.00 | 1.30 |
| S1_WB_Dep_Acc | 2027_3 | 1199 | 97.5 | 1.0 | 1.4 | 50 | 0 | 6.94 | 25.00 | 13.90 |
| S1_WB_Dep_Cru | 2027_4 | 1199 | 97.5 | 1.0 | 1.4 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| S1_EB_Arr_Cru | 2027_4 | 1182 | 96.5 | 1.0 | 2.5 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| S1_EB_Arr_Dec | 2027_1 | 1182 | 96.5 | 1.0 | 2.5 | 50 | 0 | 6.94 | 25.00 | 0.58 |
| S1_EB_Dep_Acc | 2027_3 | 761 | 97.0 | 1.2 | 1.9 | 50 | -1 | 6.94 | 25.00 | 13.28 |
| S1_EB_Dep_Cru | 2027_4 | 761 | 97.0 | 1.2 | 1.9 | 50 | -1 | 13.89 | 50.00 | 0.31 |

***Queue Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | v/c Ratio | Traffic Memo 95th Queue Length (m) | Storage Bay Length (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| S1_SB_Queue_TR | 2027_2 | 381 | 95.2 | 1.8 | 3.0 | 50 | 0 | 0.85 | 119.3 | -- |
| S1_SB_Queue_L | 2027_2 | 97 | 96.8 | 2.2 | 1.0 | 50 | 0 | 0.24 | 67 | 45 |
| S1_NB_Queue_TR | 2027_2 | 180 | 97.3 | 1.5 | 1.2 | 50 | 0 | 0.34 | 48.8 | -- |
| S1_NB_Queue_L | 2027_2 | 229 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.73 | 48.8 | 58 |
| S1_WB_Queue_TR | 2027_2 | 792 | 97.8 | 1.1 | 1.1 | 50 | 1 | 0.68 | 90.4 | -- |
| S1_WB_Queue_L | 2027_2 | 35 | 98.0 | 1.0 | 1.0 | 50 | 1 | 0.18 | 36 | 25 |
| S1_EB_Queue_TR | 2027_2 | 923 | 96.3 | 1.0 | 2.7 | 50 | 0 | 0.66 | 89.1 | -- |
| S1_EB_Queue_L | 2027_2 | 259 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.82 | 63.5 | 41 |

**ASSESSMENT SCENARIO 2: 2051 EXISTING ROAD CONFIGURATION ("NO-BUILD SCENARIO")**

***Free-flow Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | Estimated Average Link Velocity (m/s) | Estimated Average Link Velocity (km/h) | VSP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| *S2_SB_Arr_Cru* | *2051_4* | *701* | *95.5* | *1.9* | *2.6* | *50* | *0* | *13.89* | *50.00* | *1.69* |
| S2_SB_Arr_Dec | 2051_1 | 701 | 95.5 | 1.9 | 2.6 | 50 | 0 | 6.94 | 25.00 | 0.59 |
| S2_SB_Dep_Acc | 2051_3 | 675 | 94.8 | 1.7 | 3.5 | 50 | 0 | 6.94 | 25.00 | 14.51 |
| S2_SB_Dep_Cru | 2051_4 | 675 | 94.8 | 1.7 | 3.5 | 50 | 0 | 13.89 | 50.00 | 1.69 |
| S2_NB_Arr_Cru | 2051_4 | 597 | 97.7 | 1.2 | 1.1 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| S2_NB_Arr_Dec | 2051_1 | 597 | 97.7 | 1.2 | 1.1 | 50 | 0 | 6.94 | 25.00 | 0.58 |
| S2_NB_Dep_Acc | 2051_3 | 697 | 97.1 | 1.2 | 1.7 | 50 | 0 | 6.94 | 25.00 | 14.01 |
| S2_NB_Dep_Cru | 2051_4 | 697 | 97.1 | 1.2 | 1.7 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| *S2_WB_Arr_Cru* | *2051_5* | *1209* | *97.8* | *1.1* | *1.1* | *50* | *1* | *13.89* | *50.00* | 3.11 |
| S2_WB_Arr_Dec | 2051_1 | 1209 | 97.8 | 1.1 | 1.1 | 50 | 1 | 6.94 | 25.00 | 1.30 |
| S2_WB_Dep_Acc | 2051_3 | 1755 | 97.5 | 1.0 | 1.4 | 50 | 0 | 6.94 | 25.00 | 13.90 |
| S2_WB_Dep_Cru | 2051_4 | 1755 | 97.5 | 1.0 | 1.4 | 50 | 0 | 13.89 | 50.00 | 1.66 |
| *S2_EB_Arr_Cruise* | *2051_4* | *1332* | *96.5* | *1.0* | *2.5* | *50* | *0* | *13.89* | *50.00* | 1.66 |
| *S2_EB_Arr_Dec* | *2051_1* | *1332* | *96.5* | *1.0* | *2.5* | *50* | *0* | *6.94* | *25.00* | 0.58 |
| S2_EB_Dep_Acc | 2051_3 | 1114 | 97.0 | 1.2 | 1.9 | 50 | -1 | 6.94 | 25.00 | 13.28 |
| S2_EB_Dep_Cru | 2051_4 | 1114 | 97.0 | 1.2 | 1.9 | 50 | -1 | 13.89 | 50.00 | 0.31 |

Notes:

1) Links in gray italicized font are not included in the assessment as they are estimated to be beyond 300 m from the receptors.

***Queue Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | v/c Ratio | 95th Queue Length (m) | Storage Bay Length (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| S2_SB_Queue_TR | 2051_2 | 559 | 95.2 | 1.8 | 3.0 | 50 | 0 | 1.28 | 243.6 | -- |
| S2_SB_Queue_L | 2051_2 | 142 | 96.8 | 2.2 | 1.0 | 50 | 0 | 0.33 | 89.1 | 45 |
| S2_NB_Queue_TR | 2051_2 | 262 | 97.3 | 1.5 | 1.2 | 50 | 0 | 0.49 | 61.9 | -- |
| S2_NB_Queue_L | 2051_2 | 335 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.97 | 78.7 | 58 |
| S2_WB_Queue_TR | 2051_2 | 1158 | 97.8 | 1.1 | 1.1 | 50 | 1 | 1.07 | 282.7 | -- |
| S2_WB_Queue_L | 2051_2 | 51 | 98.0 | 1.0 | 1.0 | 50 | 1 | 0.34 | 64.9 | 25 |
| S2_EB_Queue_TR | 2051_2 | 1353 | 96.3 | 1.0 | 2.7 | 50 | 0 | 1.09 | 312.1 | -- |
| S2_EB_Queue_L | 2051_2 | 379 | 98.0 | 1.0 | 1.0 | 50 | 0 | 1.49 | 60.9 | 41 |

**ASSESSMENT SCENARIO 3: 2051 OPTION 2 ROAD CONFIGURATION ("BUILD SCENARIO")**

***Free-flow Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | Estimated Average Link Velocity (m/s) | Estimated Average Link Velocity (km/h) | VSP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| S3_SB_Arr_Cruise | 2051_4 | 701 | 95.5 | 1.9 | 2.6 | 50 | 0 | 13.9 | 50.0 | 1.69 |
| S3_SB_Arr_Dec | 2051_1 | 701 | 95.5 | 1.9 | 2.6 | 50 | 0 | 6.9 | 25.0 | 0.59 |
| S3_SB_Dep_Acc | 2051_3 | 675 | 94.8 | 1.7 | 3.5 | 50 | 0 | 6.9 | 25.0 | 14.51 |
| S3_SB_Dep_Cru | 2051_4 | 675 | 94.8 | 1.7 | 3.5 | 50 | 0 | 13.9 | 50.0 | 1.69 |
| *S3_NB_Arr_Cru* | *2051_4* | *597* | *97.7* | *1.2* | *1.1* | *50* | *0* | *13.9* | *50.0* | *1.66* |
| S3_NB_Arr_Dec | 2051_1 | 597 | 97.7 | 1.2 | 1.1 | 50 | 0 | 6.9 | 25.0 | 0.58 |
| S3_NB_Dep_Acc | 2051_3 | 697 | 97.1 | 1.2 | 1.7 | 50 | 0 | 6.9 | 25.0 | 14.01 |
| S3_NB_Dep_Cru | 2051_4 | 697 | 97.1 | 1.2 | 1.7 | 50 | 0 | 13.9 | 50.0 | 1.66 |
| *S3_WB_Arr_Cru* | *2051_5* | *1209* | *97.8* | *1.1* | *1.1* | *50* | *1* | *13.9* | *50.0* | *3.11* |
| S3_WB_Arr_Dec | 2051_1 | 1209 | 97.8 | 1.1 | 1.1 | 50 | 1 | 6.9 | 25.0 | 1.30 |
| S3_WB_Dep_Acc | 2051_3 | 1755 | 97.5 | 1.0 | 1.4 | 50 | 0 | 6.9 | 25.0 | 13.90 |
| S3_WB_Dep_Cru | 2051_4 | 1755 | 97.5 | 1.0 | 1.4 | 50 | 0 | 13.9 | 50.0 | 1.66 |
| S3_EB_Arr_Cruise | 2051_4 | 1732 | 96.5 | 1.0 | 2.5 | 50 | 0 | 13.9 | 50.0 | 1.66 |
| S3_EB_Arr_Dec | 2051_1 | 1732 | 96.5 | 1.0 | 2.5 | 50 | 0 | 6.9 | 25.0 | 0.58 |
| S3_EB_Dep_Acc | 2051_3 | 1114 | 97.0 | 1.2 | 1.9 | 50 | -1 | 6.9 | 25.0 | 13.28 |
| S3_EB_Dep_Cru | 2051_4 | 1114 | 97.0 | 1.2 | 1.9 | 50 | -1 | 13.9 | 50.0 | 0.31 |

Notes:

1) Links in gray italicized font are not included in the assessment as they are estimated to be beyond 300 m from the receptors.

***Queue Links***

| AERMOD Model Link ID | MOVES5 Link ID | Adjusted Flow (v/hr) | Traffic Percentage | | | Posted Speed Limit (km/hr) | Grade (%) | v/c Ratio | Traffic Memo 95th Queue Length (m) | Storage Bay Length (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cars | Medium Truck | Heavy Trucks | | | | | |
| S3_SB_Queue_TR | 2051_2 | 559 | 95.2 | 1.8 | 3.0 | 50 | 0 | 0.29 | 39.3 | -- |
| S3_SB_Queue_L | 2051_2 | 142 | 96.8 | 2.2 | 1.0 | 50 | 0 | 0.46 | 35.8 | 50 |
| S3_NB_Queue_TR | 2051_2 | 262 | 97.3 | 1.5 | 1.2 | 50 | 0 | 0.40 | 250.7 | -- |
| S3_NB_Queue_L | 2051_2 | 335 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.99 | 111.3 | 60 |
| S3_WB_Queue_TR | 2051_2 | 1158 | 97.8 | 1.1 | 1.1 | 50 | 1 | 0.91 | 295.3 | -- |
| S3_WB_Queue_L | 2051_2 | 51 | 98.0 | 1.0 | 1.0 | 50 | 1 | 0.18 | 87.5 | 45 |
| S3_EB_Queue_TR | 2051_2 | 909 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.51 | 130.4 | -- |
| S3_EB_Queue_L | 2051_2 | 379 | 98.0 | 1.0 | 1.0 | 50 | 0 | 0.96 | 103.9 | 60 |

**Table 1-5: Emission Factors for Intersection Links**

| Year | Operating Condition | Average Link Speed (km/hr) | Road Grade (%) | Vehicle Type | Emission Rate (g/vehicle-km Travelled) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Carbon Monoxide | Nitrogen Oxides | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 Total | PM10 Total | PM10 Total |
| 2027 | Idling | 0 | 0 | Passenger Vehicle | 2.23E+00 | 1.31E-01 | 4.74E-03 | 5.88E-04 | 2.26E-03 | 2.13E-03 | 1.15E-04 | 2.38E-06 | 1.41E-02 | 2.63E-02 | 2.63E-02 |
| | | | | Medium Truck | 6.47E+00 | 6.89E+00 | 1.72E-02 | 3.58E-03 | 7.58E-02 | 3.84E-02 | 5.99E-03 | 6.04E-05 | 8.68E-01 | 4.27E-01 | 4.27E-01 |
| | | | | Heavy Truck | 5.10E+00 | 1.59E+01 | 6.14E-03 | 2.18E-03 | 7.11E-02 | 3.89E-02 | 5.83E-03 | 6.29E-05 | 9.90E-01 | 5.45E-01 | 5.45E-01 |
| | Braking | 25 | 0 | Passenger Vehicle | 6.68E-01 | 2.07E-02 | 1.54E-03 | 1.53E-04 | 7.10E-04 | 6.13E-04 | 3.50E-05 | 4.49E-07 | 2.01E-02 | 8.39E-02 | 8.39E-02 |
| | | | | Medium Truck | 1.53E+00 | 1.04E+00 | 4.95E-03 | 8.84E-04 | 1.72E-02 | 8.76E-03 | 1.33E-03 | 4.06E-06 | 1.84E-01 | 4.02E-01 | 4.02E-01 |
| | | | | Heavy Truck | 1.09E+00 | 1.65E+00 | 1.21E-03 | 4.25E-04 | 1.39E-02 | 7.34E-03 | 1.09E-03 | 3.64E-06 | 5.21E-01 | 1.40E+00 | 1.40E+00 |
| | Accelerating | 25 | 0 | Passenger Vehicle | 9.31E+00 | 6.44E-01 | 3.96E-03 | 3.61E-04 | 1.80E-03 | 1.51E-03 | 8.79E-05 | 3.02E-06 | 1.62E-02 | 1.55E-02 | 1.55E-02 |
| | | | | Medium Truck | 1.73E+01 | 1.07E+01 | 2.25E-02 | 2.66E-03 | 3.61E-02 | 2.11E-02 | 2.65E-03 | 4.40E-05 | 9.50E-01 | 4.68E-01 | 4.68E-01 |
| | | | | Heavy Truck | 1.39E+01 | 2.32E+01 | 2.49E-03 | 8.55E-04 | 2.87E-02 | 1.67E-02 | 2.41E-03 | 4.51E-05 | 1.32E+00 | 6.60E-01 | 6.60E-01 |
| | Cruise Speed | 50 | 0 | Passenger Vehicle | 1.55E+00 | 5.10E-02 | 7.91E-04 | 8.18E-05 | 3.66E-04 | 3.21E-04 | 1.82E-05 | 4.57E-07 | 2.74E-03 | 7.86E-03 | 7.86E-03 |
| | | | | Medium Truck | 1.74E+00 | 1.58E+00 | 3.14E-03 | 5.80E-04 | 1.36E-02 | 6.84E-03 | 1.02E-03 | 6.47E-06 | 1.54E-01 | 8.57E-02 | 8.57E-02 |
| | | | | Heavy Truck | 1.52E+00 | 3.27E+00 | 1.09E-03 | 3.78E-04 | 1.32E-02 | 7.12E-03 | 9.81E-04 | 8.66E-06 | 2.47E-01 | 1.42E-01 | 1.42E-01 |
| | Cruise Speed | 50 | 1 | Passenger Vehicle | 2.02E+00 | 7.81E-02 | 9.19E-04 | 9.81E-05 | 4.27E-04 | 3.80E-04 | 2.13E-05 | 4.07E-07 | 2.35E-03 | 7.67E-03 | 7.67E-03 |
| | | | | Medium Truck | 2.86E+00 | 2.34E+00 | 4.03E-03 | 6.88E-04 | 1.44E-02 | 7.29E-03 | 1.10E-03 | 8.06E-06 | 1.97E-01 | 1.06E-01 | 1.06E-01 |
| | | | | Heavy Truck | 1.71E+00 | 4.82E+00 | 1.10E-03 | 3.82E-04 | 1.28E-02 | 6.79E-03 | 9.90E-04 | 1.12E-05 | 3.14E-01 | 1.75E-01 | 1.75E-01 |
| 2051 | Idling | 0 | 0 | Passenger Vehicle | 1.50E-01 | 1.40E-03 | 3.32E-04 | 0.00E+00 | 1.34E-04 | 6.53E-05 | 5.64E-06 | 2.81E-07 | 1.72E-03 | 2.07E-02 | 2.07E-02 |
| | | | | Medium Truck | 2.38E+00 | 2.39E+00 | 9.51E-04 | 0.00E+00 | 3.96E-03 | 4.68E-03 | 2.90E-04 | 7.82E-07 | 1.41E-02 | 4.22E-02 | 4.22E-02 |
| | | | | Heavy Truck | 4.17E+00 | 1.31E+01 | 7.14E-05 | 0.00E+00 | 8.36E-03 | 9.81E-03 | 5.12E-04 | 0.00E+00 | 4.77E-02 | 1.37E-01 | 1.37E-01 |
| | Braking | 25 | 0 | Passenger Vehicle | 1.40E-01 | 5.34E-04 | 2.21E-04 | 0.00E+00 | 8.94E-05 | 4.34E-05 | 3.75E-06 | 5.24E-08 | 1.44E-02 | 4.43E-02 | 4.43E-02 |
| | | | | Medium Truck | 2.92E-01 | 1.11E-01 | 4.80E-04 | 0.00E+00 | 8.67E-04 | 8.09E-04 | 3.50E-05 | 2.80E-07 | 7.12E-02 | 2.09E-01 | 2.09E-01 |
| | | | | Heavy Truck | 7.74E-01 | 5.07E-01 | 2.16E-05 | 0.00E+00 | 1.79E-03 | 1.81E-03 | 5.50E-05 | 0.00E+00 | 4.89E-01 | 1.41E+00 | 1.41E+00 |
| | Accelerating | 25 | 0 | Passenger Vehicle | 2.54E+00 | 1.85E-02 | 6.61E-04 | 0.00E+00 | 2.67E-04 | 1.30E-04 | 1.12E-05 | 1.66E-07 | 1.02E-03 | 8.76E-03 | 8.76E-03 |
| | | | | Medium Truck | 3.98E+00 | 2.01E+00 | 3.11E-03 | 0.00E+00 | 3.40E-03 | 3.60E-03 | 2.75E-04 | 2.46E-06 | 5.41E-02 | 3.42E-02 | 3.42E-02 |
| | | | | Heavy Truck | 1.36E+01 | 6.45E+00 | 2.26E-05 | 0.00E+00 | 3.74E-03 | 4.82E-03 | 3.10E-04 | 0.00E+00 | 8.96E-02 | 6.54E-02 | 6.54E-02 |
| | Cruise Speed | 50 | 0 | Passenger Vehicle | 4.14E-01 | 1.27E-03 | 1.03E-04 | 0.00E+00 | 4.18E-05 | 2.03E-05 | 1.75E-06 | 5.70E-08 | 3.49E-04 | 6.77E-03 | 6.77E-03 |
| | | | | Medium Truck | 4.53E-01 | 1.90E-01 | 3.35E-04 | 0.00E+00 | 1.01E-03 | 9.43E-04 | 3.00E-05 | 3.32E-07 | 3.25E-03 | 1.15E-02 | 1.15E-02 |
| | | | | Heavy Truck | 9.94E-01 | 5.46E-01 | 3.17E-05 | 0.00E+00 | 2.41E-03 | 2.32E-03 | 5.13E-05 | 0.00E+00 | 7.17E-03 | 2.65E-02 | 2.65E-02 |
| | Cruise Speed | 50 | 1 | Passenger Vehicle | 5.32E-01 | 1.92E-03 | 1.11E-04 | 0.00E+00 | 4.50E-05 | 2.19E-05 | 1.89E-06 | 4.12E-08 | 2.52E-04 | 6.73E-03 | 6.73E-03 |
| | | | | Medium Truck | 6.15E-01 | 2.85E-01 | 4.26E-04 | 0.00E+00 | 8.54E-04 | 8.17E-04 | 3.60E-05 | 3.50E-07 | 4.18E-03 | 1.19E-02 | 1.19E-02 |
| | | | | Heavy Truck | 1.21E+00 | 9.08E-01 | 2.13E-05 | 0.00E+00 | 1.75E-03 | 1.77E-03 | 5.24E-05 | 0.00E+00 | 7.39E-03 | 2.66E-02 | 2.66E-02 |

**Table 1-6: Model and Calculation Summary Data**

**ASSESSMENT SCENARIO 1: 2027 EXISTING ROAD CONFIGURATION**

***Free-flow Links***

| AERMOD Model Free-flow link ID | Dispersion Modelling Emission Rates (g/s/m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| S1_SB_Arr_Cru | 1.62E-05 | 1.71E-06 | 1.65E-07 | 8.80E-09 | 1.03E-09 | 9.92E-09 | 6.49E-09 | 6.50E-10 | 8.19E-12 | 8.18E-08 | 1.52E-07 | 1.52E-07 |
| S1_SB_Arr_Dec | 7.26E-06 | 8.59E-07 | 7.69E-08 | 1.67E-08 | 1.81E-09 | 1.43E-08 | 9.84E-09 | 9.08E-10 | 6.27E-12 | 3.60E-07 | 1.31E-06 | 1.31E-06 |
| S1_SB_Dep_Acc | 9.29E-05 | 1.56E-05 | 1.68E-06 | 4.09E-08 | 4.04E-09 | 3.23E-08 | 2.30E-08 | 2.06E-09 | 5.03E-11 | 4.43E-07 | 5.58E-07 | 5.58E-07 |
| S1_SB_Dep_Cru | 1.50E-05 | 1.84E-06 | 1.81E-07 | 8.14E-09 | 9.74E-10 | 1.01E-08 | 6.50E-09 | 6.69E-10 | 8.20E-12 | 8.64E-08 | 1.53E-07 | 1.53E-07 |
| S1_NB_Arr_Cru | 1.18E-05 | 8.02E-07 | 7.53E-08 | 6.28E-09 | 6.96E-10 | 5.09E-09 | 3.63E-09 | 3.12E-10 | 4.74E-12 | 3.96E-08 | 8.72E-08 | 8.72E-08 |
| S1_NB_Arr_Dec | 5.22E-06 | 3.89E-07 | 3.48E-08 | 1.21E-08 | 1.26E-09 | 8.05E-09 | 6.00E-09 | 4.75E-10 | 4.03E-12 | 2.05E-07 | 7.89E-07 | 7.89E-07 |
| S1_NB_Dep_Acc | 9.82E-05 | 1.19E-05 | 1.24E-06 | 4.30E-08 | 4.10E-09 | 2.76E-08 | 2.07E-08 | 1.63E-09 | 4.36E-11 | 3.09E-07 | 4.14E-07 | 4.14E-07 |
| S1_NB_Dep_Cru | 1.60E-05 | 1.28E-06 | 1.23E-07 | 8.52E-09 | 9.60E-10 | 7.66E-09 | 5.32E-09 | 4.80E-10 | 6.92E-12 | 6.20E-08 | 1.28E-07 | 1.28E-07 |
| S1_WB_Arr_Cru | 3.17E-05 | 2.41E-06 | 2.18E-07 | 1.49E-08 | 1.68E-09 | 1.11E-08 | 8.17E-09 | 6.77E-10 | 9.47E-12 | 8.58E-08 | 1.83E-07 | 1.83E-07 |
| S1_WB_Arr_Dec | 1.07E-05 | 7.71E-07 | 6.93E-08 | 2.46E-08 | 2.55E-09 | 1.61E-08 | 1.21E-08 | 9.42E-10 | 8.15E-12 | 4.16E-07 | 1.60E-06 | 1.60E-06 |
| S1_WB_Dep_Acc | 3.11E-04 | 3.52E-05 | 3.63E-06 | 1.36E-07 | 1.29E-08 | 8.36E-08 | 6.34E-08 | 4.85E-09 | 1.33E-10 | 8.89E-07 | 1.21E-06 | 1.21E-06 |
| S1_WB_Dep_Cru | 5.08E-05 | 3.71E-06 | 3.54E-07 | 2.69E-08 | 3.00E-09 | 2.26E-08 | 1.60E-08 | 1.39E-09 | 2.09E-11 | 1.80E-07 | 3.87E-07 | 3.87E-07 |
| S1_EB_Arr_Cru | 4.94E-05 | 4.71E-06 | 4.62E-07 | 2.62E-08 | 3.01E-09 | 2.63E-08 | 1.78E-08 | 1.68E-09 | 2.31E-11 | 2.22E-07 | 4.32E-07 | 4.32E-07 |
| S1_EB_Arr_Dec | 2.19E-05 | 2.30E-06 | 2.09E-07 | 5.00E-08 | 5.33E-09 | 3.86E-08 | 2.76E-08 | 2.38E-09 | 1.81E-11 | 1.05E-06 | 3.87E-06 | 3.87E-06 |
| S1_EB_Dep_Acc | 1.26E-04 | 1.56E-05 | 1.64E-06 | 5.48E-08 | 5.24E-09 | 3.58E-08 | 2.67E-08 | 2.13E-09 | 5.66E-11 | 4.09E-07 | 5.45E-07 | 5.45E-07 |
| S1_EB_Dep_Cru | 2.05E-05 | 1.71E-06 | 1.64E-07 | 1.09E-08 | 1.23E-09 | 1.00E-08 | 6.94E-09 | 6.32E-10 | 9.00E-12 | 8.21E-08 | 1.67E-07 | 1.67E-07 |

***Queue Links***

| AERMOD Model Queue Link ID | Dispersion Modelling Emission Rates (g/s/m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| S1_SB_Queue_TR | 4.18E-05 | 1.27E-05 | 1.49E-06 | 8.75E-08 | 1.21E-08 | 9.89E-08 | 6.79E-08 | 6.88E-09 | 9.18E-11 | 6.79E-07 | 1.08E-06 | 1.08E-06 |
| S1_SB_Queue_L | 5.21E-06 | 9.75E-07 | 9.93E-08 | 1.11E-08 | 1.48E-09 | 1.02E-08 | 7.32E-09 | 6.74E-10 | 9.50E-12 | 6.43E-08 | 1.10E-07 | 1.10E-07 |
| S1_NB_Queue_TR | 1.04E-05 | 1.90E-06 | 2.02E-07 | 2.21E-08 | 2.91E-09 | 1.87E-08 | 1.39E-08 | 1.22E-09 | 1.78E-11 | 1.18E-07 | 2.10E-07 | 2.10E-07 |
| S1_NB_Queue_L | 1.42E-05 | 2.20E-06 | 2.29E-07 | 3.01E-08 | 3.90E-09 | 2.27E-08 | 1.76E-08 | 1.43E-09 | 2.20E-11 | 1.39E-07 | 2.62E-07 | 2.62E-07 |
| S1_WB_Queue_TR | 2.52E-05 | 4.12E-06 | 4.35E-07 | 5.35E-08 | 6.97E-09 | 4.16E-08 | 3.19E-08 | 2.63E-09 | 4.01E-11 | 2.58E-07 | 4.77E-07 | 4.77E-07 |
| S1_WB_Queue_L | 1.49E-06 | 2.30E-07 | 2.40E-08 | 3.15E-09 | 4.10E-10 | 2.38E-09 | 1.85E-09 | 1.50E-10 | 2.31E-12 | 1.46E-08 | 2.75E-08 | 2.75E-08 |
| S1_EB_Queue_TR | 2.51E-05 | 6.62E-06 | 7.77E-07 | 5.23E-08 | 7.05E-09 | 5.17E-08 | 3.71E-08 | 3.49E-09 | 4.89E-11 | 3.49E-07 | 5.84E-07 | 5.84E-07 |
| S1_EB_Queue_L | 1.70E-05 | 2.64E-06 | 2.75E-07 | 3.61E-08 | 4.69E-09 | 2.73E-08 | 2.11E-08 | 1.71E-09 | 2.64E-11 | 1.67E-07 | 3.15E-07 | 3.15E-07 |

**ASSESSMENT SCENARIO 2: 2051 EXISTING ROAD CONFIGURATION ("NO-BUILD SCENARIO"]**

***Free-flow Links***

| AERMOD Model Free-flow link ID | Dispersion Modelling Emission Rates (g/s/m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| *S2_SB_Arr_Cru* | | | | | | | | | | | | |
| S2_SB_Arr_Dec | 1.56E-05 | 1.85E-06 | 1.65E-07 | 3.58E-08 | 3.90E-09 | 3.07E-08 | 2.12E-08 | 1.95E-09 | 1.35E-11 | 7.74E-07 | 2.81E-06 | 2.81E-06 |
| S2_SB_Dep_Acc | 2.00E-04 | 3.35E-05 | 3.61E-06 | 8.80E-08 | 8.69E-09 | 6.95E-08 | 4.95E-08 | 4.44E-09 | 1.08E-10 | 9.54E-07 | 1.20E-06 | 1.20E-06 |
| S2_SB_Dep_Cru | 3.22E-05 | 3.96E-06 | 3.89E-07 | 1.75E-08 | 2.10E-09 | 2.17E-08 | 1.40E-08 | 1.44E-09 | 1.77E-11 | 1.86E-07 | 3.30E-07 | 3.30E-07 |
| S2_NB_Arr_Cru | 2.52E-05 | 1.71E-06 | 1.60E-07 | 1.34E-08 | 1.48E-09 | 1.09E-08 | 7.73E-09 | 6.65E-10 | 1.01E-11 | 8.43E-08 | 1.86E-07 | 1.86E-07 |
| S2_NB_Arr_Dec | 1.11E-05 | 8.29E-07 | 7.42E-08 | 2.57E-08 | 2.68E-09 | 1.72E-08 | 1.28E-08 | 1.01E-09 | 8.59E-12 | 4.37E-07 | 1.68E-06 | 1.68E-06 |
| S2_NB_Dep_Acc | 2.11E-04 | 2.55E-05 | 2.65E-06 | 9.21E-08 | 8.79E-09 | 5.92E-08 | 4.44E-08 | 3.50E-09 | 9.36E-11 | 6.62E-07 | 8.87E-07 | 8.87E-07 |
| S2_NB_Dep_Cru | 3.43E-05 | 2.75E-06 | 2.64E-07 | 1.83E-08 | 2.06E-09 | 1.64E-08 | 1.14E-08 | 1.03E-09 | 1.48E-11 | 1.33E-07 | 2.75E-07 | 2.75E-07 |
| *S2_WB_Arr_Cru* | | | | | | | | | | | | |
| S2_WB_Arr_Dec | 2.28E-05 | 1.65E-06 | 1.48E-07 | 5.25E-08 | 5.45E-09 | 3.44E-08 | 2.58E-08 | 2.01E-09 | 1.74E-11 | 8.88E-07 | 3.43E-06 | 3.43E-06 |
| S2_WB_Dep_Acc | 6.66E-04 | 7.54E-05 | 7.79E-06 | 2.91E-07 | 2.75E-08 | 1.79E-07 | 1.36E-07 | 1.04E-08 | 2.85E-10 | 1.90E-06 | 2.60E-06 | 2.60E-06 |
| S2_WB_Dep_Cru | 1.09E-04 | 7.95E-06 | 7.59E-07 | 5.76E-08 | 6.42E-09 | 4.83E-08 | 3.42E-08 | 2.98E-09 | 4.48E-11 | 3.87E-07 | 8.30E-07 | 8.30E-07 |
| *S2_EB_Arr_Cruise* | | | | | | | | | | | | |
| *S2_EB_Arr_Dec* | | | | | | | | | | | | |
| S2_EB_Dep_Acc | 2.69E-04 | 3.35E-05 | 3.51E-06 | 1.18E-07 | 1.12E-08 | 7.66E-08 | 5.73E-08 | 4.56E-09 | 1.21E-10 | 8.76E-07 | 1.17E-06 | 1.17E-06 |
| S2_EB_Dep_Cru | 4.39E-05 | 3.66E-06 | 3.52E-07 | 2.33E-08 | 2.64E-09 | 2.15E-08 | 1.49E-08 | 1.36E-09 | 1.93E-11 | 1.76E-07 | 3.58E-07 | 3.58E-07 |

Notes:

1) Links in gray italicized font are not included in the assessment as they are estimated to be beyond 300 m from the receptors.

***Queue Links***

| AERMOD Model Queue Link ID | Project Scale Link Emission Factors (g/s-m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| S2_SB_Queue_TR | 1.16E-04 | 3.53E-05 | 4.13E-06 | 2.43E-07 | 3.35E-08 | 2.75E-07 | 1.89E-07 | 1.91E-08 | 2.55E-10 | 1.89E-06 | 3.00E-06 | 3.00E-06 |
| S2_SB_Queue_L | 7.00E-06 | 1.31E-06 | 1.33E-07 | 1.50E-08 | 2.00E-09 | 1.37E-08 | 9.84E-09 | 9.06E-10 | 1.28E-11 | 8.64E-08 | 1.48E-07 | 1.48E-07 |
| S2_NB_Queue_TR | 1.59E-05 | 2.91E-06 | 3.09E-07 | 3.38E-08 | 4.46E-09 | 2.86E-08 | 2.13E-08 | 1.86E-09 | 2.72E-11 | 1.81E-07 | 3.21E-07 | 3.21E-07 |
| S2_NB_Queue_L | 4.37E-05 | 6.78E-06 | 7.07E-07 | 9.27E-08 | 1.20E-08 | 7.00E-08 | 5.43E-08 | 4.40E-09 | 6.78E-11 | 4.30E-07 | 8.08E-07 | 8.08E-07 |
| S2_WB_Queue_TR | 9.00E-05 | 1.47E-05 | 1.55E-06 | 1.91E-07 | 2.49E-08 | 1.48E-07 | 1.14E-07 | 9.40E-09 | 1.43E-10 | 9.19E-07 | 1.70E-06 | 1.70E-06 |
| S2_WB_Queue_L | 2.64E-06 | 4.08E-07 | 4.26E-08 | 5.59E-09 | 7.26E-10 | 4.22E-09 | 3.27E-09 | 2.65E-10 | 4.09E-12 | 2.59E-08 | 4.87E-08 | 4.87E-08 |
| S2_EB_Queue_TR | 1.12E-04 | 2.95E-05 | 3.47E-06 | 2.33E-07 | 3.14E-08 | 2.30E-07 | 1.65E-07 | 1.56E-08 | 2.18E-10 | 1.56E-06 | 2.61E-06 | 2.61E-06 |
| S2_EB_Queue_L | 7.57E-05 | 1.17E-05 | 1.22E-06 | 1.60E-07 | 2.08E-08 | 1.21E-07 | 9.39E-08 | 7.61E-09 | 1.17E-10 | 7.44E-07 | 1.40E-06 | 1.40E-06 |

**ASSESSMENT SCENARIO 3: 2051 OPTION 2 ROAD CONFIGURATION ("BUILD SCENARIO")**

***Free-flow Links***

| AERMOD Model Free-flow link ID | Project Scale Link Emission Factors (g/s-m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| S3_SB_Arr_Cruise | 3.48E-05 | 3.67E-06 | 3.54E-07 | 1.89E-08 | 2.22E-09 | 2.13E-08 | 1.40E-08 | 1.40E-09 | 1.76E-11 | 1.76E-07 | 3.26E-07 | 3.26E-07 |
| S3_SB_Arr_Dec | 1.56E-05 | 1.85E-06 | 1.65E-07 | 3.58E-08 | 3.90E-09 | 3.07E-08 | 2.12E-08 | 1.95E-09 | 1.35E-11 | 7.74E-07 | 2.81E-06 | 2.81E-06 |
| S3_SB_Dep_Acc | 2.00E-04 | 3.35E-05 | 3.61E-06 | 8.80E-08 | 8.69E-09 | 6.95E-08 | 4.95E-08 | 4.44E-09 | 1.08E-10 | 9.54E-07 | 1.20E-06 | 1.20E-06 |
| S3_SB_Dep_Cru | 3.22E-05 | 3.96E-06 | 3.89E-07 | 1.75E-08 | 2.10E-09 | 2.17E-08 | 1.40E-08 | 1.44E-09 | 1.77E-11 | 1.86E-07 | 3.30E-07 | 3.30E-07 |
| *S3_NB_Arr_Cru* | | | | | | | | | | | | |
| S3_NB_Arr_Dec | 1.11E-05 | 8.29E-07 | 7.42E-08 | 2.57E-08 | 2.68E-09 | 1.72E-08 | 1.28E-08 | 1.01E-09 | 8.59E-12 | 4.37E-07 | 1.68E-06 | 1.68E-06 |
| S3_NB_Dep_Acc | 2.11E-04 | 2.55E-05 | 2.65E-06 | 9.21E-08 | 8.79E-09 | 5.92E-08 | 4.44E-08 | 3.50E-09 | 9.36E-11 | 6.62E-07 | 8.87E-07 | 8.87E-07 |
| S3_NB_Dep_Cru | 3.43E-05 | 2.75E-06 | 2.64E-07 | 1.83E-08 | 2.06E-09 | 1.64E-08 | 1.14E-08 | 1.03E-09 | 1.48E-11 | 1.33E-07 | 2.75E-07 | 2.75E-07 |
| *S3_WB_Arr_Cru* | | | | | | | | | | | | |
| S3_WB_Arr_Dec | 2.28E-05 | 1.65E-06 | 1.48E-07 | 5.25E-08 | 5.45E-09 | 3.44E-08 | 2.58E-08 | 2.01E-09 | 1.74E-11 | 8.88E-07 | 3.43E-06 | 3.43E-06 |
| S3_WB_Dep_Acc | 6.66E-04 | 7.54E-05 | 7.79E-06 | 2.91E-07 | 2.75E-08 | 1.79E-07 | 1.36E-07 | 1.04E-08 | 2.85E-10 | 1.90E-06 | 2.60E-06 | 2.60E-06 |
| S3_WB_Dep_Cru | 1.09E-04 | 7.95E-06 | 7.59E-07 | 5.76E-08 | 6.42E-09 | 4.83E-08 | 3.42E-08 | 2.98E-09 | 4.48E-11 | 3.87E-07 | 8.30E-07 | 8.30E-07 |
| S3_EB_Arr_Cruise | 1.06E-04 | 1.01E-05 | 9.92E-07 | 5.63E-08 | 6.46E-09 | 5.64E-08 | 3.83E-08 | 3.60E-09 | 4.97E-11 | 4.77E-07 | 9.28E-07 | 9.28E-07 |
| S3_EB_Arr_Dec | 4.71E-05 | 4.93E-06 | 4.49E-07 | 1.07E-07 | 1.14E-08 | 8.29E-08 | 5.93E-08 | 5.12E-09 | 3.88E-11 | 2.26E-06 | 8.32E-06 | 8.32E-06 |
| S3_EB_Dep_Acc | 2.69E-04 | 3.35E-05 | 3.51E-06 | 1.18E-07 | 1.12E-08 | 7.66E-08 | 5.73E-08 | 4.56E-09 | 1.21E-10 | 8.76E-07 | 1.17E-06 | 1.17E-06 |
| S3_EB_Dep_Cru | 4.39E-05 | 3.66E-06 | 3.52E-07 | 2.33E-08 | 2.64E-09 | 2.15E-08 | 1.49E-08 | 1.36E-09 | 1.93E-11 | 1.76E-07 | 3.58E-07 | 3.58E-07 |

Notes:

1) Links in gray italicized font are not included in the assessment as they are estimated to be beyond 300 m from the receptors.

***Queue Links***

| AERMOD Model Queue Link ID | Project Scale Link Emission Factors (g/s-m2) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 33 | 20 | 24 | 25 | 26 | 27 | 74 | | | |
| | CO | NOx | NO2 | Benzene | 1,3-Butadiene | Formaldehyde | Acetaldehyde | Acrolein | Benzo(a)pyrene | PM2.5 | PM10 | PM |
| S3_SB_Queue_TR | 2.10E-05 | 6.38E-06 | 7.46E-07 | 4.39E-08 | 6.05E-09 | 4.96E-08 | 3.41E-08 | 3.45E-09 | 4.60E-11 | 3.41E-07 | 5.42E-07 | 5.42E-07 |
| S3_SB_Queue_L | 9.27E-06 | 1.74E-06 | 1.77E-07 | 1.98E-08 | 2.64E-09 | 1.81E-08 | 1.30E-08 | 1.20E-09 | 1.69E-11 | 1.14E-07 | 1.96E-07 | 1.96E-07 |
| S3_NB_Queue_TR | 1.96E-05 | 3.59E-06 | 3.81E-07 | 4.16E-08 | 5.49E-09 | 3.53E-08 | 2.62E-08 | 2.29E-09 | 3.35E-11 | 2.23E-07 | 3.96E-07 | 3.96E-07 |
| S3_NB_Queue_L | 5.37E-05 | 8.32E-06 | 8.68E-07 | 1.14E-07 | 1.48E-08 | 8.60E-08 | 6.67E-08 | 5.40E-09 | 8.33E-11 | 5.28E-07 | 9.93E-07 | 9.93E-07 |
| S3_WB_Queue_TR | 4.76E-05 | 7.77E-06 | 8.20E-07 | 1.01E-07 | 1.31E-08 | 7.84E-08 | 6.02E-08 | 4.97E-09 | 7.57E-11 | 4.86E-07 | 9.00E-07 | 9.00E-07 |
| S3_WB_Queue_L | 1.87E-06 | 2.90E-07 | 3.03E-08 | 3.97E-09 | 5.16E-10 | 3.00E-09 | 2.32E-09 | 1.88E-10 | 2.91E-12 | 1.84E-08 | 3.46E-08 | 3.46E-08 |
| S3_EB_Queue_TR | 3.73E-05 | 5.77E-06 | 6.02E-07 | 7.90E-08 | 1.03E-08 | 5.96E-08 | 4.62E-08 | 3.75E-09 | 5.78E-11 | 3.66E-07 | 6.88E-07 | 6.88E-07 |
| S3_EB_Queue_L | 1.39E-05 | 2.16E-06 | 2.25E-07 | 2.95E-08 | 3.83E-09 | 2.23E-08 | 1.73E-08 | 1.40E-09 | 2.16E-11 | 1.37E-07 | 2.57E-07 | 2.57E-07 |

**Table 1-7: Summary of Cumulative Impacts at Most Affected Sensitive Receptor (Ground Vent)**

| Contaminant | Averaging Period | Ambient Air Quality Criteria | Criteria Source | 2027 - Existing Impacts | | 2051 - No Build Scenario | | 2051 - Build Scenario | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum Local Traffic Impact | Percent of Ambient Air Quality Criteria | Maximum Local Traffic Impact | Percent of Ambient Air Quality Criteria | Maximum Local Traffic Impact | Percent of Ambient Air Quality Criteria | Percent Change from 2051 No-Build Scenario |
| | | ($ug/m^3$) | | ($ug/m^3$) | (%) | ($ug/m^3$) | (%) | ($ug/m^3$) | (%) | (%) |
| $PM_{Total}$ | 24 hour | 120 | Ontario AAQS (Provincial) | 2.95 | 2% | 7.14 | 6% | 5.42 | 5% | -24% |
| $PM_{10}$ | 24 hour | 50 | Ontario AAQS (Provincial) | 2.95 | 6% | 7.14 | 14% | 5.42 | 11% | -24% |
| $PM_{2.5}$ | 24 hour | 27 | CAAQS (Federal) | 3.05 | 11% | 4.83 | 18% | 3.71 | 14% | -23% |
| | Annual | 8.8 | CAAQS (Federal) | 0.53 | 6% | 1.34 | 15% | 0.933 | 11% | -30% |
| CO | 1 hour | 36200 | Ontario AAQS (Provincial) | 1,386 | 4% | 3012 | 8% | 2932 | 8% | -3% |
| | 8 hour | 15700 | Ontario AAQS (Provincial) | 1,197 | 8% | 2637 | 17% | 1940 | 12% | -26% |
| $NO_2$ | 1 hour | 400 | Ontario AAQS (Provincial) | 176.1 | 44% | 403.2 | 101% | 366.2 | 92% | -9% |
| | | 79 | CAAQS (Federal) | 149.3 | 189% | 354.0 | 448% | 290.3 | 367% | -18% |
| | 24 hour | 200 | Ontario AAQS (Provincial) | 64.5 | 32% | 149.2 | 75% | 127.7 | 64% | -14% |
| | Annual | 22.6 | CAAQS (Federal) | 15.48 | 69% | 37.37 | 165% | 29.2 | 129% | -22% |
| 1,3-Butadiene | 24 hour | 10 | Ontario AAQS (Provincial) | 2.98E-02 | 0% | 7.71E-02 | 1% | 5.52E-02 | 1% | -28% |
| | Annual | 2 | Ontario AAQS (Provincial) | 8.20E-03 | 0% | 2.25E-02 | 1% | 1.42E-02 | 1% | -37% |
| Acetaldehyde | ½ hour | 500 | Ontario AAQS (Provincial) | 5.52E-01 | 0% | 1.73E+00 | 0% | 9.25E-01 | 0% | -47% |
| | 24 hour | 500 | Ontario AAQS (Provincial) | 1.52E-01 | 0% | 3.98E-01 | 0% | 2.77E-01 | 0% | -30% |
| Acrolein | 1 hour | 4.5 | Ontario AAQS (Provincial) | 3.96E-02 | 1% | 1.29E-01 | 3% | 6.33E-02 | 1% | -51% |
| | 24 hour | 0.4 | Ontario AAQS (Provincial) | 1.30E-02 | 3% | 3.51E-02 | 9% | 2.26E-02 | 6% | -36% |
| Benzo(a)pyrene | 24 hour | 0.00005 | Ontario AAQS (Provincial) | 2.75E-04 | 551% | 6.80E-04 | 1361% | 5.22E-04 | 1044% | -23% |
| | Annual | 0.00001 | Ontario AAQS (Provincial) | 7.14E-05 | 714% | 1.89E-04 | 1886% | 1.28E-04 | 1279% | -32% |
| Benzene | 24 hour | 2.3 | Ontario AAQS (Provincial) | 2.80E-01 | 12% | 6.96E-01 | 30% | 5.37E-01 | 23% | -23% |
| | Annual | 0.45 | Ontario AAQS (Provincial) | 7.38E-02 | 16% | 1.96E-01 | 43% | 1.34E-01 | 30% | -32% |
| Formaldehyde | 24 hour | 65 | Ontario AAQS (Provincial) | 2.08E-01 | 0% | 5.47E-01 | 1% | 3.71E-01 | 1% | -32% |

[1] Per CAAQS, 98th percentile of 1-hour modelled concentrations

NORTHERN
Applied Sciences Inc.

napsci.io

June 6, 2025

Alex Wilkinson, P.Eng.
Project Engineer
Ainley Group
50 Grant Timmins Drive, Suite 1
Kingston, Ontario K7M 8N2

**RE: Vibration Assessment - Ambassador Apartments Parking Garage**
**Ainley Group – Kent Street West and Angeline Street Intersection Improvements**
**Project Ref. 24-096**

Dear Mr. Wilkinson:

Northern Applied Sciences Inc. (NAPSCI) has prepared this document to present Ainley Group (Ainley) with the results of the *Vibration Assessment* for the Ambassador Apartments, located at 301 Kent Street West in Lindsay, Ontario.

## 1.0 BACKGROUND

The Angeline Street North corridor in Lindsay, Ontario has been identified in the City of Kawartha Lakes Transportation Master Plan as requiring improvements in order to meet the projected 2031 traffic demands. Ainley is undertaking the detailed design activities and the Municipal Class Environmental Assessment (MCEA) for the proposed reconstruction of Angeline Street North.

The underground parking garage of the Ambassador Apartments is located in immediate proximity to the Angeline Street North improvements. Further, during stakeholder consultation efforts, it was identified that the garage of the Ambassador Apartments extends to the limit of the existing right-of-way.

As part of the consultation process, concerns were raised with respect to potential vibrational impacts on the Ambassador Apartments underground parking garage from the Angeline Street North construction activities.

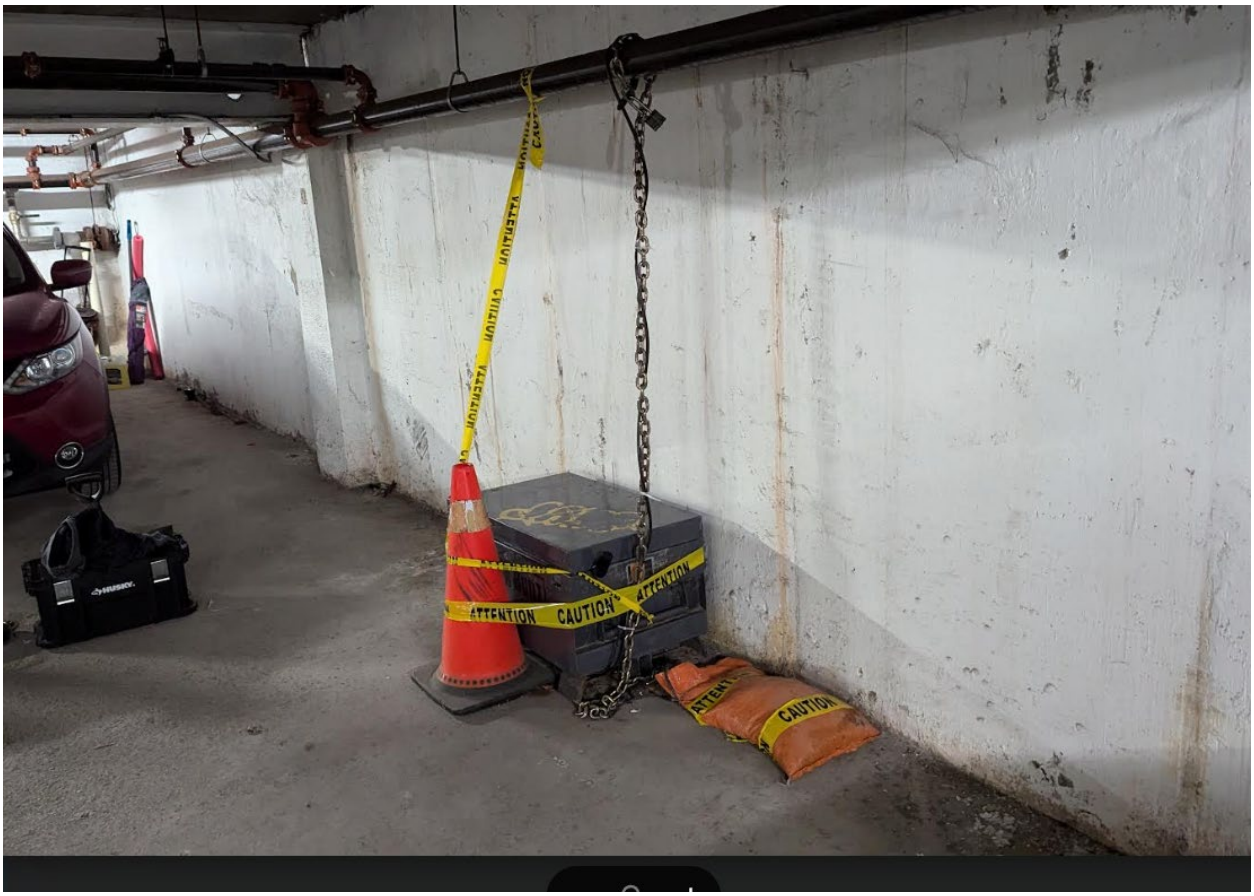
NAPSCI therefore conducted this assessment to assess the potential vibrational impacts from road traffic and construction activities to Ambassador Apartments and its underground parking garage.

## 2.0 METHODOLOGY

NAPSCI conducted a 15-day vibration monitoring program at the Ambassador Apartments to establish the existing vibrational impacts from the existing road traffic on Angline Street. The vibration monitoring program consisted of two (2) temporary vibration monitors installed as follows:

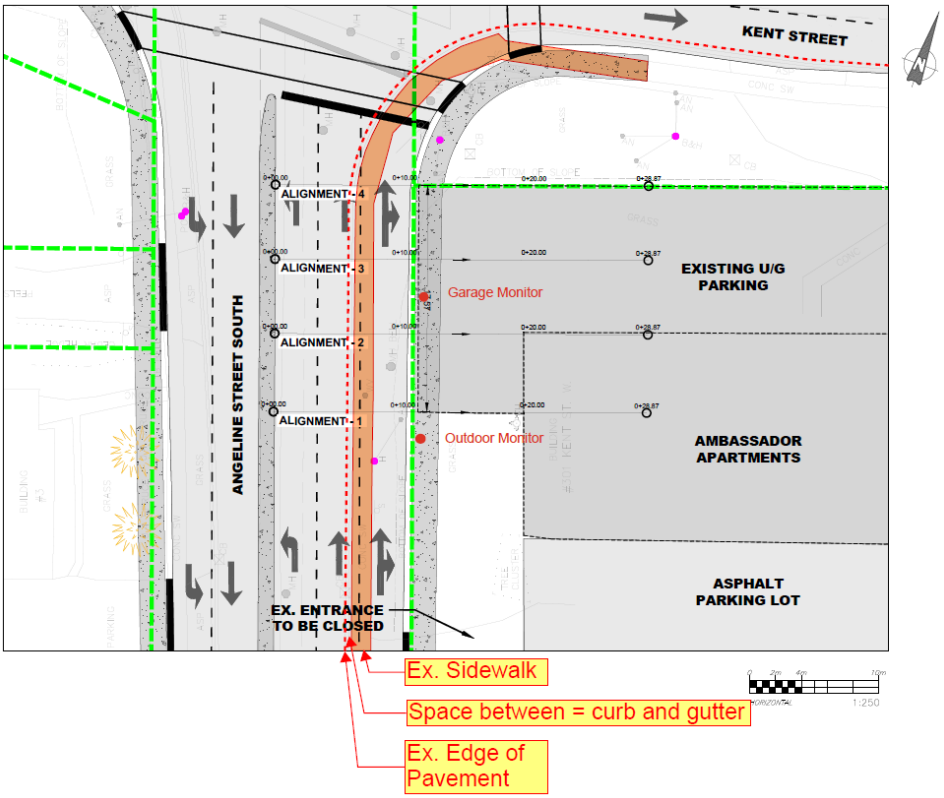
- Monitor 1 – Indoors: within the parking garage along west interior wall (closest to Angeline)
- Monitor 2 – Outdoors: 5.3 m setback from Angeline St. S, 6-inch depth, 8.3 m from building wall

**Monitor 1 – Indoors West Interior Garage Wall, closest to Angeline St.; Floor Level**



**Monitor 2 – Outdoor Location 5.3 m from Angeline St. and 3.6 m from Sidewalk (Depth 6-in)**

The plan drawing below further identifies the monitor locations:



The two-week monitoring program ensured the capture of the variance in the traffic volume, vehicle type and traffic conditions that may impact the Ambassador Apartments garage. The use of two simultaneous monitors allowed for potentially seeing correlations between vibrational peaks in the garage with vibration at the outdoor monitor.

To further support the unattended vibrational analysis, traffic counts were also collected from Nov. 21 to Nov. 23, 2024 in case the reference data was needed (provided as Attachment 3).

## 3.0 REGULATORY OVERVIEW

Vibration emissions related to construction can sometimes lead to adverse impacts including structural damage to walls and flooring. Peak Particle Velocity (PPV) in the vertical axis is generally accepted as the most appropriate metric for evaluating the potential for building damage. This is a commonly used metric in environmental monitoring as it closely relates to the stresses experienced by building components.

There is currently no specific guideline or standard for construction vibration in Lindsay's jurisdiction or the province of Ontario. In absence of criteria, City of Toronto By-Law No. 514-2008 provides construction vibration limits to prevent any damage on structures from nearby construction activities. The vibration criteria from the City of Toronto, as summarised in Table 1, assign a limit to Peak Particle Velocity (PPV) in terms of mm/s based on the frequency of the vibration. The most stringent vibration limit in terms of PPV is 8 mm/s for the vibration in the frequencies that are less than 4 Hz. Toronto also specifies a "Zone of Influence" using a threshold of 5 mm/s. The area of land within or adjacent to a construction site, including any buildings or structures, that potentially may be impacted by vibrations emanating from construction activity.

**Table 1: Prohibited Construction Vibrations (City of Toronto By-Law No. 514-2008)**

| Frequency (Hz) | Peak Particle Velocity, PPV (mm/s) |
|---|---|
| Less than 4 | 8 |
| 4 to 10 | 15 |
| More than 10 | 25 |

The City of Toronto limits were therefore adopted for this assessment with a target value of 8 mm/s for vibration in terms of assessing potential significance.

## 4.0 CONSTRUCTION ACTIVITIES & EQUIPMENT

Construction activities, phases and equipment are not yet known for the undertaking of the intersection improvements. Based on past projects, a list of potential construction equipment that could be used was considered, as shown in Table 2.

**Table 2: Vibration Emission Levels for Construction Equipment**

| Equipment Type | Vibration Peak Particle Velocity, PPV (mm/s) at 7.6 m |
|---|---|
| Excavators | 2.3 |
| Loaders | 2.3 |
| Triaxial Dump Trucks | 1.9 |
| Diesel Generator – 25kW | 1.9 |
| Crane | 1.9 |
| Packer (vibratory roller) | 5.6 |
| **Vibration Limit** | **8.0 mm/s** |

In review of the above table, there are two (2) issues with respect to vibration emissions and potential impacts:

1. **Proximity of Construction Equipment:** It is possible that the construction equipment may be much closer to the underground garage roof slab than the 7.6 m reference levels. A packer within 2 or 3 m of the roof slab would likely generate vibrations well-above 8 mm/s.

2. **Additive Effect of Simultaneous Construction Equipment:** The construction equipment operating near the underground parking garage would have a logarithmically additive effect.

Based on the proximity of construction to the underground garage, and with respect to the values in the above table, it would be advisable to require a vibration mitigation plan for the construction activities near the parking garage and require vibration monitoring against during major construction phases. If vibration levels are determined to be above 8.0 mm/s, then a frequency range comparison to Table 1 values would be needed. If values are above the limits in Table 1, then vibration mitigation/minimization efforts would be necessary.

## 5.0 RESULTS AND DISCUSSION

The tabulated results of the 15-day vibrational monitoring program are provided in Table 3. Refer to Figure 1 at the end of the text showing the charts of the vibrational peaks at 15-minute intervals over the 15-day monitoring period. Figure 1 shows the side-by-side comparison of the outdoor and garage monitors.

**Table 3 – Summary of Background Vibration Monitoring Results**

| Day | Date | Outdoor | | Garage | |
|---|---|---|---|---|---|
| | | Lowest 15-min Peak | Highest 15-min Peak | Lowest 15-min Peak | Highest 15-min Peak |
| | | mm/s | mm/s | mm/s | mm/s |
| 1 | Nov. 21, 2024 | 0.040 | 0.378 | 0.040 | < 0.10 |
| 2 | Nov. 22, 2024 | 0.045 | 0.307 | 0.040 | < 0.10 |
| 3 | Nov. 23, 2024 | 0.046 | 0.205 | 0.040 | < 0.10 |
| 4 | Nov. 24, 2024 | 0.045 | 0.189 | 0.040 | < 0.10 |
| 5 | Nov. 25, 2024 | 0.047 | 0.284 | 0.040 | < 0.10 |
| 6 | Nov. 26, 2024 | 0.046 | 0.236 | 0.050 | < 0.10 |
| 7 | Nov. 27, 2024 | 0.046 | 0.284 | <0.05 | 3.539* |
| 8 | Nov. 28, 2024 | 0.046 | 0.284 | 0.040 | < 0.10 |
| 9 | Nov. 29, 2024 | 0.046 | 0.284 | 0.040 | < 0.10 |
| 10 | Nov. 30, 2024 | 0.053 | 0.205 | 0.040 | < 0.10 |
| 11 | Dec. 1, 2024 | 0.045 | 0.197 | 0.040 | < 0.10 |
| 12 | Dec. 2, 2024 | 0.046 | 0.300 | 0.040 | 0.268 |
| 13 | Dec. 3, 2024 | 0.044 | 0.323 | 0.040 | < 0.10 |
| 14 | Dec. 4, 2024 | 0.046 | 0.552 | 0.040 | 0.906 |
| 15 | Dec. 5, 2024 | 0.047 | 0.418 | 0.040 | 0.315 |
| Prohibited Vibration Limit from Construction Activities [1] | | | | 8 mm/s | |
| Ontario MECP Vibration Limits for Frequent Impulses [Provided for Reference Only] [2] | | | | 0.3 mm/s | |
| Human Perceptibility Threshold and US-DOT Guidance for Road Traffic at Dwellings | | | | 0.1 mm/s | |

Notes:
* meter impacted by unknown event, likely bumped by a resident and considered an outlier
[1] Prohibited vibration limit for frequencies less than 4 Hz, which is the most stringent criteria under the City of Toronto By-Law No. 514-2008 for construction vibration limits to prevent any damage on structures from nearby construction activities.
[2] Per Ontario MECP document NPC-207 "Impulse Vibration in Residential Buildings" for greater than 20 vibration impulses within a 20-minute observation period.

The observations from the two monitors are as follows:

- The background vibrational peaks in the garage are generally around 0.04 mm/s
- Both monitors have the lowest peaks during the night periods and the highest peaks during the day periods, which correlates with the general pattern of road traffic volumes.

- The peaks in the outdoor monitor are much more pronounced while the peaks in the garage monitor are dampened, as expected since the roadway would be the dominant source and vibration drops significantly with depth
- Vibrational peaks in the vertical direction at the outdoor monitor do not necessarily produce a corresponding peak at the garage monitor, potentially suggesting more localized disturbances
- There were two distinct peaks detected in the garage monitor that was close to or greater than 0.1 mm/s. These two peaks, Nov. 27 and Dec. 4, appeared to have been the result of someone or something coming into contact with the vibration monitor.
- With the exception of the two isolated peaks detected on the garage monitor, all peaks in the garage monitor were generally below 0.1 mm/s, which is the threshold of human detection.

The peak impacts from the road were evaluated at the nearest west-wall apartment building façade, which would be a "dwelling" receptor.

**Table 4 – Review of Road Impacts at Apartment Façade (West Wall)**

Calculation Method - Vibration Assessment Model[1, 2]

| | Apartment West Wall Existing Condition | Apartment West Wall Future Scenario |
|---|---|---|
| Maximum PPV (mm/s) from Road | 0.552 | 0.552 |
| | | |
| Source-Receptor Distance | 13.6 | 9.5 |
| Estimated vibration at Receptor (mm/s) | **0.134** | **0.230** |
| Vibration Limit, NPC-207 (mm/s) | 0.3 | 0.3 |
| Vibration Limit, Perceptibility, US-DOT | 0.1 | 0.1 |

Notes:

1. FTA Transit Noise and Vibration Impact Assessmnt Manual, September 2018.
2. Equation 7-2 used, and is based on point source with normal propagation conditions, reference distance 5.3 m

Based on the results of the vibration monitoring program, the vibration impacts at the garage of Ambassador Apartments are not considered to be significantly impacted by the vibrations from the existing road traffic. The projections show that peak impacts from the road could occasionally be perceptible at times but remain below the strictest NPC-207 guidance levels. This remains a conservative prediction since the peak vibration was used as the assessment basis rather than an averaged root mean square value. We do not expect the peak vibration would increase materially with increased road traffic since the vehicle types would not change. We would therefore not expect any structural impact concerns at these vibration values from regular traffic or longer term nuisance.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

**Background Vibration Levels and Longterm Road Vibration**

The background vibration data over the two-week period was found to be within guidance levels and we do not have concerns with respect to longer-term vibration from the roadway impacts to the building.

**Construction Vibration**

Construction activities could generate significant vibration and be located in proximity to the underground parking garage. The construction vibration could reasonably be well-above the target limit of 8 mm/s.

We therefore recommend the following:

1. Conduct Pre-Condition Survey:

A pre-condition building survey is recommended to document the existing condition of the building prior to construction activities. The pre-condition survey would generally consist of:

Exterior of the building/property: photograph and document the foundation walls and existing brickwork on the main floor and up to the second floor. Document all walkways, entranceways, driveways, chimneys, septic hatches, etc., and note existing defects, if found.

Interior of the building: inspect the garage and basement level, main floor level, and second floor level and document accordingly. Items which can be noted are: water leakage areas, cracks in tile, countertops, windows, drywall and plaster. Floor slope will be directionally documented, also any structural concerns which may be related to construction.

2. Conduct Construction Vibration Monitoring

For the construction period, we recommend mobilizing two vibration monitors with telemetry capabilities to monitor on a 24-hour basis with alarm levels:

- One unit should monitor the exterior wall of the building, and
- One unit should monitor the parking garage structure (nearest to the construction activity).

Notifications should occur for investigative/corrective action if any vibration alarm levels are triggered.

3. Conduct Post-Condition Survey (optional, recommended):

An optional follow-up post-condition survey is generally recommended which is a comparison of pre-conduction conditions and post-construction conditions. The survey may be conducted on previously inspected areas or on an as-needed basis should complaints arise.

4. Require Vibration Mitigation Plan to Prevent Structural Impacts to the Underground Garage

We recommend a plan be required to address and minimize the potential vibrational impacts to the underground parking structure as part of the Construction efforts.

Overall, the Construction activities must be able to achieve the following levels at the parking garage, which includes the ceiling slab:

**Recommended Vibration Limits at Parking Garage:**

| Frequency (Hz) | Peak Particle Velocity, PPV (mm/s) |
|---|---|
| Less than 4 | 8 |
| 4 to 10 | 15 |
| More than 10 | 25 |

Thank you for this opportunity to be of service. If there are any further questions, please do not hesitate to contact us.

Yours truly,
**Northern Applied Sciences Inc.**

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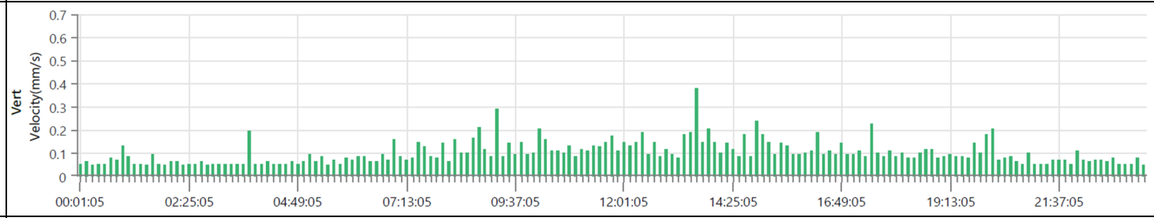
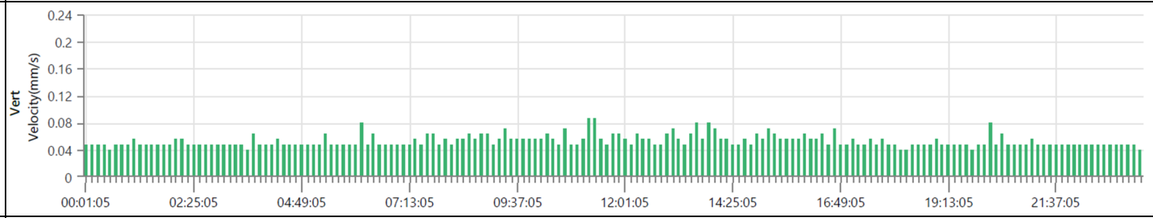
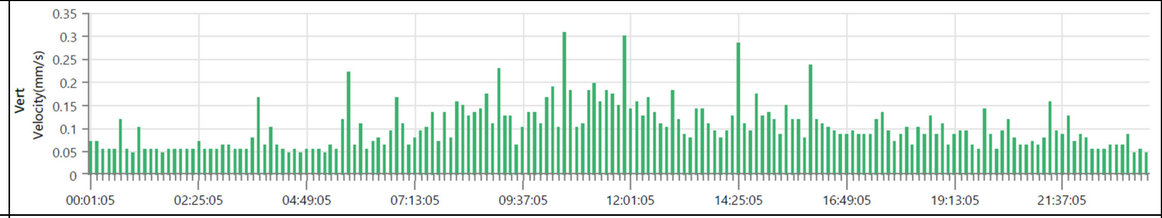
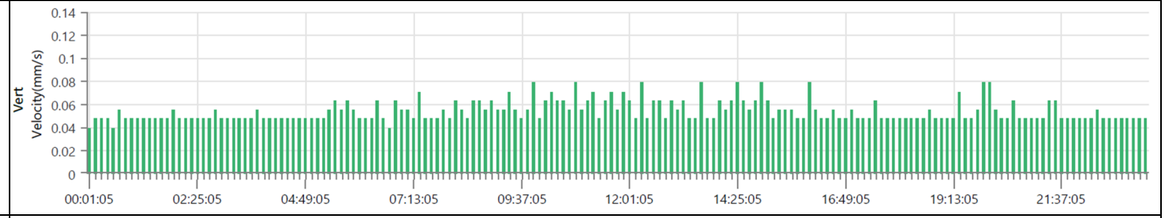
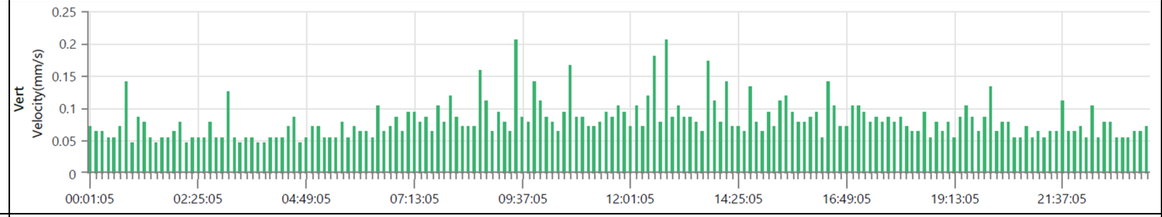
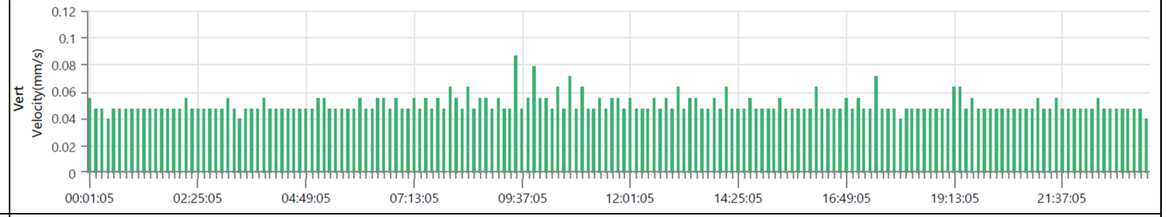
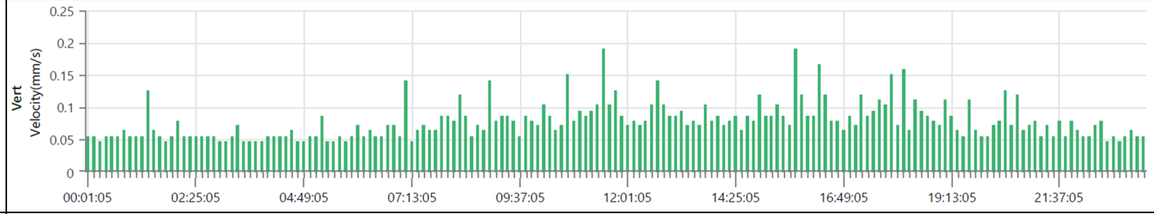
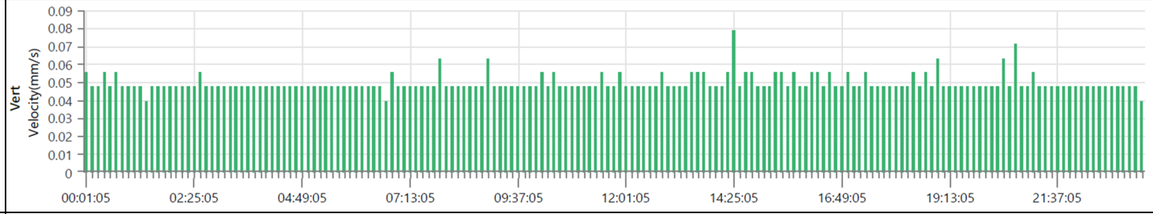
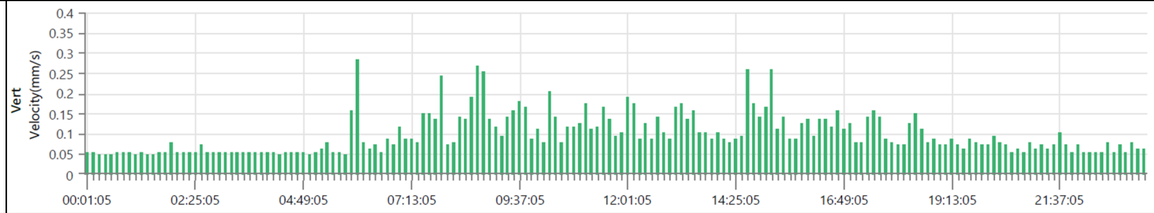
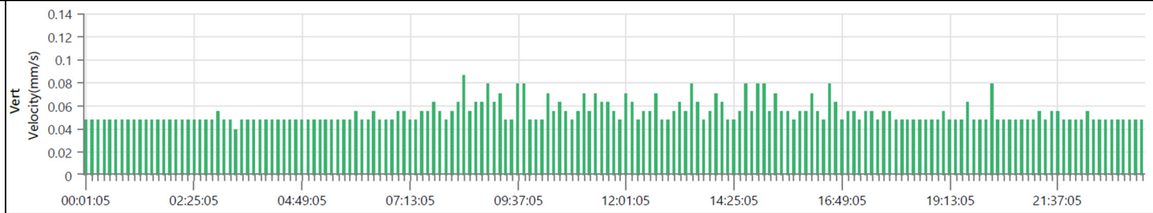
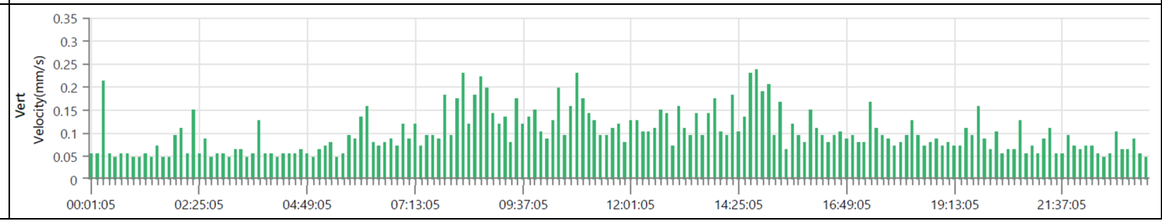
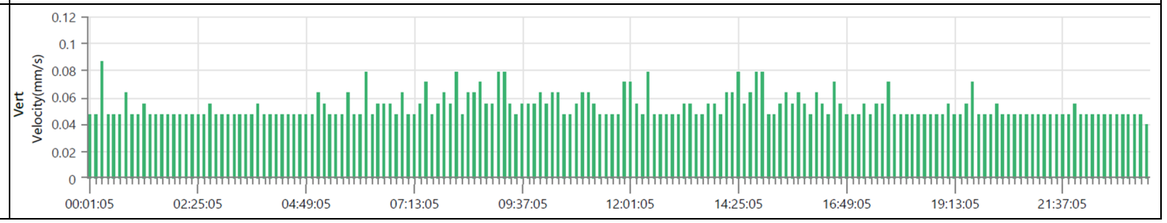
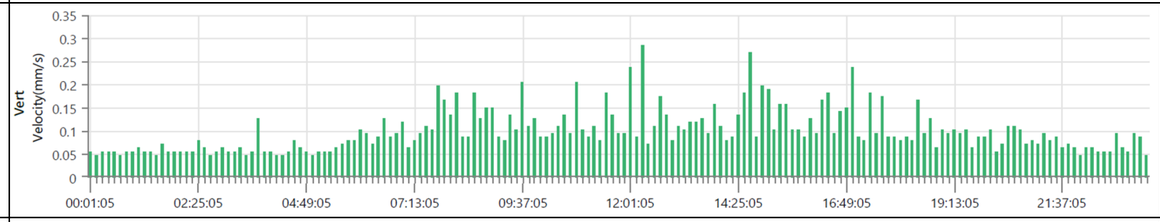
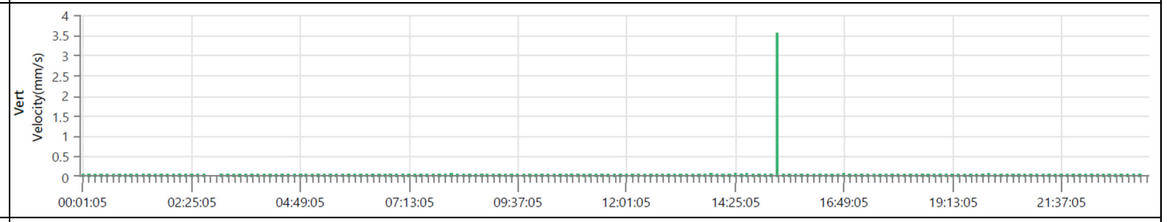
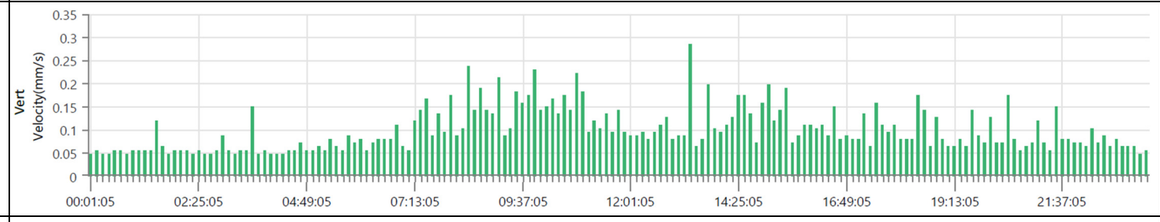
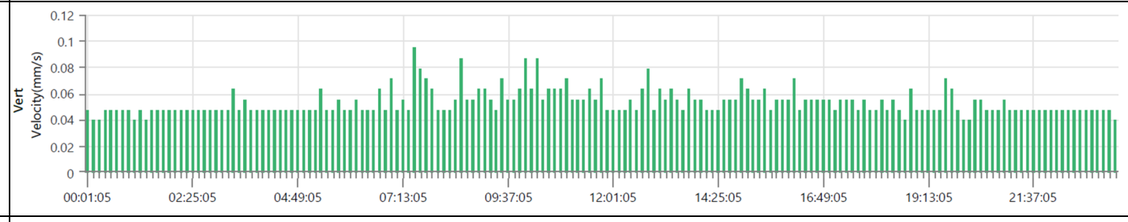
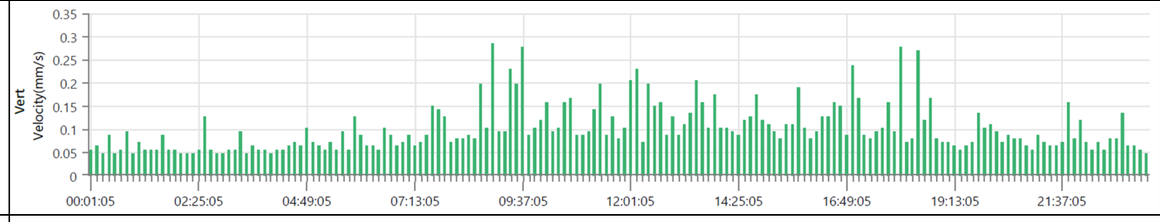
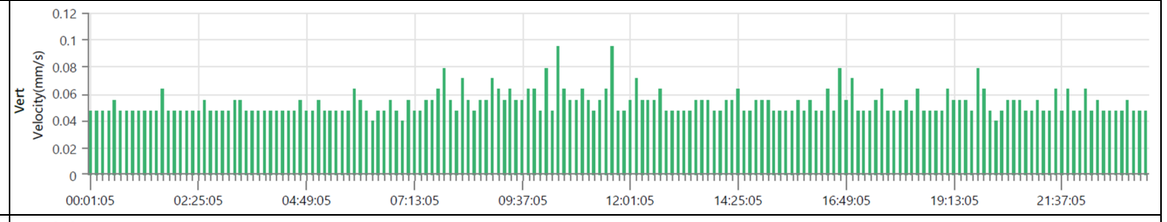
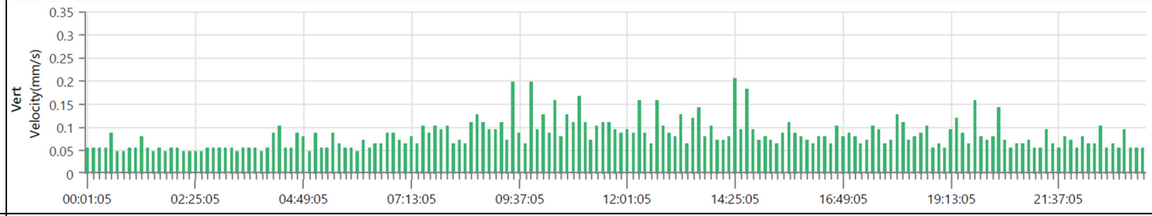
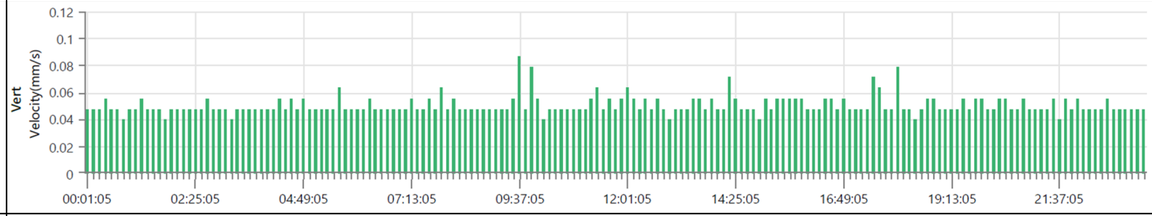
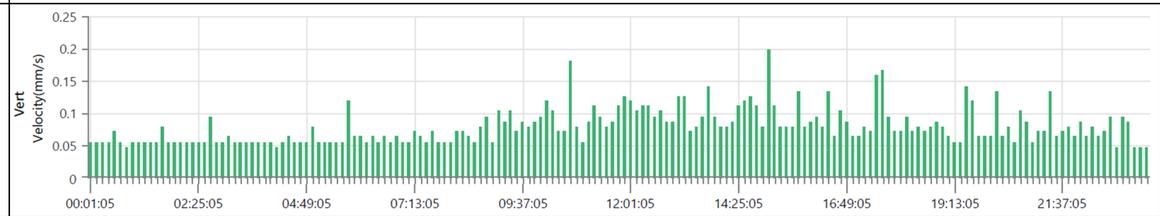
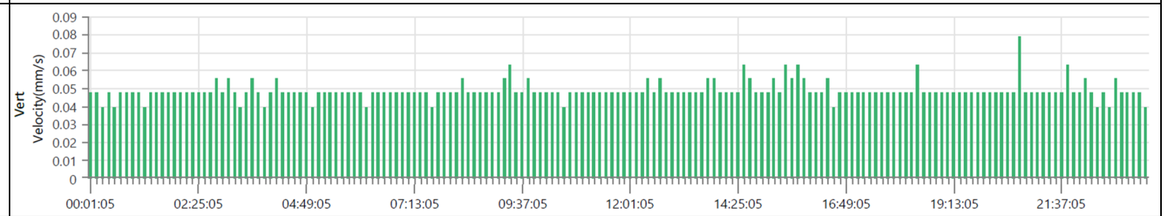
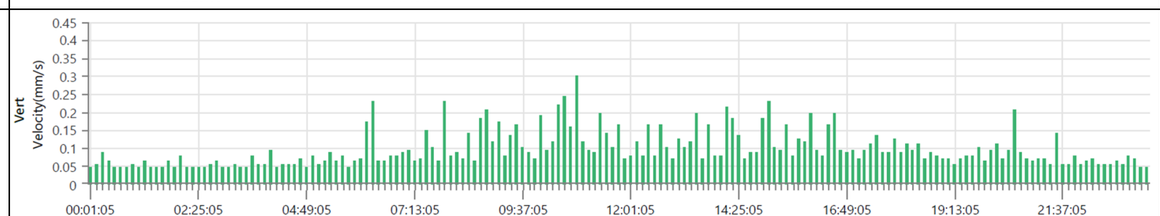
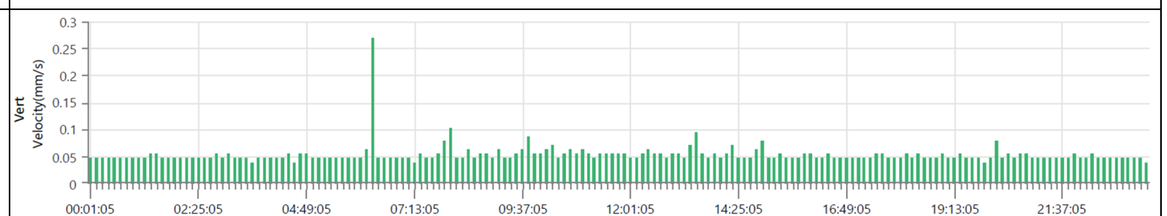
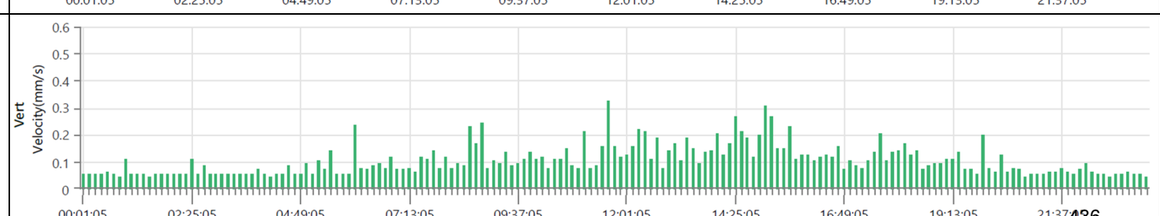
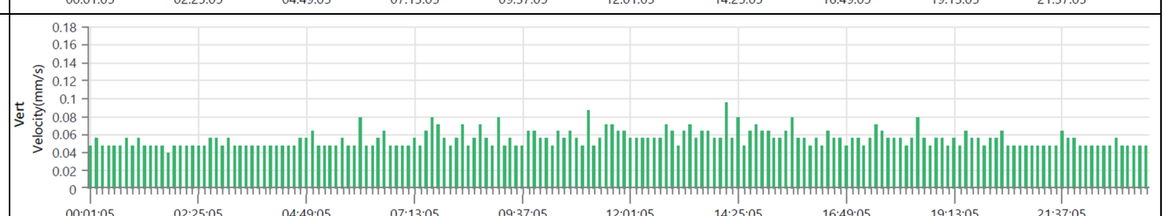
Figure 1 – Vibration Monitoring Plots: Daily Data, Road and Garage Comparison
Attachment 1 – Vibration Monitoring Data from Outdoor Location
Attachment 2 – Vibration Monitoring Data from Garage Location
Attachment 3 – Traffic Data

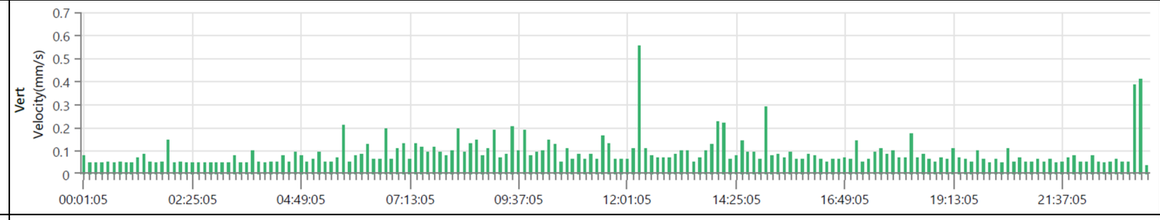
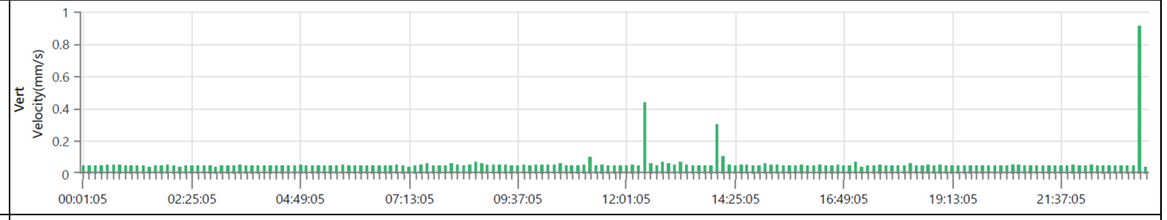
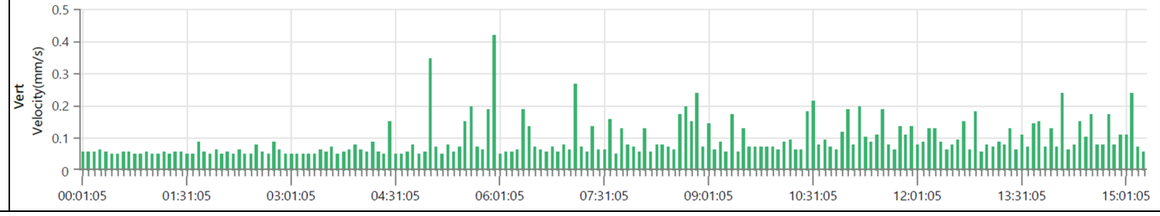
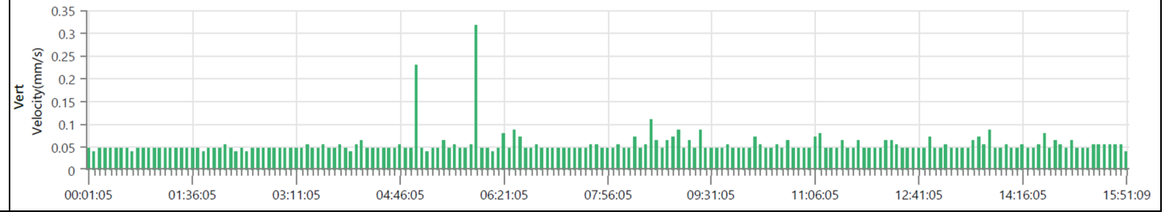
Figure 1

Vibration Monitoring Plots:

Daily Data, Road and Garage Comparison

| MONITORING DATE | OUTDOOR VIBRATION MONITORING LOCATION | ARAGE (BASEMENT) VIBRATION MONITORING LOCATION |
|---|---|---|
| Nov. 2 , 2024 |  |  |
| Nov. 22, 2024 |  |  |
| Nov. 23, 2024 |  |  |
| Nov. 24, 2024 |  |  |
| Nov. 25, 2024 |  |  |
| Nov. 26, 2024 |  |  |

| MONITORING DATE | OUTDOOR VIBRATION MONITORING LOCATION | ARAGE (BASEMENT) VIBRATION MONITORING LOCATION |
|---|---|---|
| Nov. 27, 2024 |  |  |
| Nov. 28, 2024 |  |  |
| Nov. 29, 2024 |  |  |
| Nov. 30, 2024 |  |  |
| Dec. , 2024 |  |  |
| Dec. 2, 2024 |  |  |
| Dec. 3, 2024 |  |  |

| MONITORING DATE | OUTDOOR VIBRATION MONITORING LOCATION | ARAGE (BASEMENT) VIBRATION MONITORING LOCATION |
|---|---|---|
| Dec. 4, 2024 |  |  |
| Dec. 5, 2024 |  |  |

Attachment 1

Vibration Monitoring Data from Outdoor Location

# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 21, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 21, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241121000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

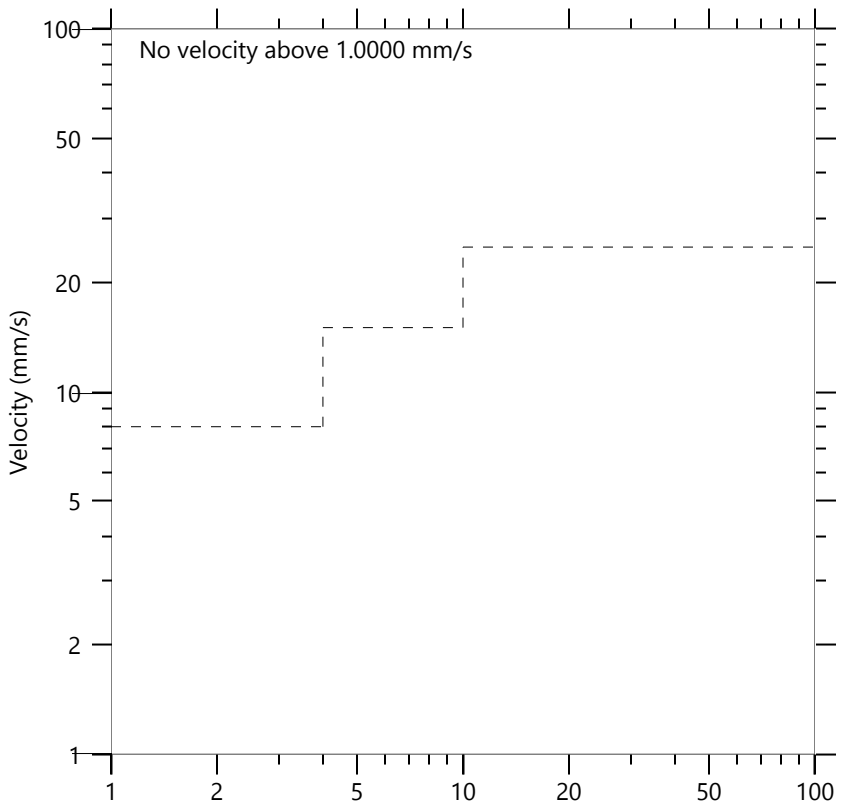
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

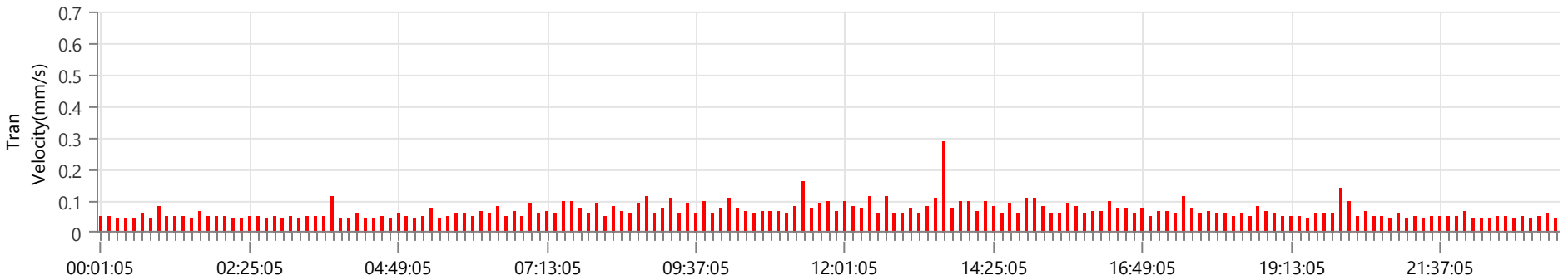
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.292 mm/s | 0.378 mm/s | 0.583 mm/s |
| Zero Crossing Frequency | 10.9 Hz | 13.5 Hz | 11.1 Hz |
| Date | Nov 21, 2024 | Nov 21, 2024 | Nov 21, 2024 |
| Time | 13:38:05 | 13:38:05 | 13:38:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.7 |

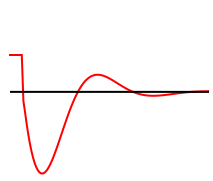
Peak Vector Sum 0.624 mm/s at November 21, 2024 13:38:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

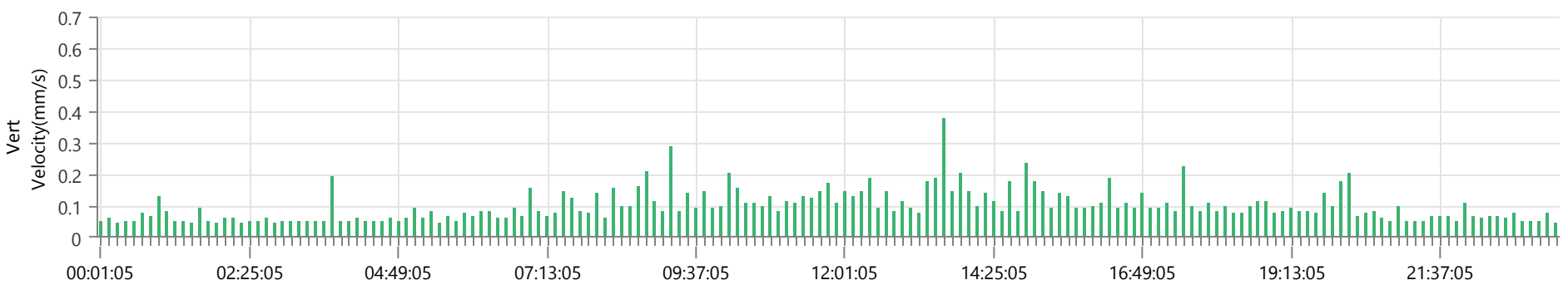


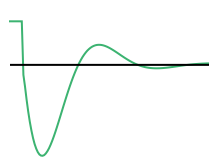

Sensor Check



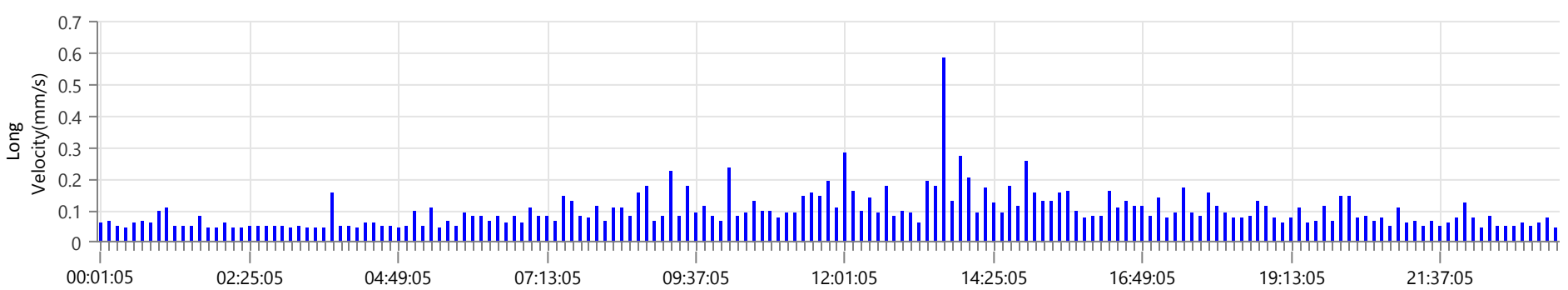



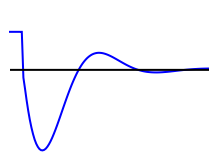
✓ Passed



✓ Passed



✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 22, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 22, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241122000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

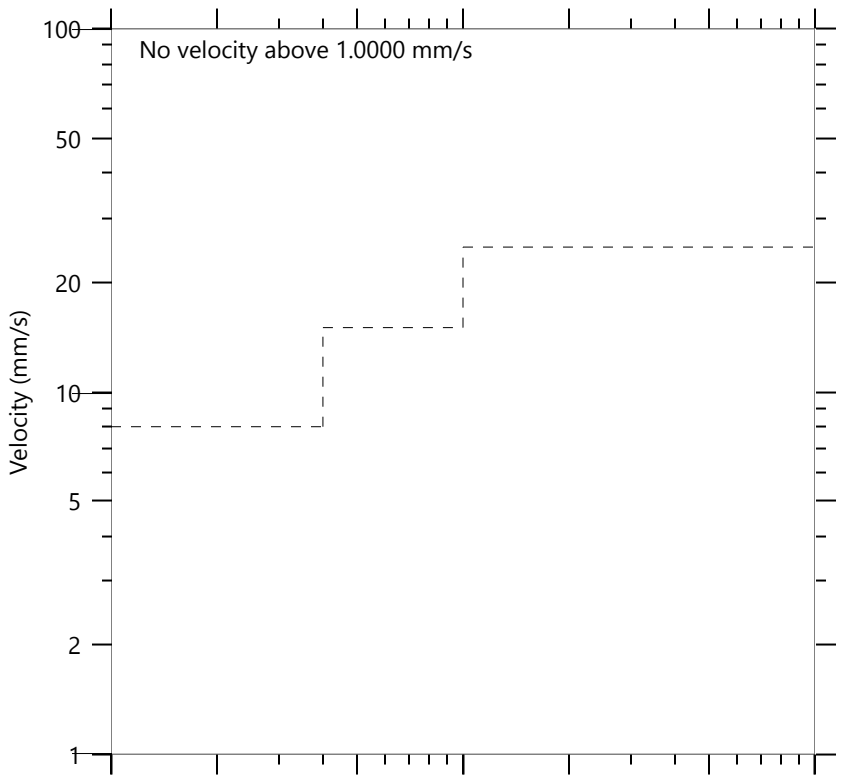
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

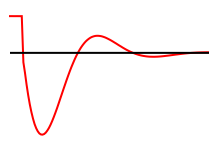
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.229 mm/s | 0.307 mm/s | 0.252 mm/s |
| Zero Crossing Frequency | 14.6 Hz | 16.5 Hz | 14.2 Hz |
| Date | Nov 22, 2024 | Nov 22, 2024 | Nov 22, 2024 |
| Time | 14:31:05 | 10:39:05 | 10:22:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.7 |

Peak Vector Sum 0.353 mm/s at November 22, 2024 11:58:05

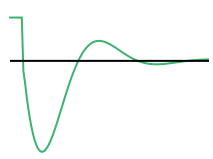
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



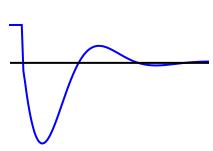

Sensor Check



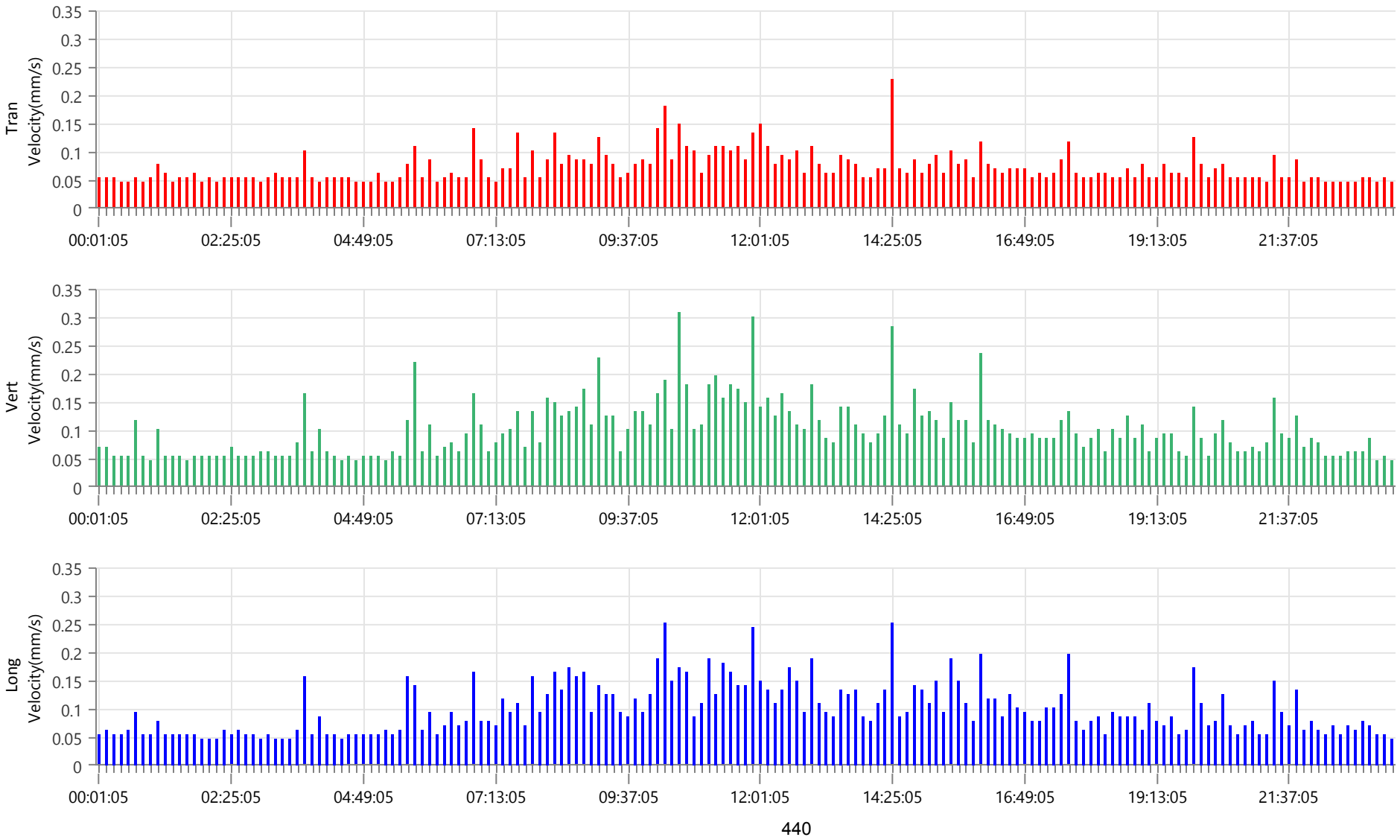
✓ Passed



✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 23, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 23, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241123000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

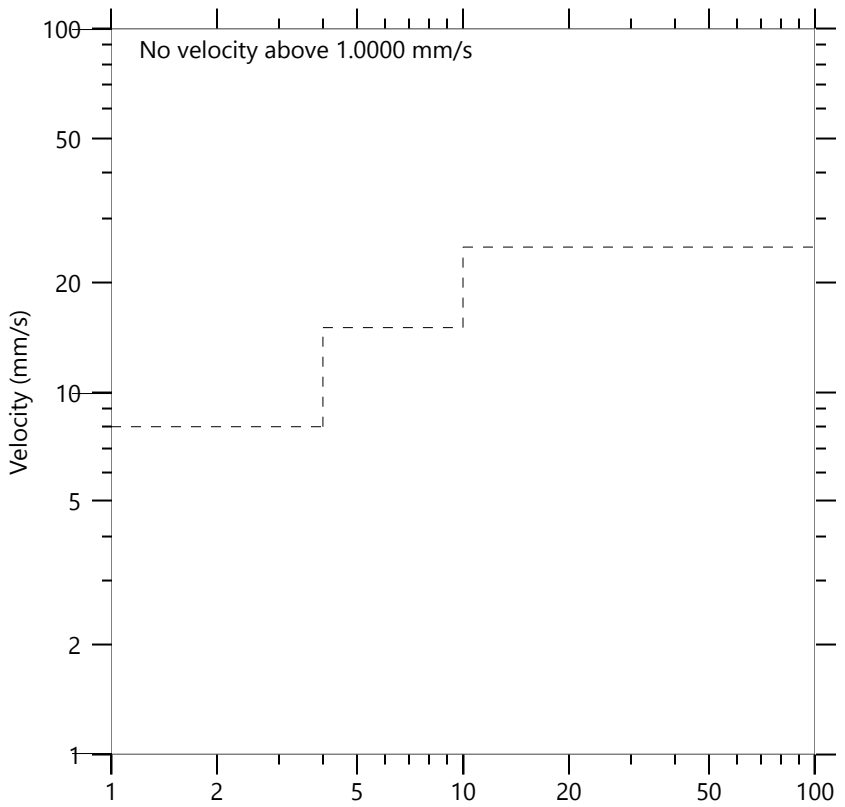
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

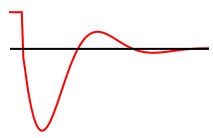
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.197 mm/s | 0.205 mm/s | 0.197 mm/s |
| Zero Crossing Frequency | 16.5 Hz | 17.7 Hz | 13.8 Hz |
| Date | Nov 23, 2024 | Nov 23, 2024 | Nov 23, 2024 |
| Time | 09:30:05 | 09:30:05 | 14:48:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.7 |

Peak Vector Sum 0.286 mm/s at November 23, 2024 09:30:05

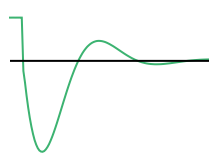
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



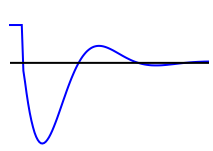

Sensor Check



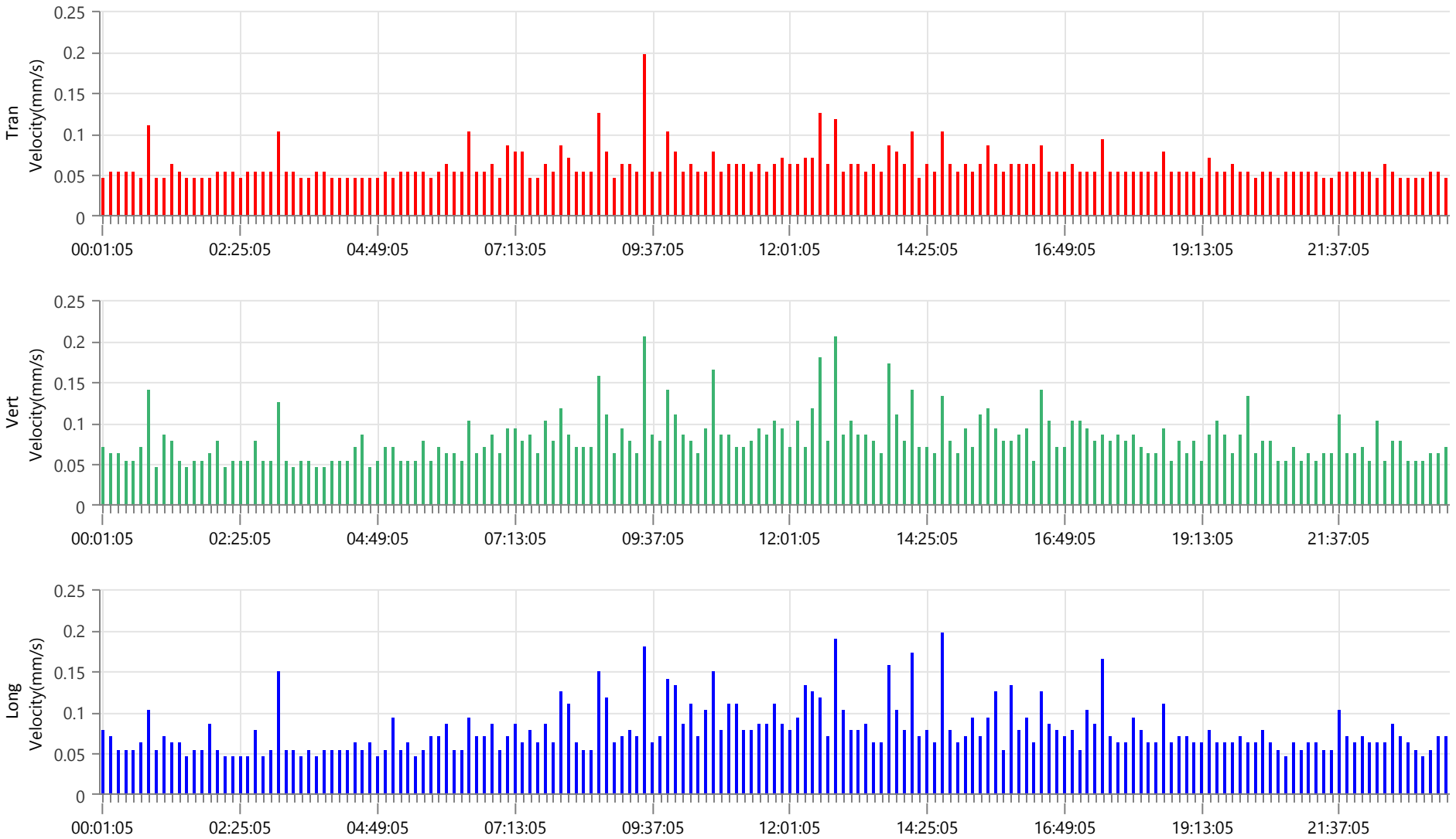
✓ Passed



✓ Passed



✓ Passed




441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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 24, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 24, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241124000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

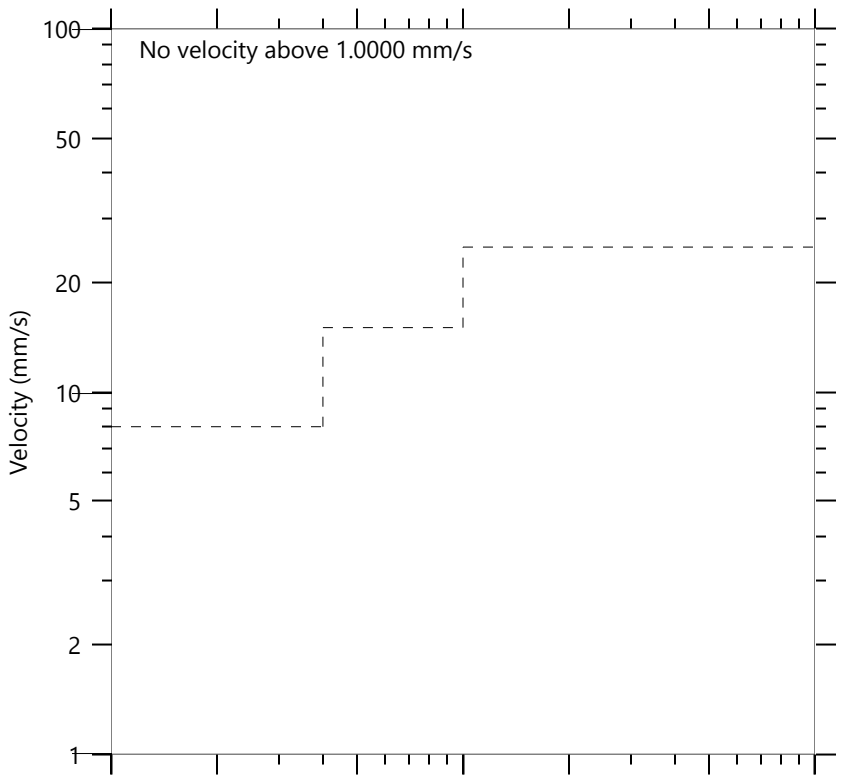
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

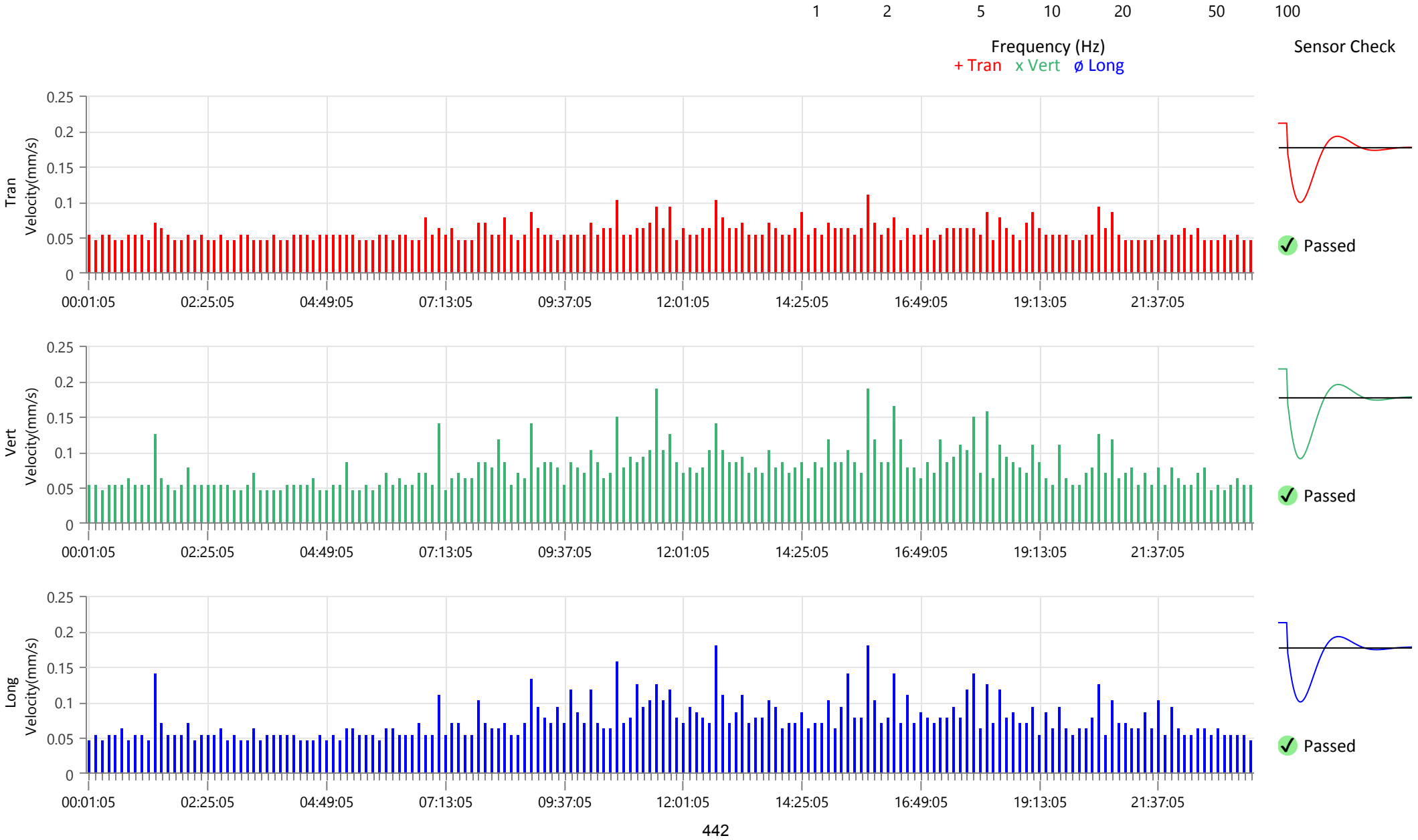
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | 0.189 mm/s | 0.181 mm/s |
| Zero Crossing Frequency | 19.0 Hz | 17.7 Hz | 13.8 Hz |
| Date | Nov 24, 2024 | Nov 24, 2024 | Nov 24, 2024 |
| Time | 15:47:05 | 11:31:05 | 12:47:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.7 | 4.5 | 4.7 |

Peak Vector Sum 0.239 mm/s at November 24, 2024 15:47:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 25, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 25, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241125000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

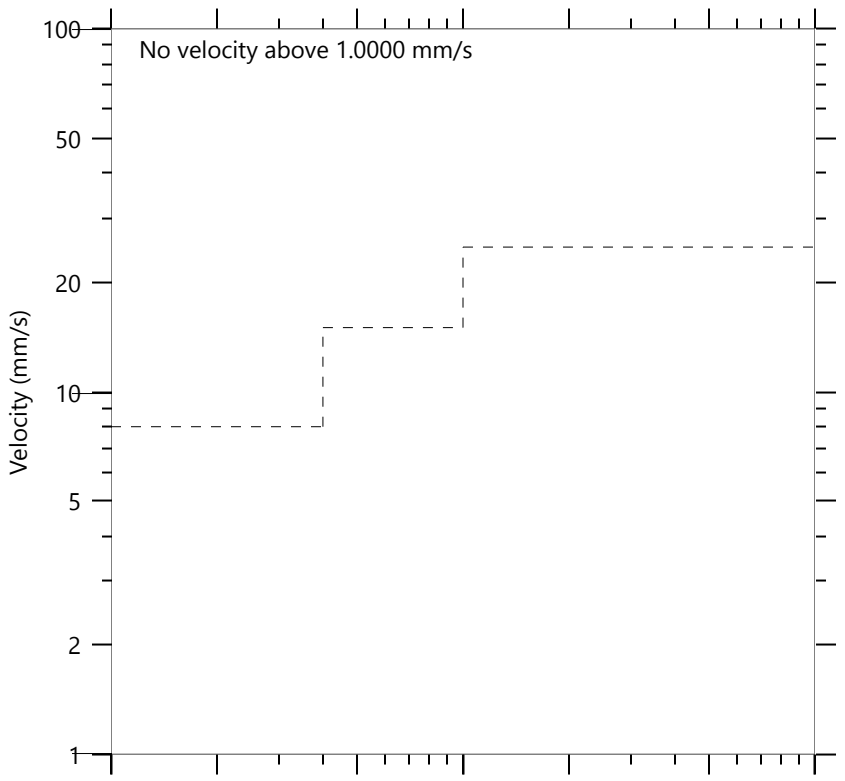
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

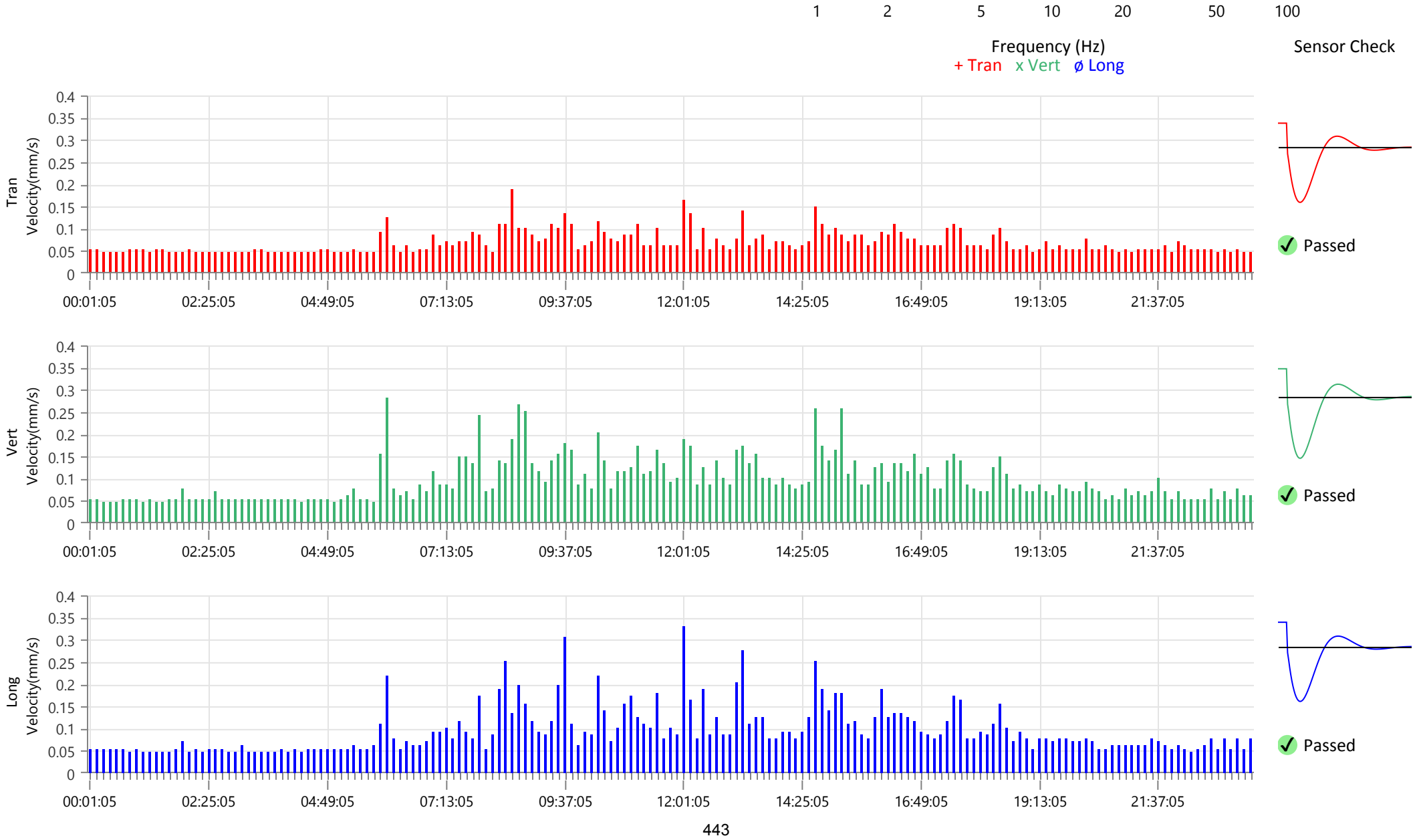
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.189 mm/s | 0.284 mm/s | 0.331 mm/s |
| Zero Crossing Frequency | 14.2 Hz | 16.0 Hz | 10.9 Hz |
| Date | Nov 25, 2024 | Nov 25, 2024 | Nov 25, 2024 |
| Time | 08:35:05 | 06:05:05 | 12:02:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

Peak Vector Sum 0.369 mm/s at November 25, 2024 06:05:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 26, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 26, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241126000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

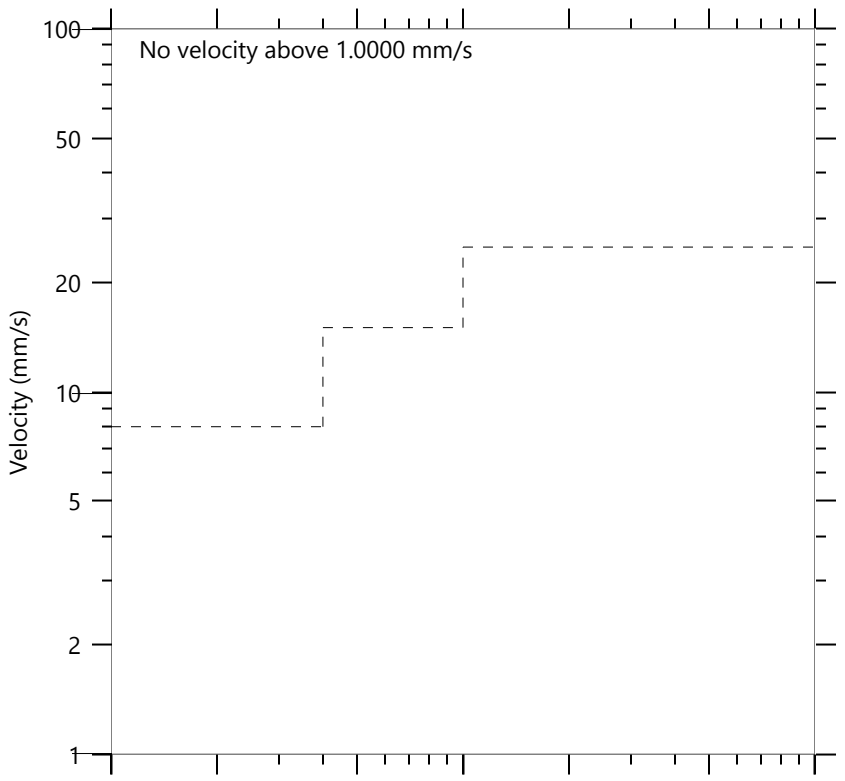
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

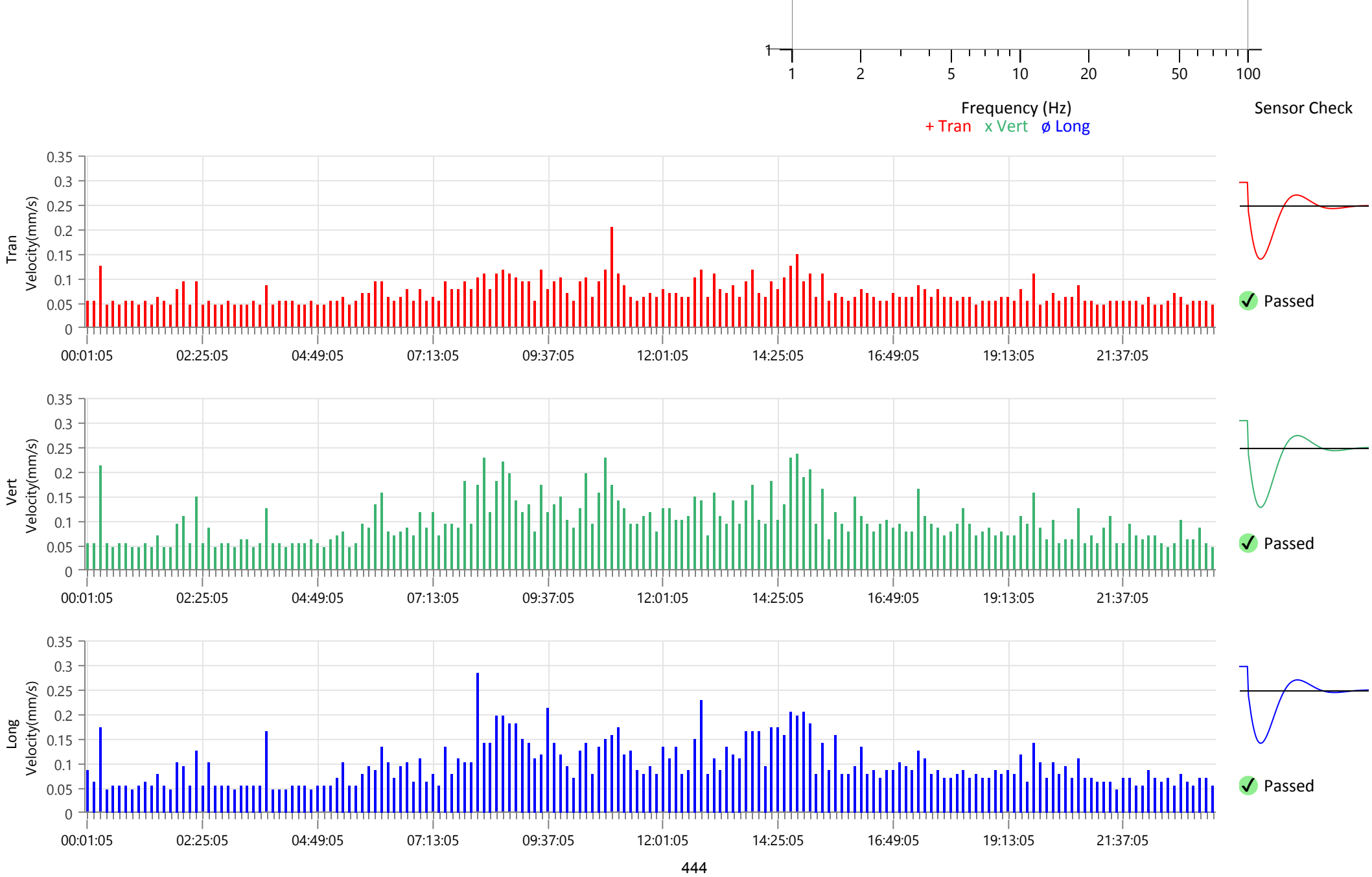
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.205 mm/s | 0.236 mm/s | 0.284 mm/s |
| Zero Crossing Frequency | >100 Hz | 17.1 Hz | 11.1 Hz |
| Date | Nov 26, 2024 | Nov 26, 2024 | Nov 26, 2024 |
| Time | 11:00:05 | 14:53:05 | 08:10:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

Peak Vector Sum 0.302 mm/s at November 26, 2024 08:10:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 27, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 27, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241127000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

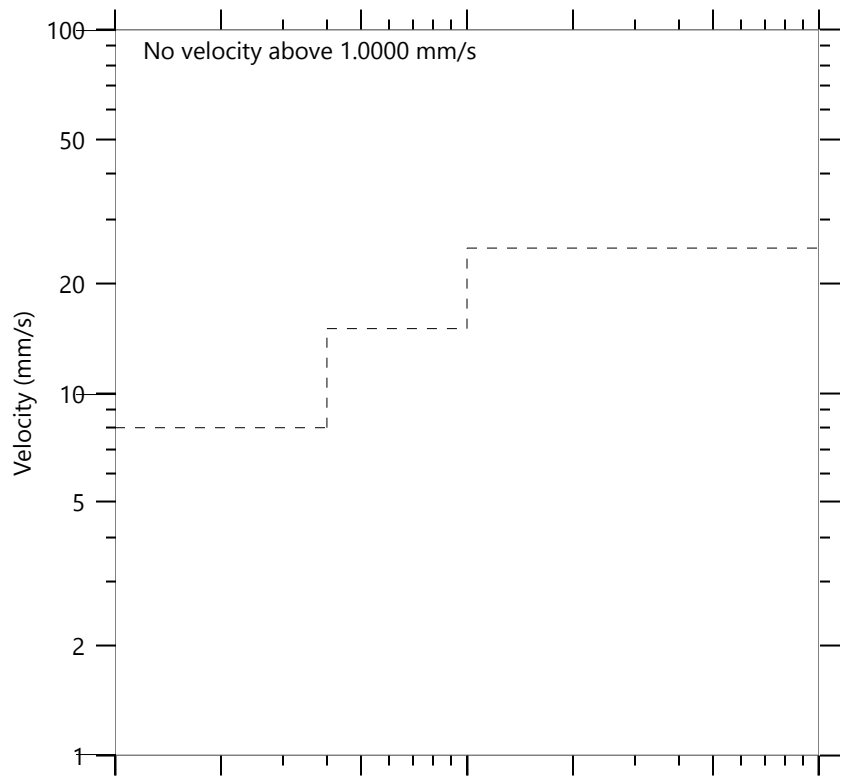
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

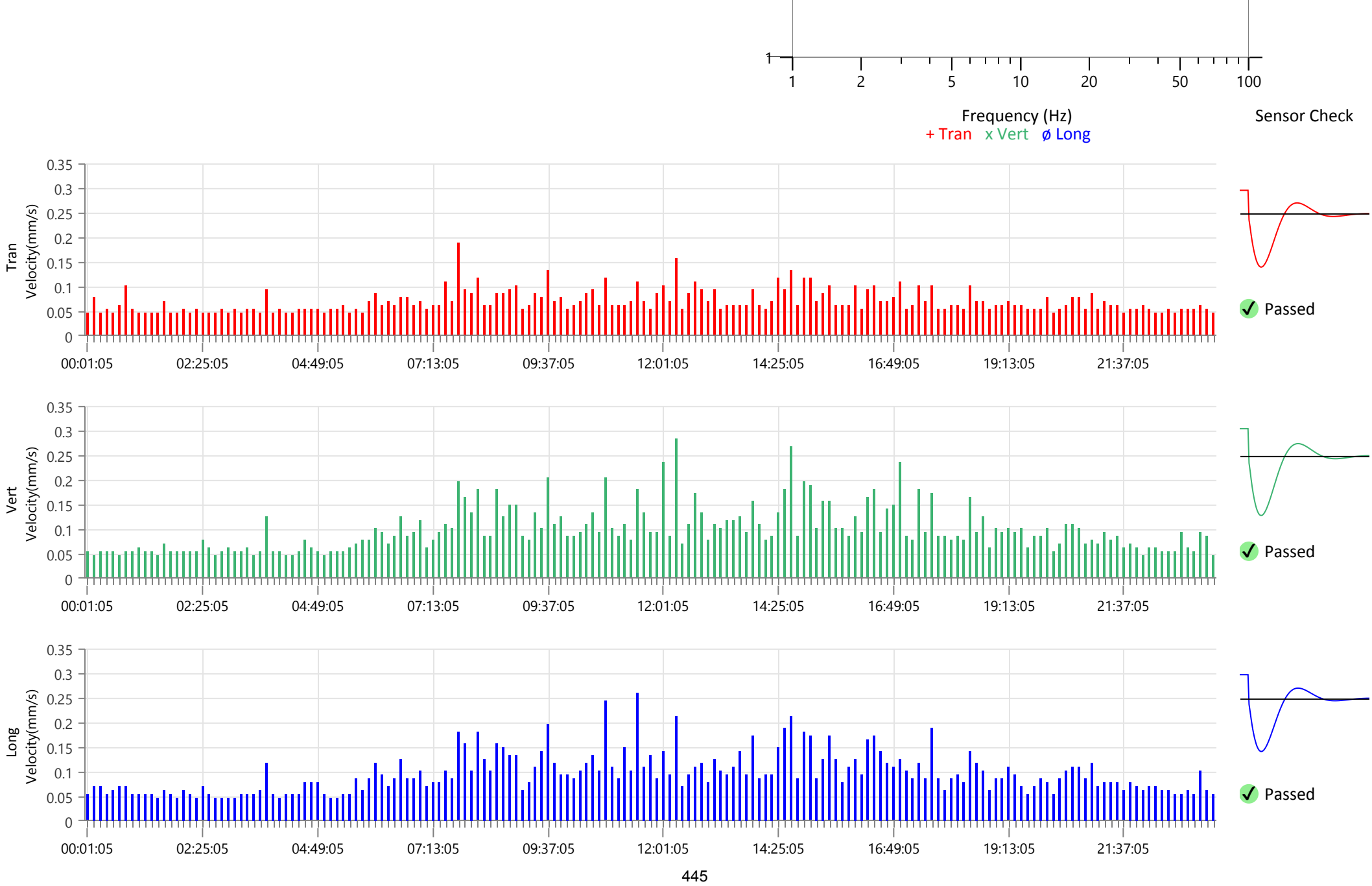
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.189 mm/s | 0.284 mm/s | 0.260 mm/s |
| Zero Crossing Frequency | 15.1 Hz | 15.5 Hz | 11.4 Hz |
| Date | Nov 27, 2024 | Nov 27, 2024 | Nov 27, 2024 |
| Time | 07:46:05 | 12:19:05 | 11:32:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

Peak Vector Sum 0.329 mm/s at November 27, 2024 14:44:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 28, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 28, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241128000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

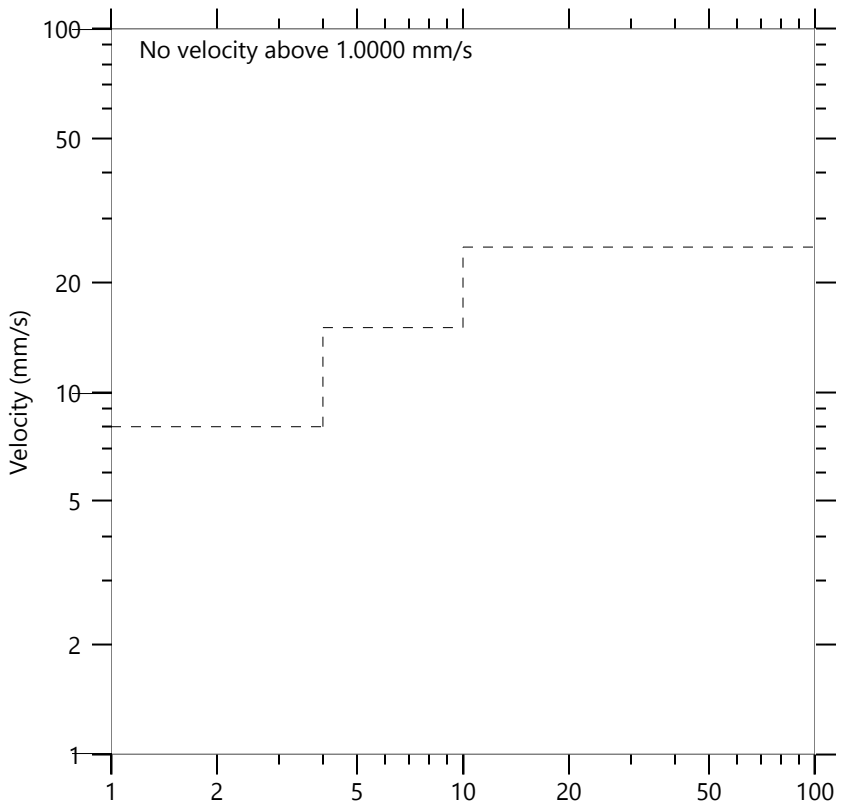
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.150 mm/s | 0.284 mm/s | 0.300 mm/s |
| Zero Crossing Frequency | 14.6 Hz | 17.1 Hz | 10.7 Hz |
| Date | Nov 28, 2024 | Nov 28, 2024 | Nov 28, 2024 |
| Time | 09:52:05 | 13:24:05 | 09:07:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

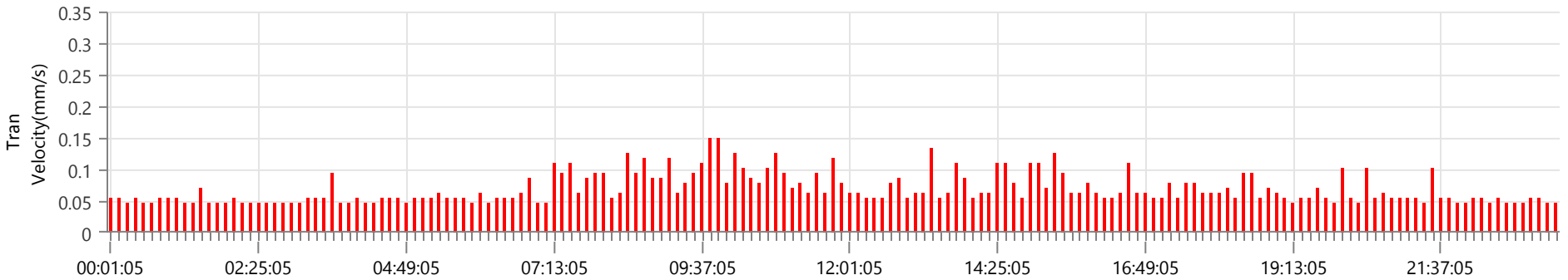
Peak Vector Sum 0.319 mm/s at November 28, 2024 13:24:05

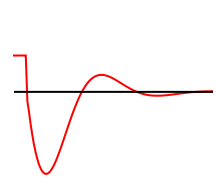
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



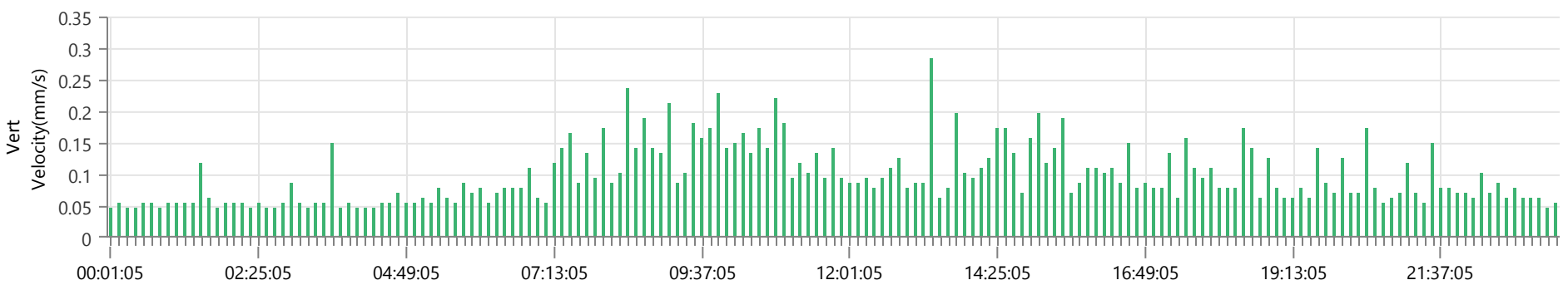

Frequency (Hz)
+ Tran x Vert ø Long

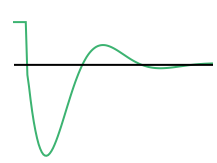
Sensor Check



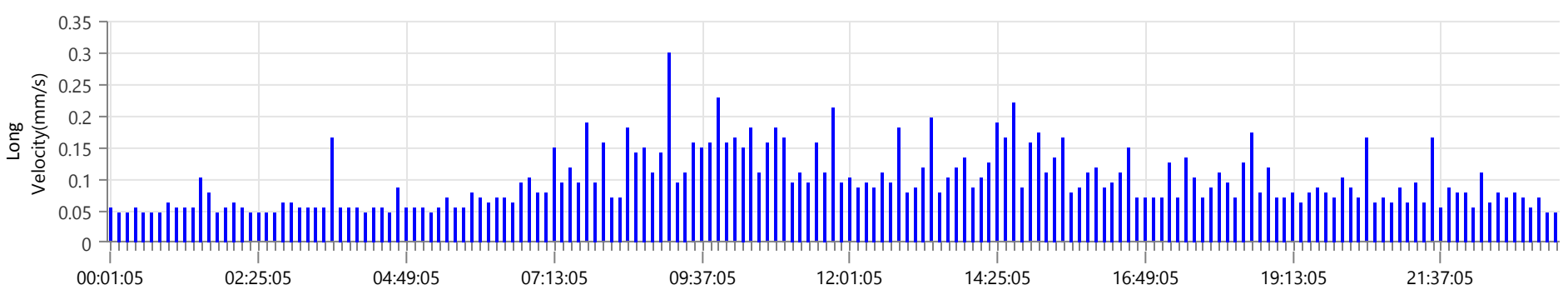



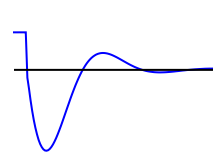
✓ Passed



✓ Passed



✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 29, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 29, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241129000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

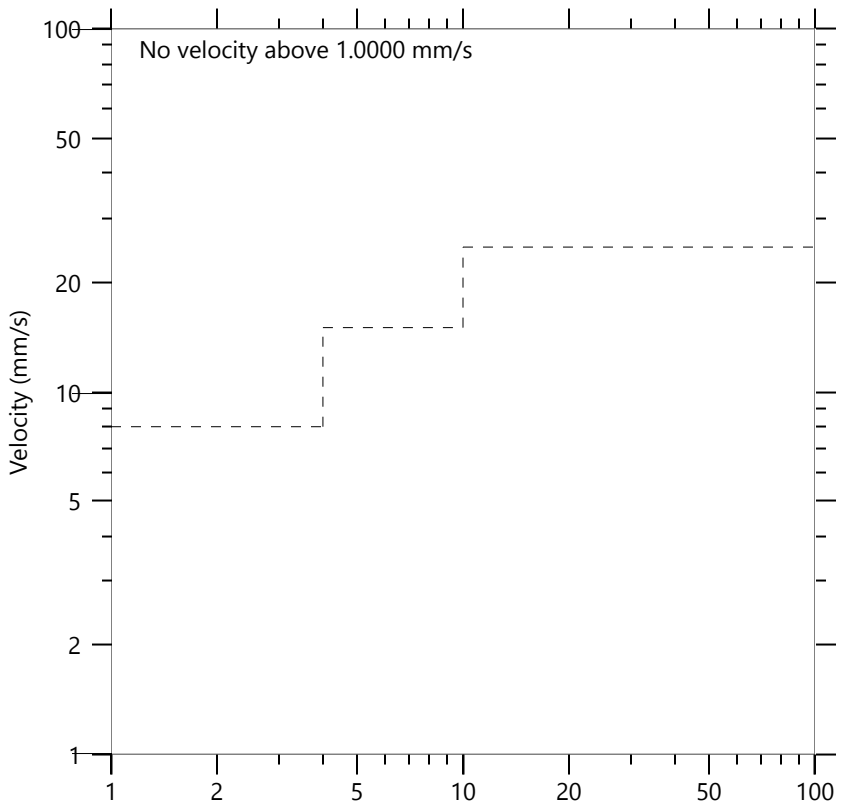
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

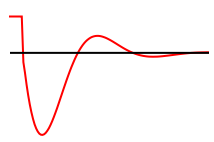
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.166 mm/s | 0.284 mm/s | 0.236 mm/s |
| Zero Crossing Frequency | 14.6 Hz | 36.6 Hz | 13.5 Hz |
| Date | Nov 29, 2024 | Nov 29, 2024 | Nov 29, 2024 |
| Time | 12:05:05 | 08:58:05 | 12:30:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

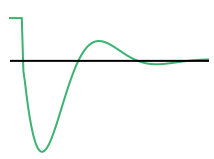
Peak Vector Sum 0.313 mm/s at November 29, 2024 18:04:05

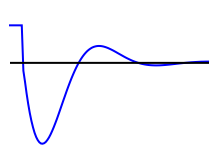
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

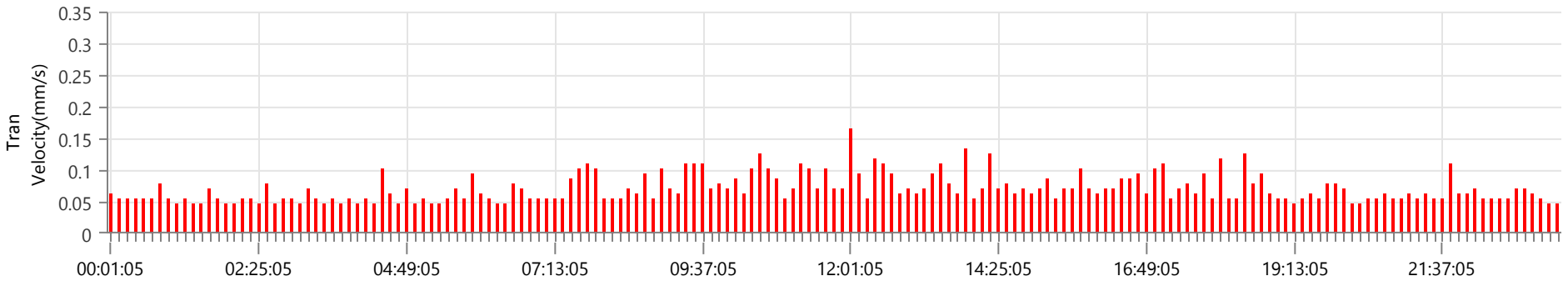


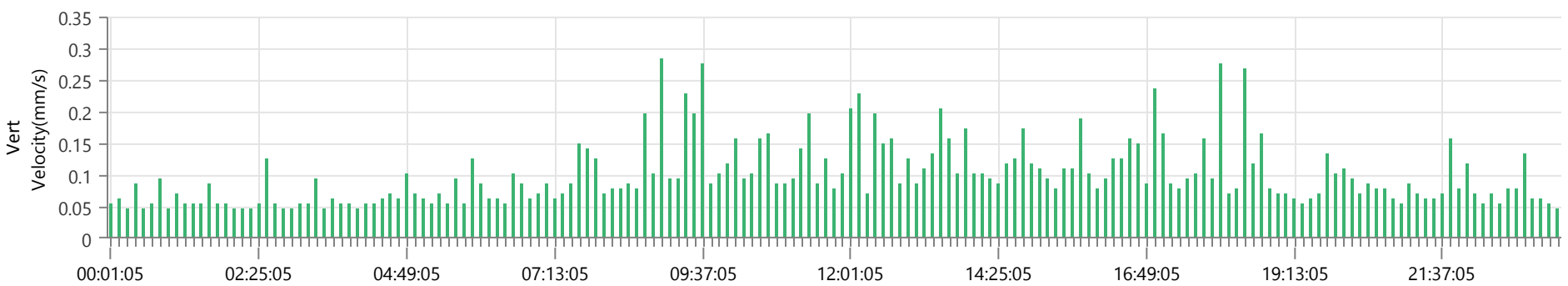

Sensor Check

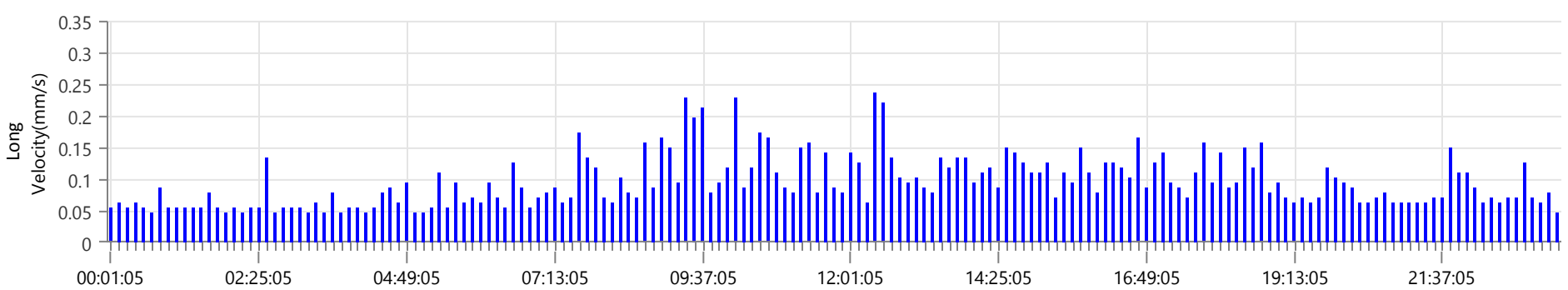

✓ Passed


✓ Passed


✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 30, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | November 30, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241130000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

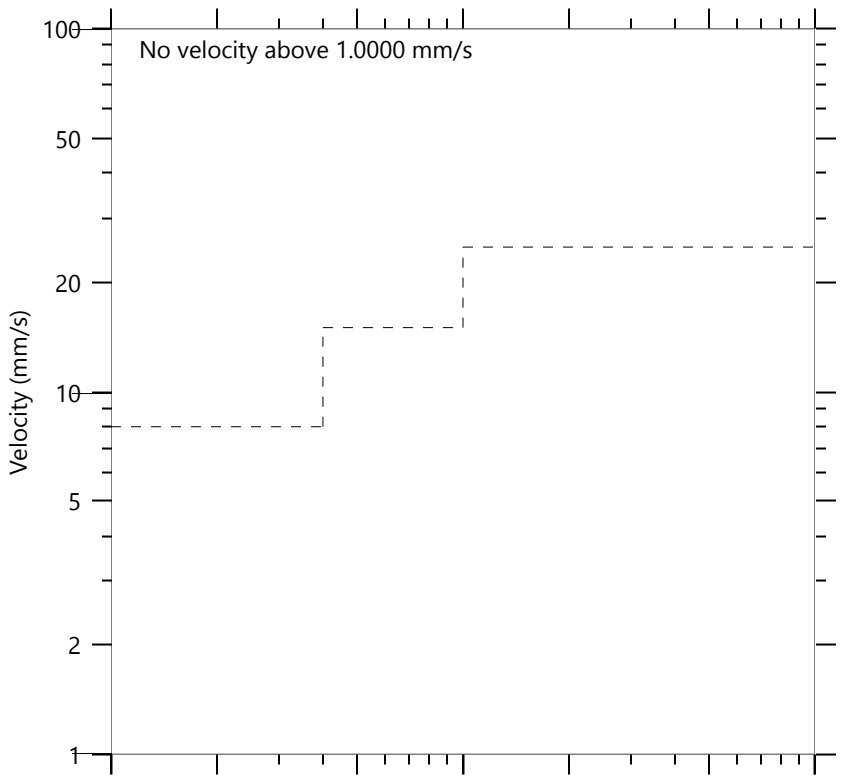
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

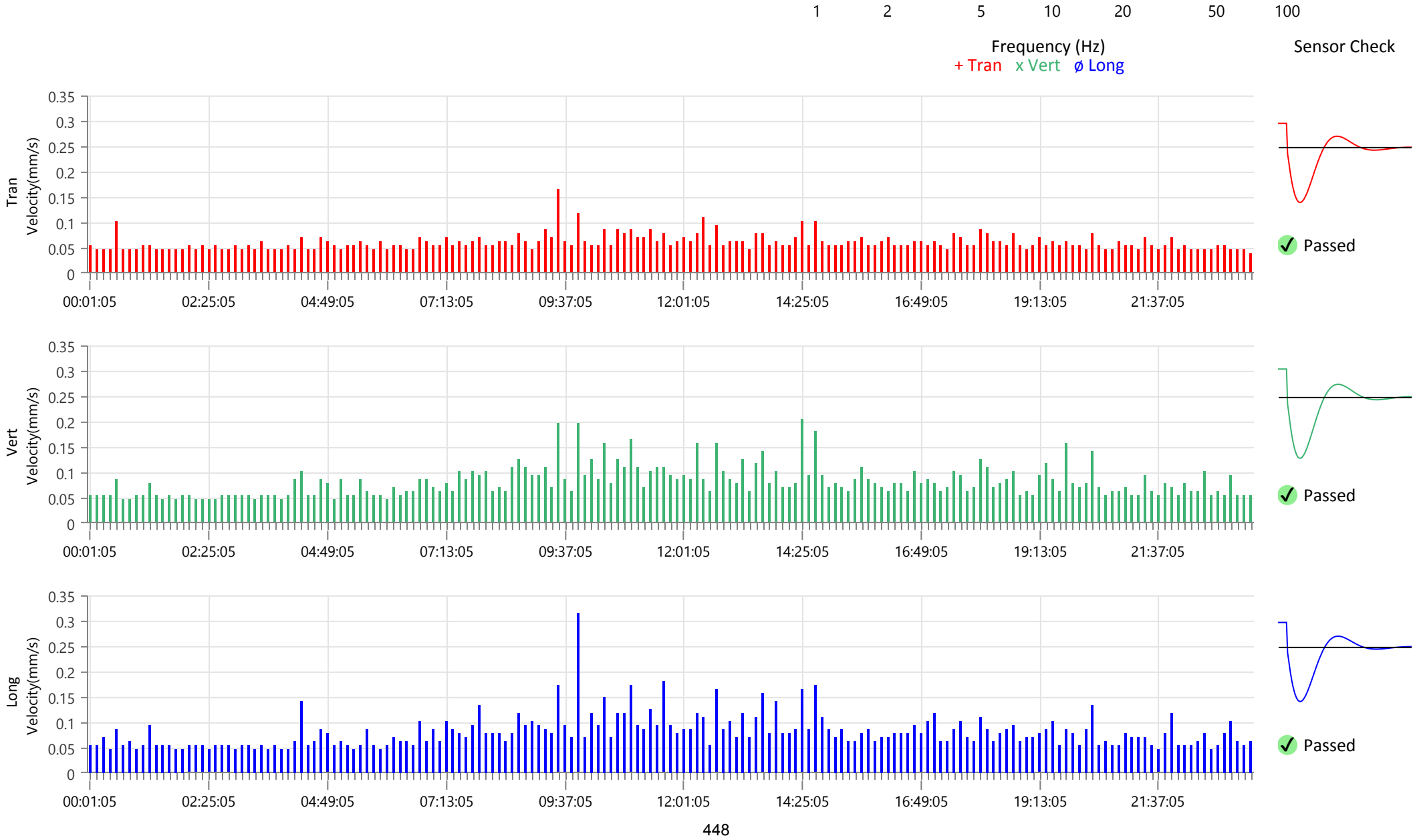
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.166 mm/s | 0.205 mm/s | 0.315 mm/s |
| Zero Crossing Frequency | 15.5 Hz | 18.3 Hz | 12.2 Hz |
| Date | Nov 30, 2024 | Nov 30, 2024 | Nov 30, 2024 |
| Time | 09:36:05 | 14:32:05 | 09:56:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.5 | 4.7 |

Peak Vector Sum 0.336 mm/s at November 30, 2024 09:56:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 1, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | December 1, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241201000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

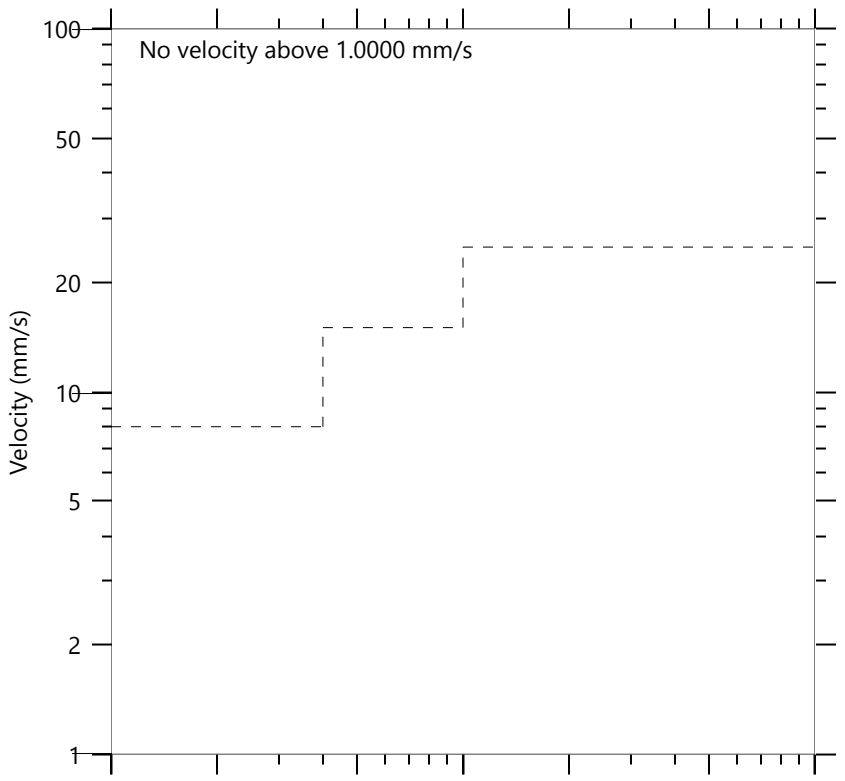
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

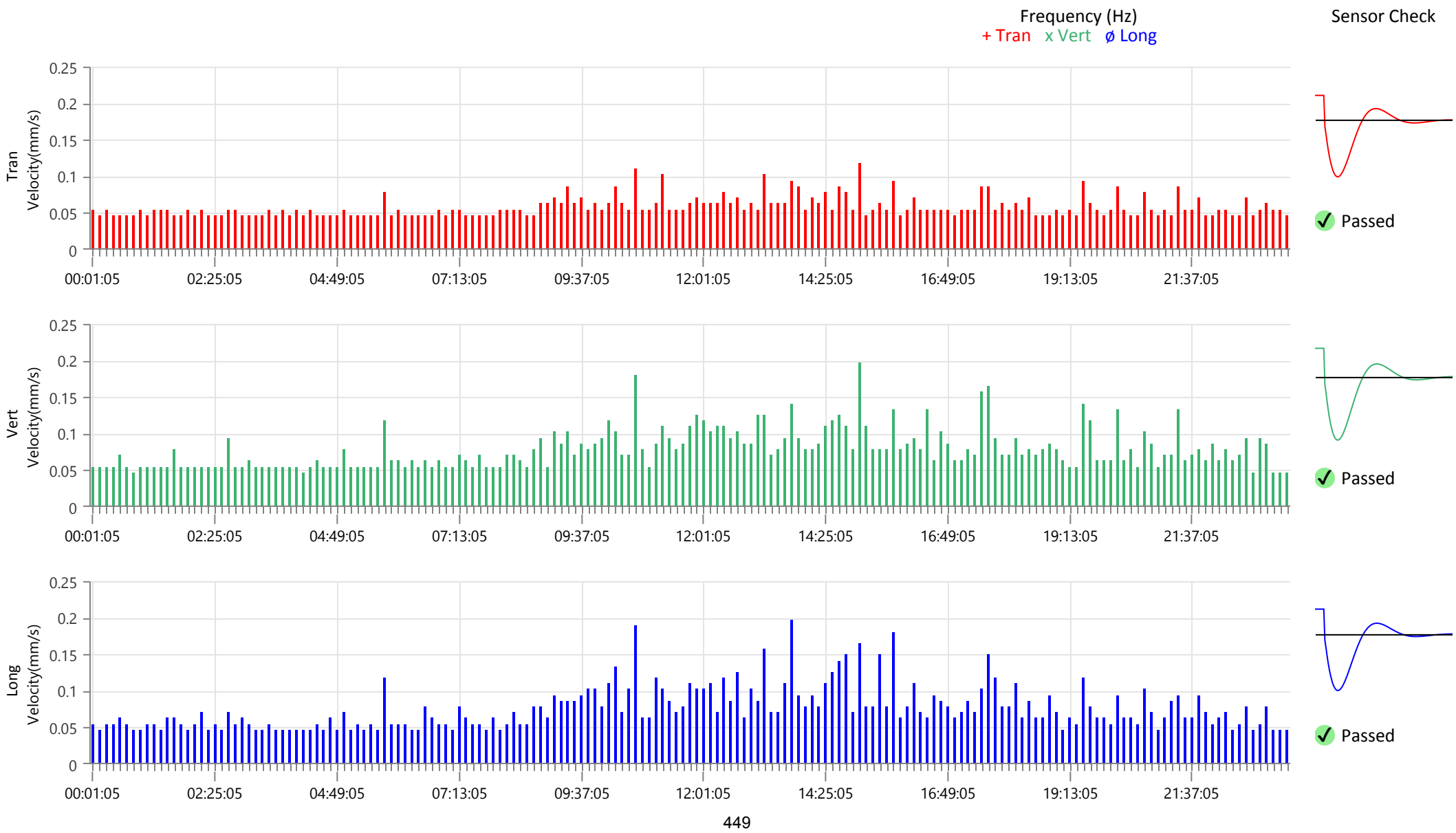
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | 0.197 mm/s | 0.197 mm/s |
| Zero Crossing Frequency | 17.7 Hz | 16.5 Hz | 12.8 Hz |
| Date | Dec 1, 2024 | Dec 1, 2024 | Dec 1, 2024 |
| Time | 15:05:05 | 15:05:05 | 13:45:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.6 | 4.8 |

Peak Vector Sum 0.250 mm/s at December 1, 2024 10:46:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 2, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | December 2, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241202000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

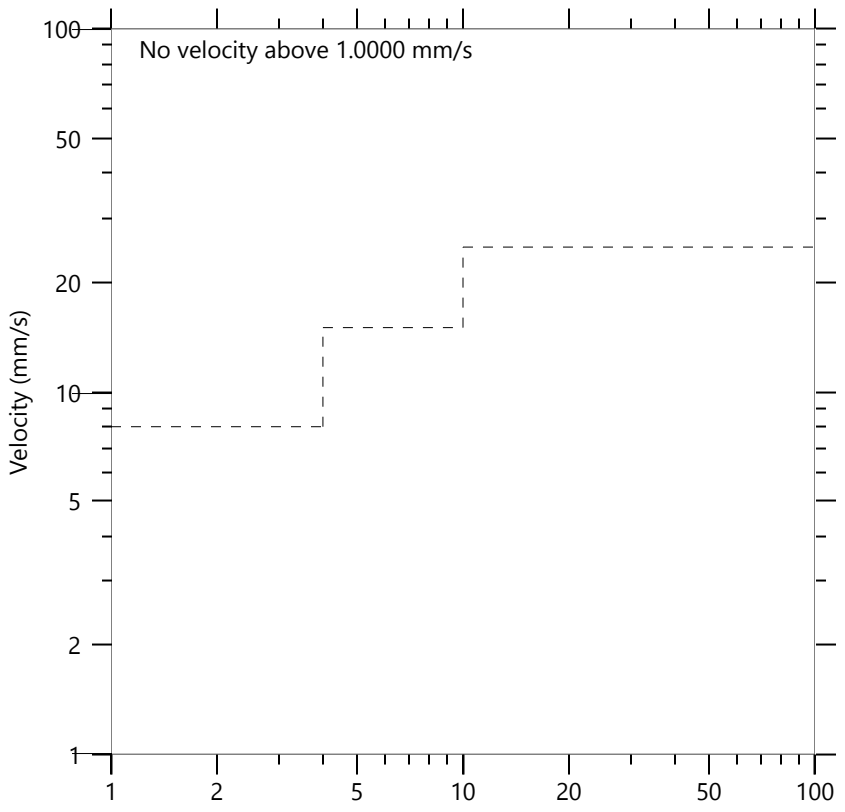
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

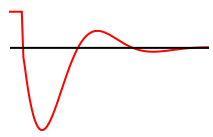
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.158 mm/s | 0.300 mm/s | 0.370 mm/s |
| Zero Crossing Frequency | 64.0 Hz | 16.5 Hz | 56.9 Hz |
| Date | Dec 2, 2024 | Dec 2, 2024 | Dec 2, 2024 |
| Time | 06:24:05 | 10:50:05 | 06:24:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.6 | 4.8 |

Peak Vector Sum 0.402 mm/s at December 2, 2024 06:24:05

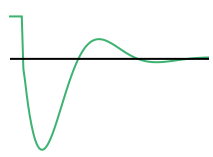
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



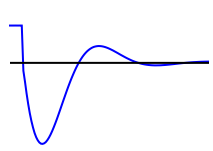

Sensor Check



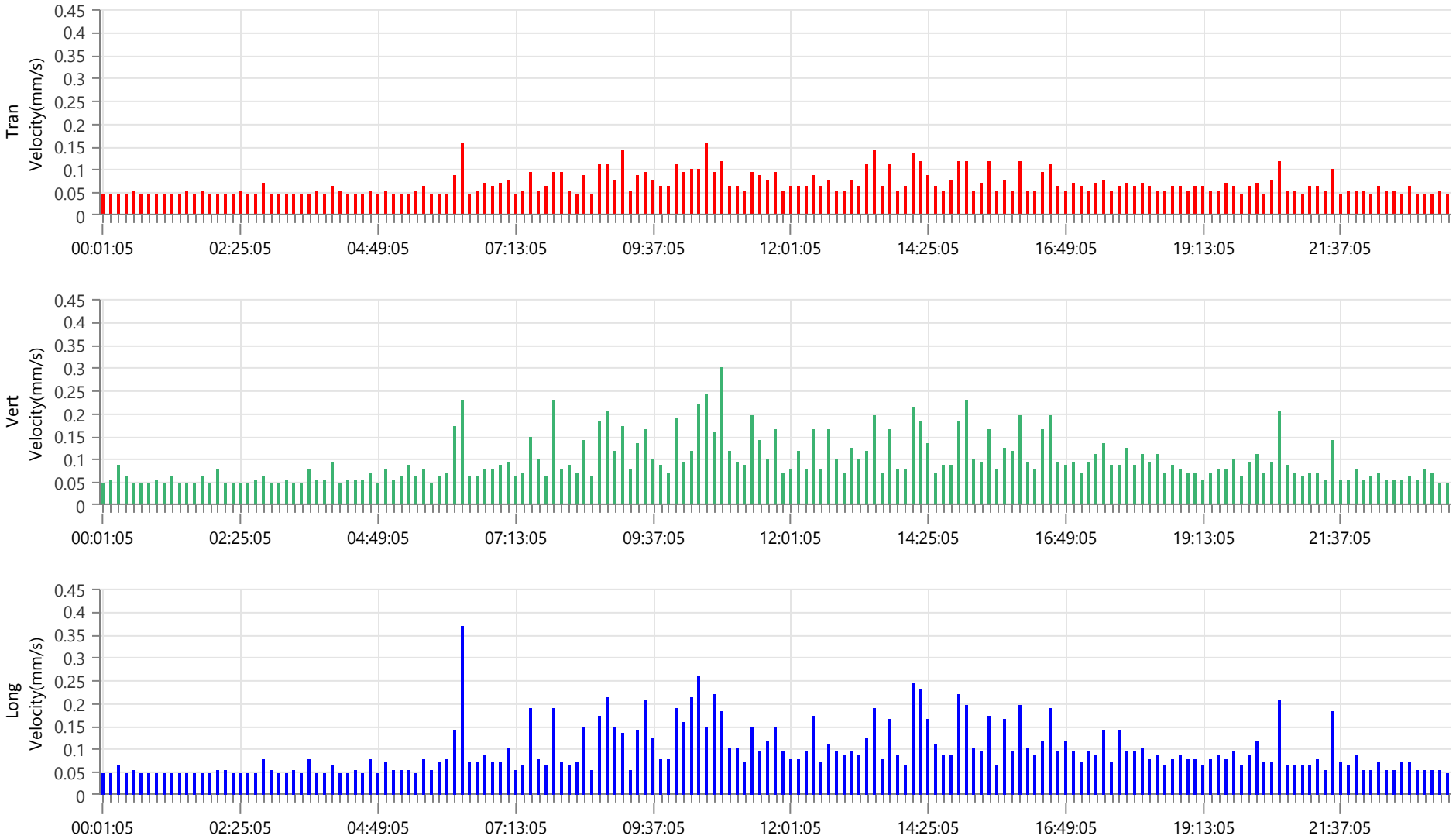
✓ Passed



✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 3, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | December 3, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241203000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

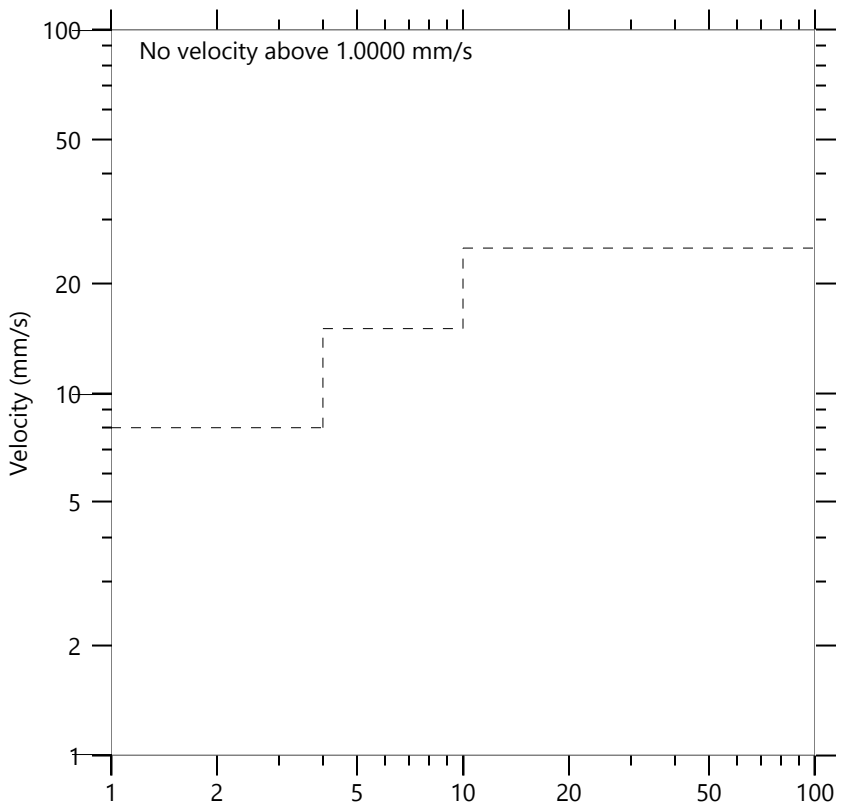
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

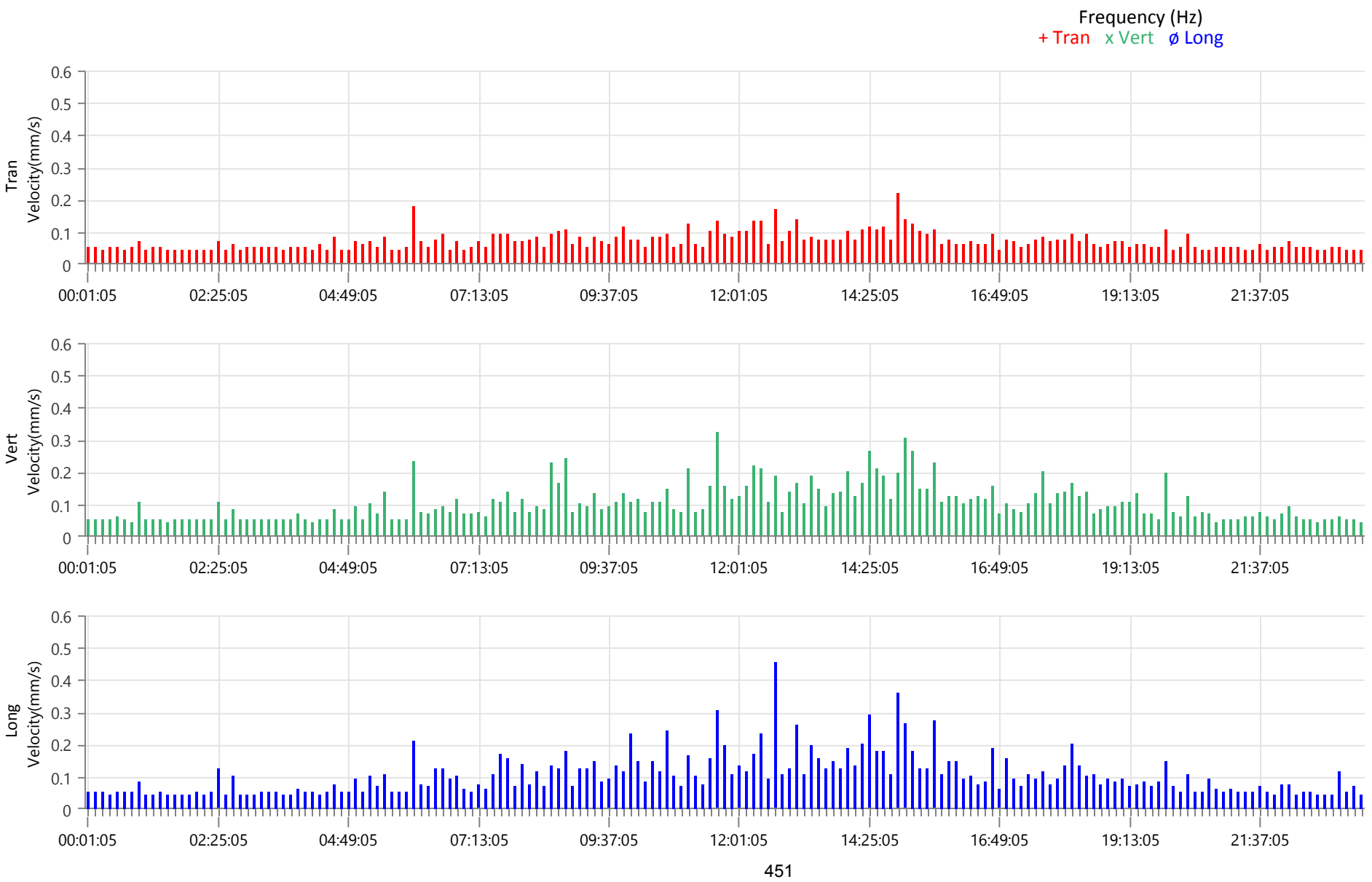
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.221 mm/s | 0.323 mm/s | 0.457 mm/s |
| Zero Crossing Frequency | 11.6 Hz | 15.5 Hz | 11.1 Hz |
| Date | Dec 3, 2024 | Dec 3, 2024 | Dec 3, 2024 |
| Time | 15:04:05 | 11:44:05 | 12:48:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.6 | 4.8 |

Peak Vector Sum 0.467 mm/s at December 3, 2024 12:48:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 4, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | December 4, 2024 23:29:59 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241204000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

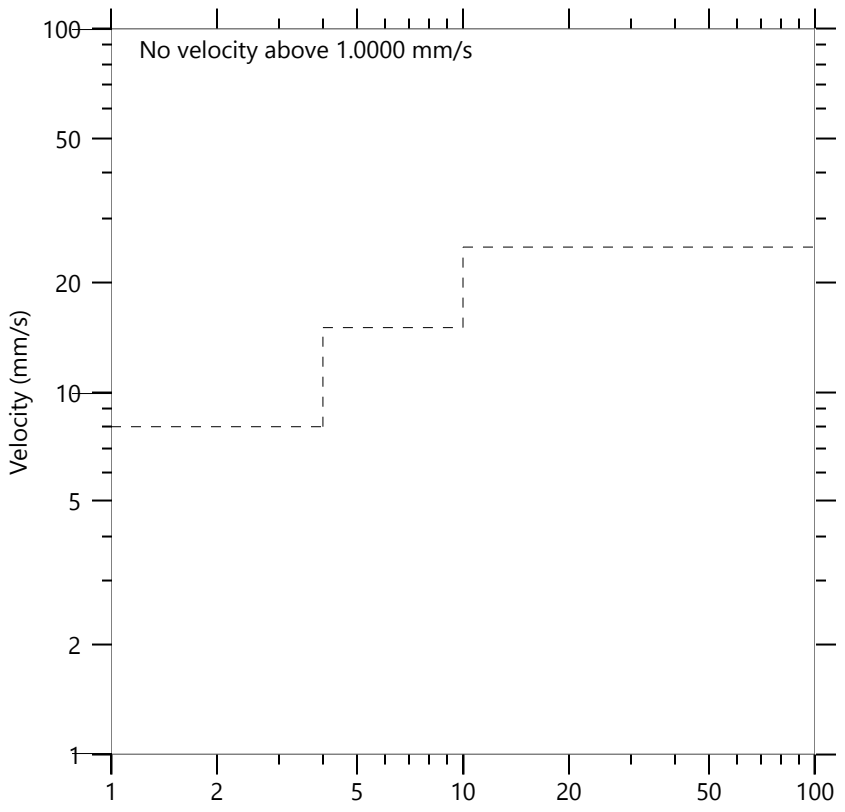
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

**Post Event Notes** No text to be displayed.

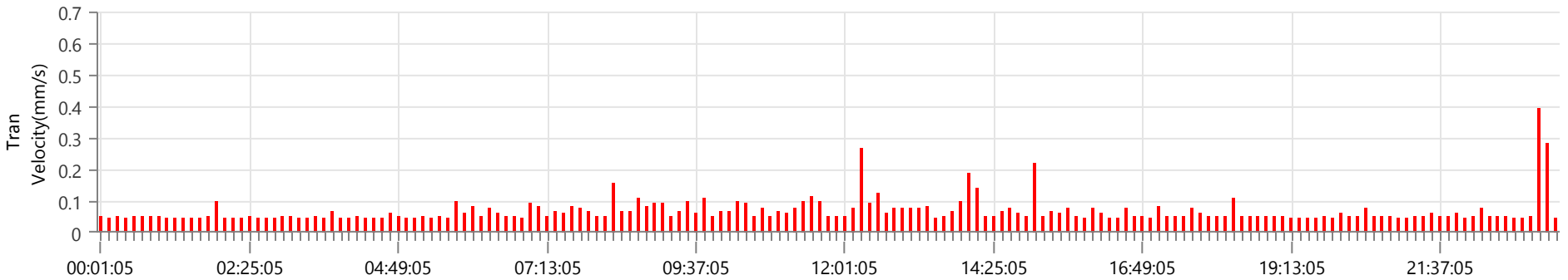
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.394 mm/s | 0.552 mm/s | 0.631 mm/s |
| Zero Crossing Frequency | 46.5 Hz | 51.2 Hz | 51.2 Hz |
| Date | Dec 4, 2024 | Dec 4, 2024 | Dec 4, 2024 |
| Time | 23:20:05 | 12:24:05 | 12:24:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.6 | 4.8 |

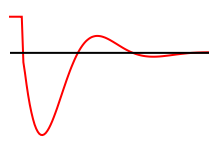
Peak Vector Sum 0.707 mm/s at December 4, 2024 12:24:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

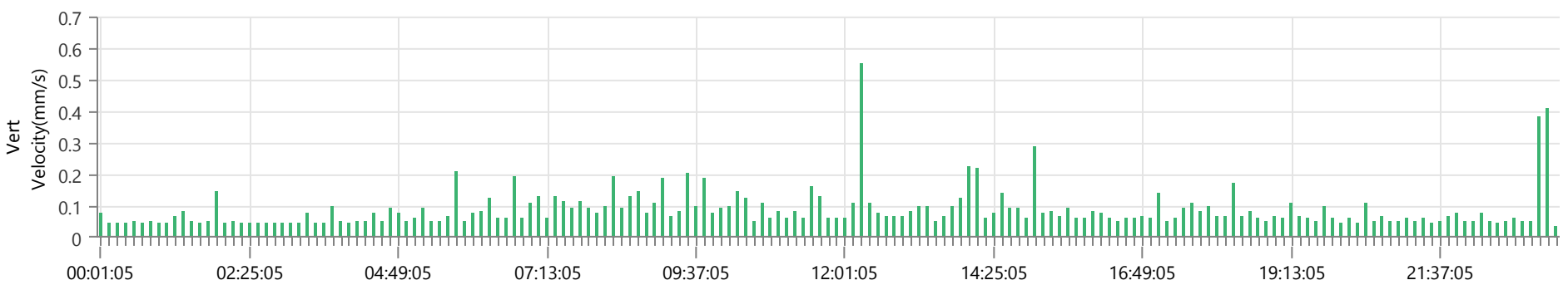


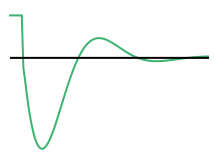

Sensor Check



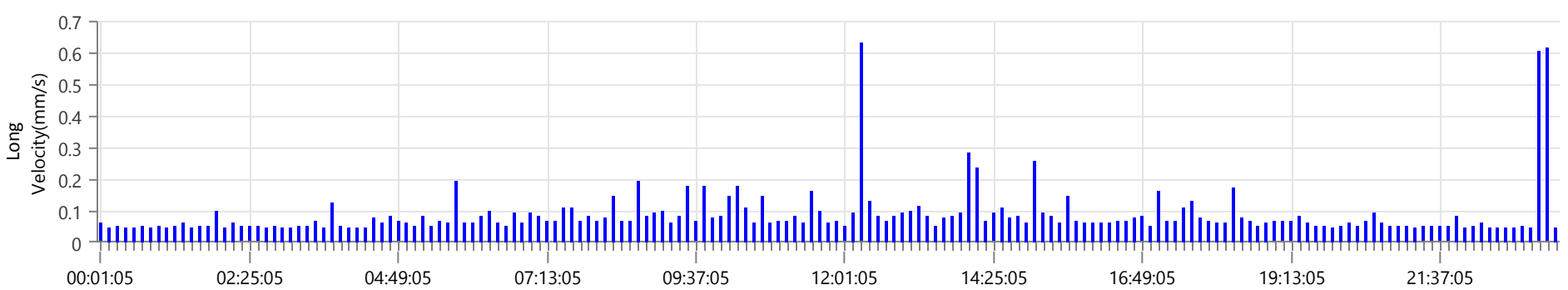



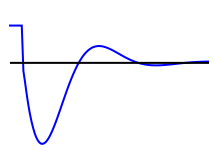
✓ Passed



✓ Passed



✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 5, 2024 00:00:05 | **Serial Number** | UM17220 |
| **Finish** | December 5, 2024 15:15:13 | **Model Number** | Micromate ISEE 11.0AK |
| **Number of Intervals/Interval** | 915.13/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 11, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST WEST.mmb | **Event File Name** | UM17220_20241205000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST WEST
**Client** NAPSCI
**Company**
**General Notes**

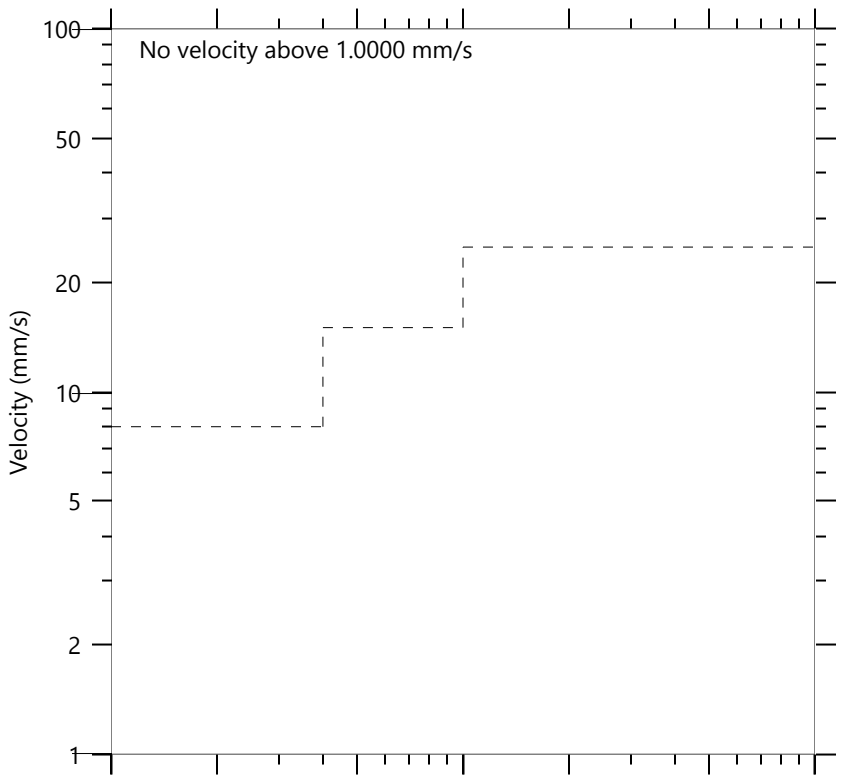
**Extended Notes** UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

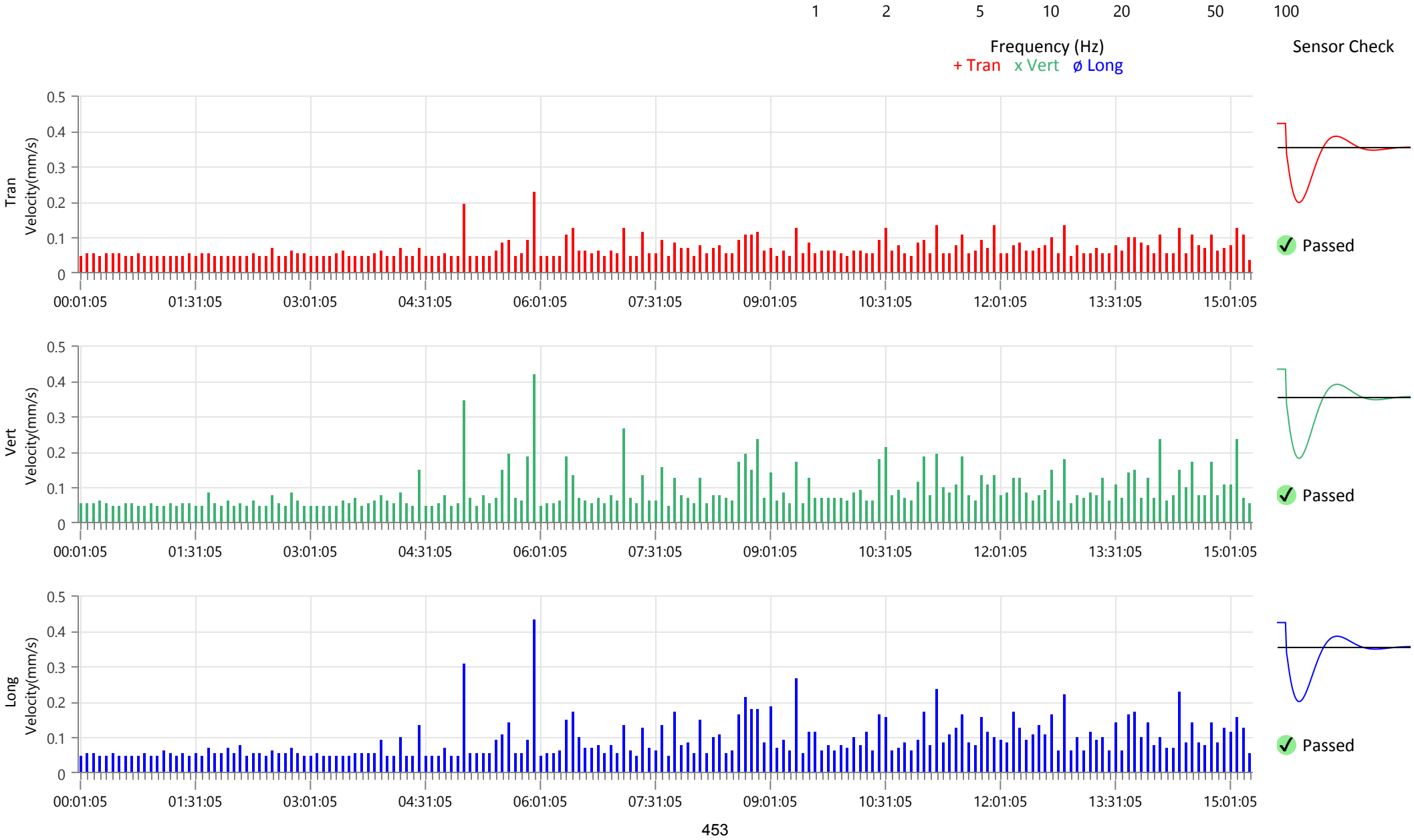
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.229 mm/s | 0.418 mm/s | 0.434 mm/s |
| Zero Crossing Frequency | 28.4 Hz | 30.1 Hz | 39.4 Hz |
| Date | Dec 5, 2024 | Dec 5, 2024 | Dec 5, 2024 |
| Time | 05:57:05 | 05:57:05 | 05:57:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.3 Hz | 7.3 Hz | 7.3 Hz |
| Overswing Ratio | 4.8 | 4.6 | 4.8 |

Peak Vector Sum 0.472 mm/s at December 5, 2024 05:57:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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Attachment 2

Vibration Monitoring Data from Garage Location

# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 21, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 21, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241121000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

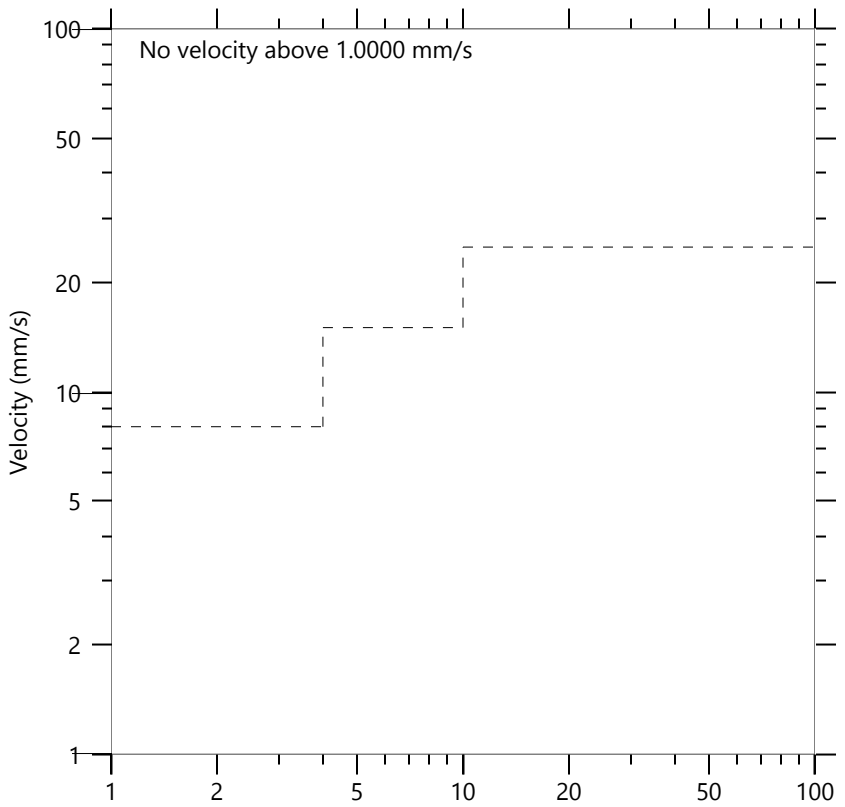
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

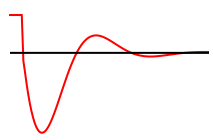
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.150 mm/s | <0.127 mm/s | 0.181 mm/s |
| Zero Crossing Frequency | 11.4 Hz | 26.9 Hz | 10.4 Hz |
| Date | Nov 21, 2024 | Nov 21, 2024 | Nov 21, 2024 |
| Time | 13:39:05 | 11:19:05 | 13:39:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.219 mm/s at November 21, 2024 13:39:05

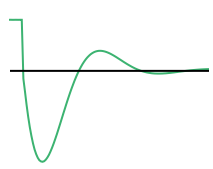
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



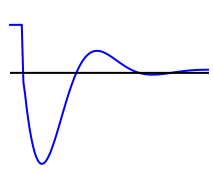

Sensor Check



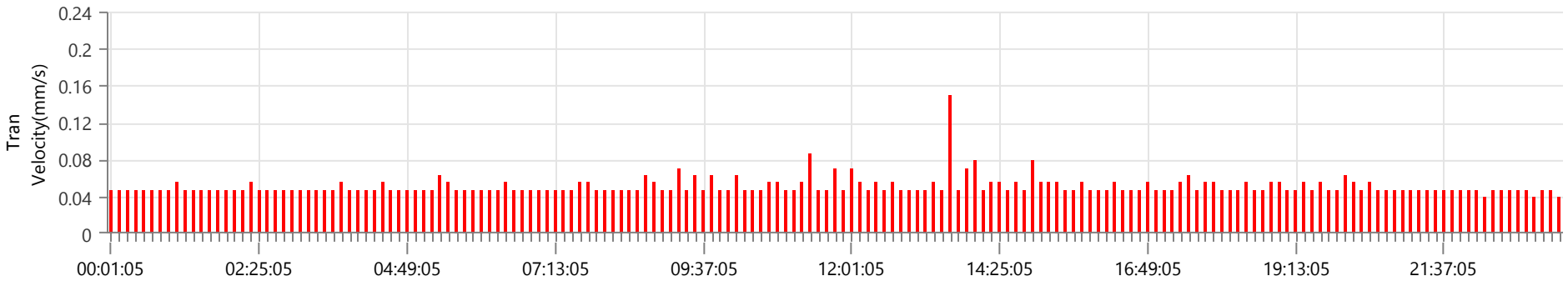
✓ Passed

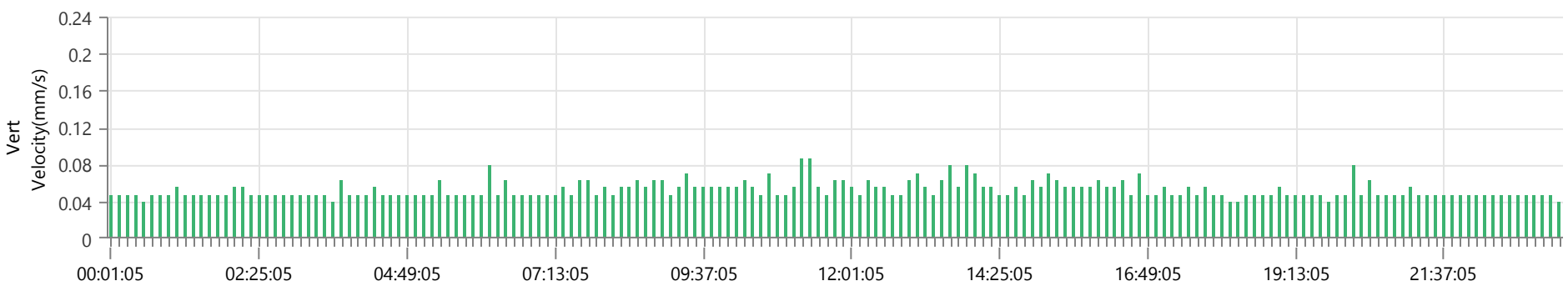


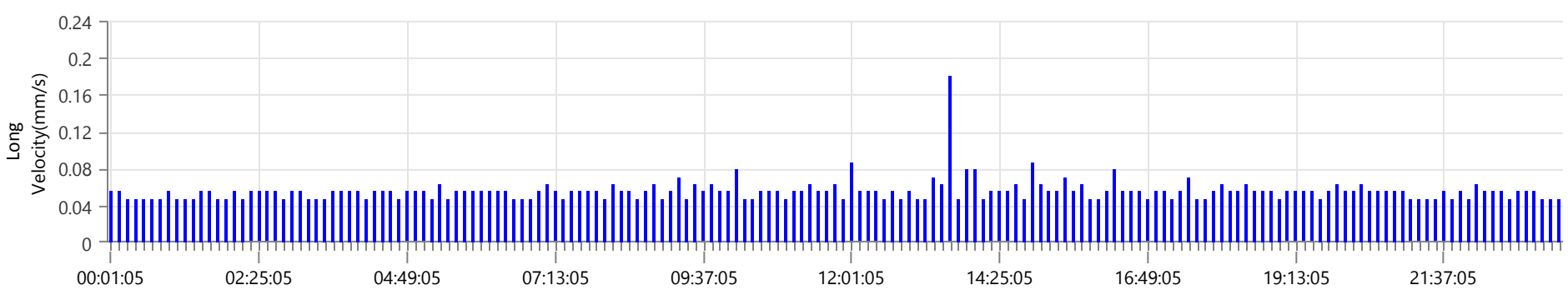
✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 22, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 22, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241122000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

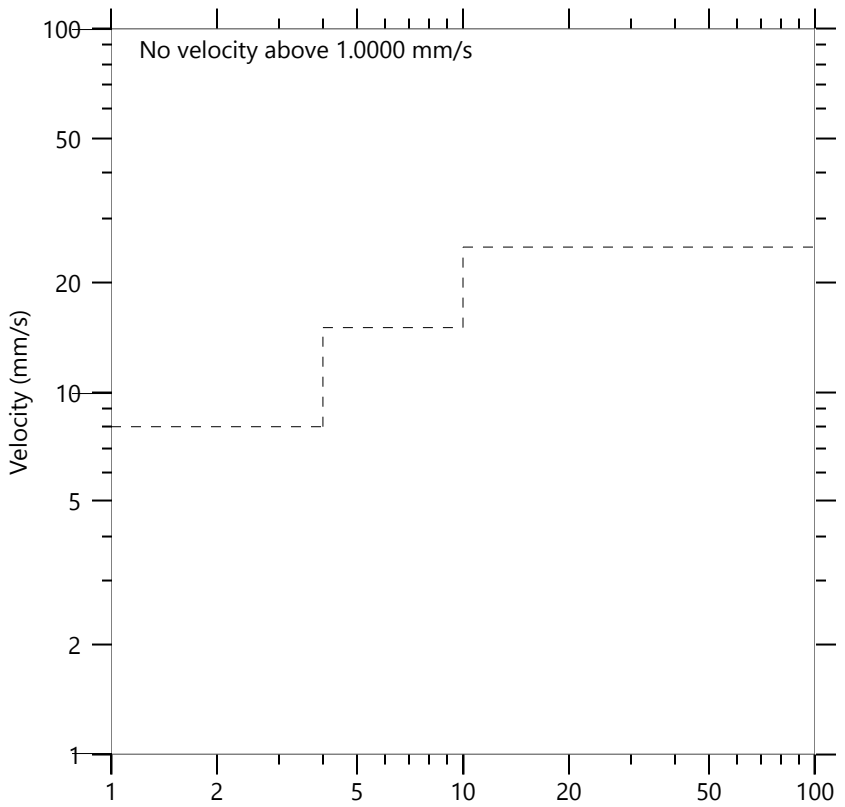
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

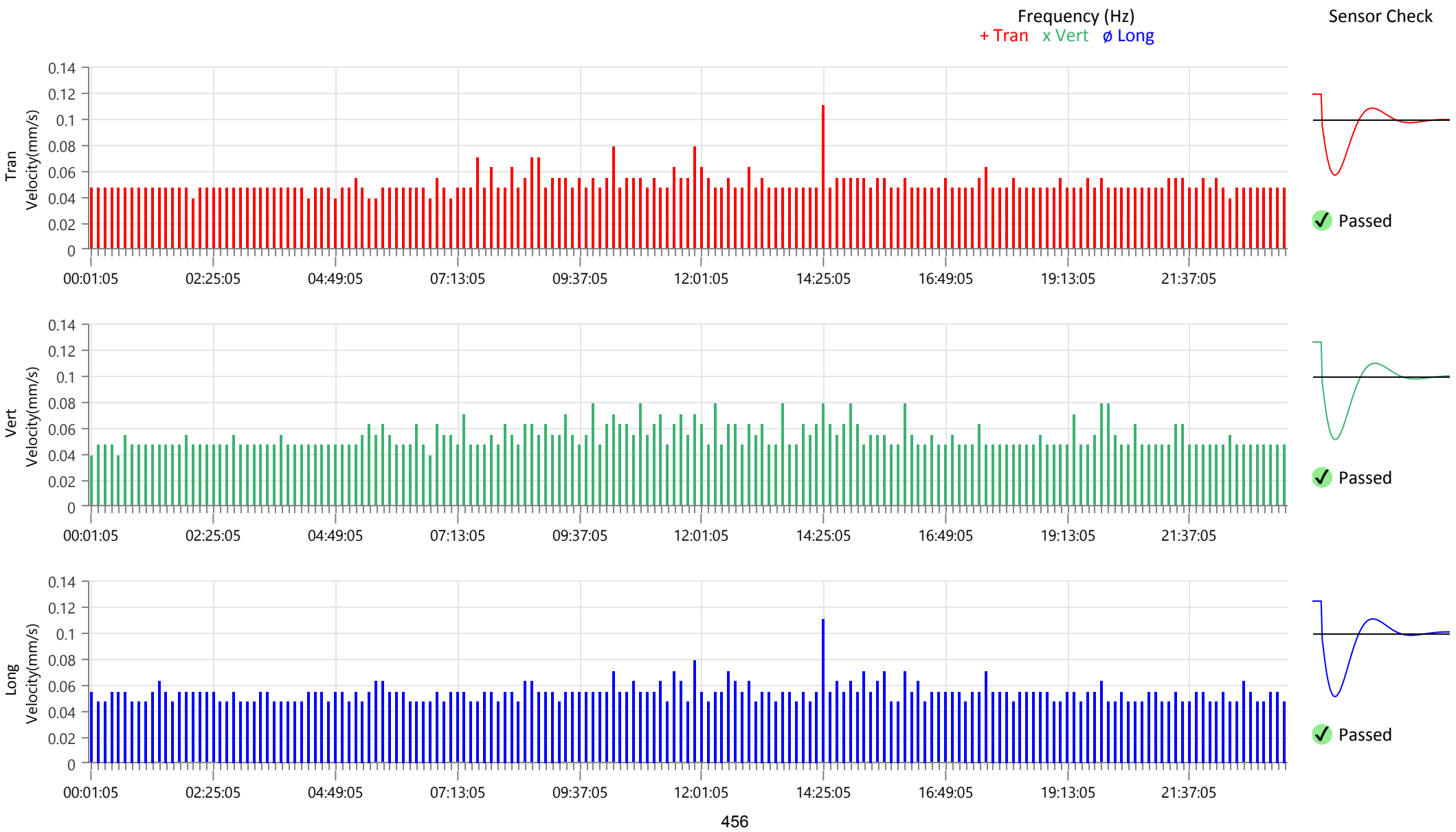
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 15.5 Hz | 25.6 Hz | 14.6 Hz |
| Date | Nov 22, 2024 | Nov 22, 2024 | Nov 22, 2024 |
| Time | 14:31:05 | 09:59:05 | 14:31:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.141 mm/s at November 22, 2024 14:31:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 23, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 23, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241123000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

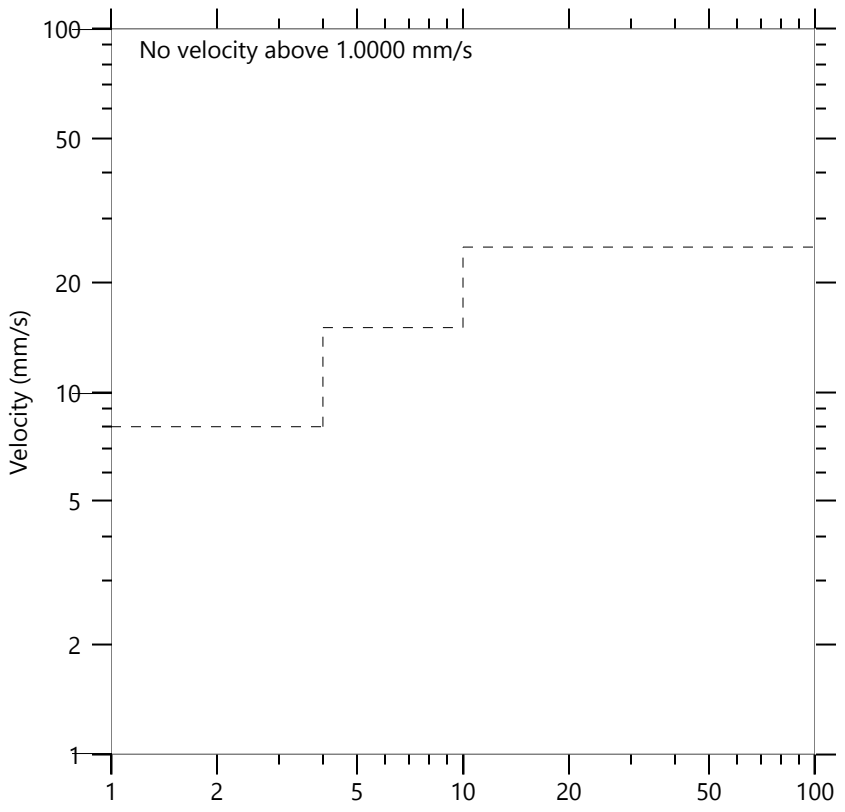
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

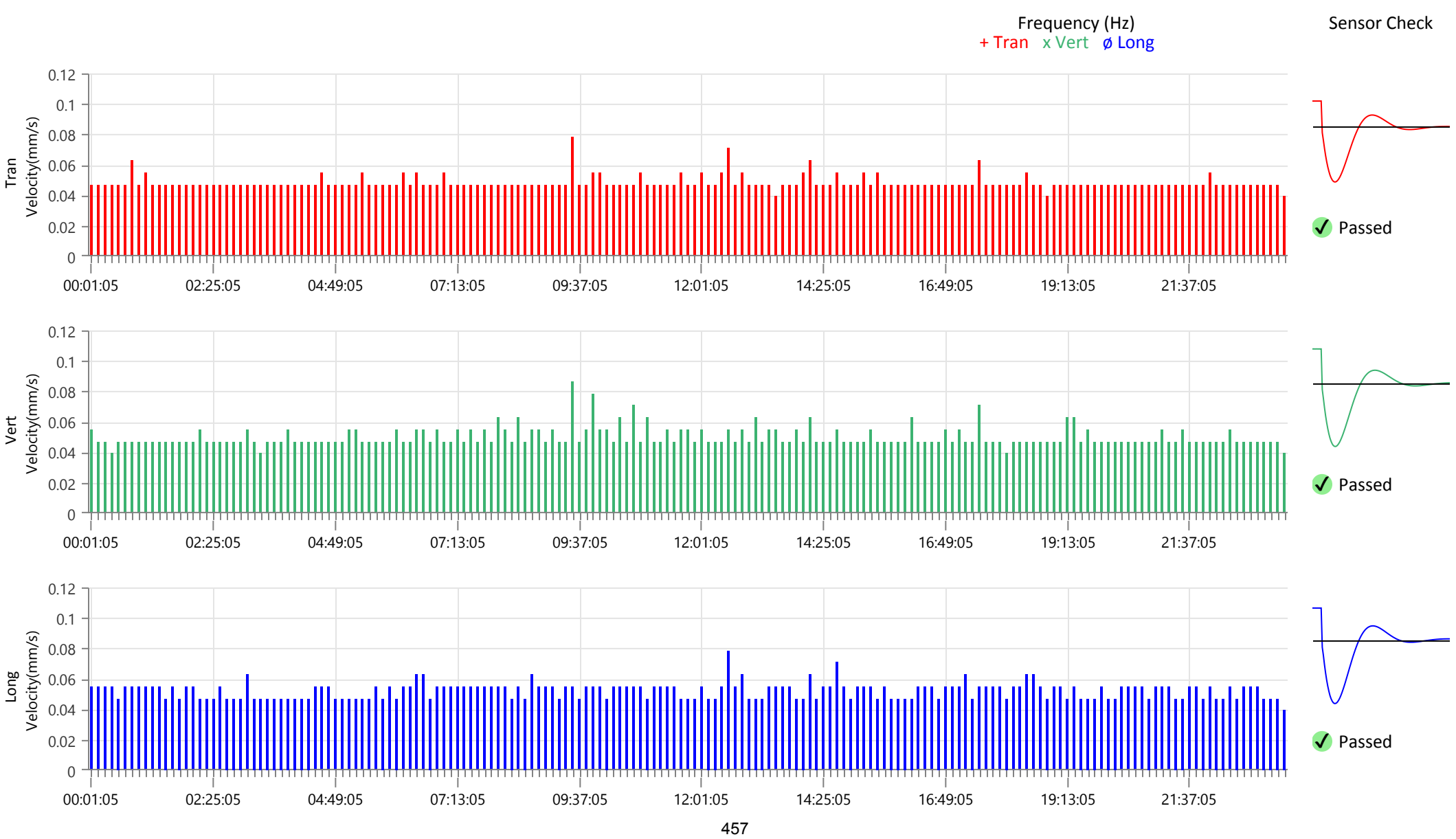
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 14.2 Hz | 22.3 Hz | 17.1 Hz |
| Date | Nov 23, 2024 | Nov 23, 2024 | Nov 23, 2024 |
| Time | 09:31:05 | 09:31:05 | 12:39:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.092 mm/s at November 23, 2024 09:31:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 24, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 24, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241124000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

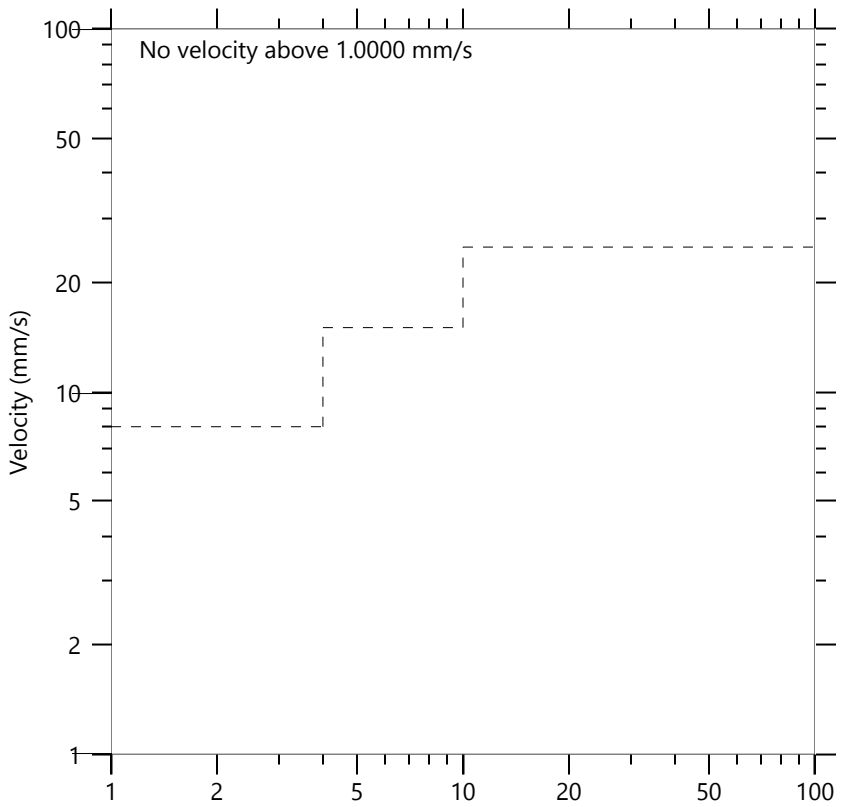
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

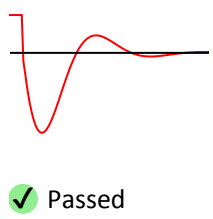
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | >100 Hz | 25.6 Hz | 64.0 Hz |
| Date | Nov 24, 2024 | Nov 24, 2024 | Nov 24, 2024 |
| Time | 03:30:05 | 14:26:05 | 06:26:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.084 mm/s at November 24, 2024 14:26:05

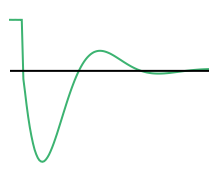
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



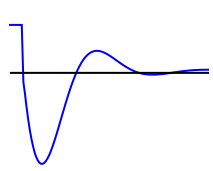

Sensor Check



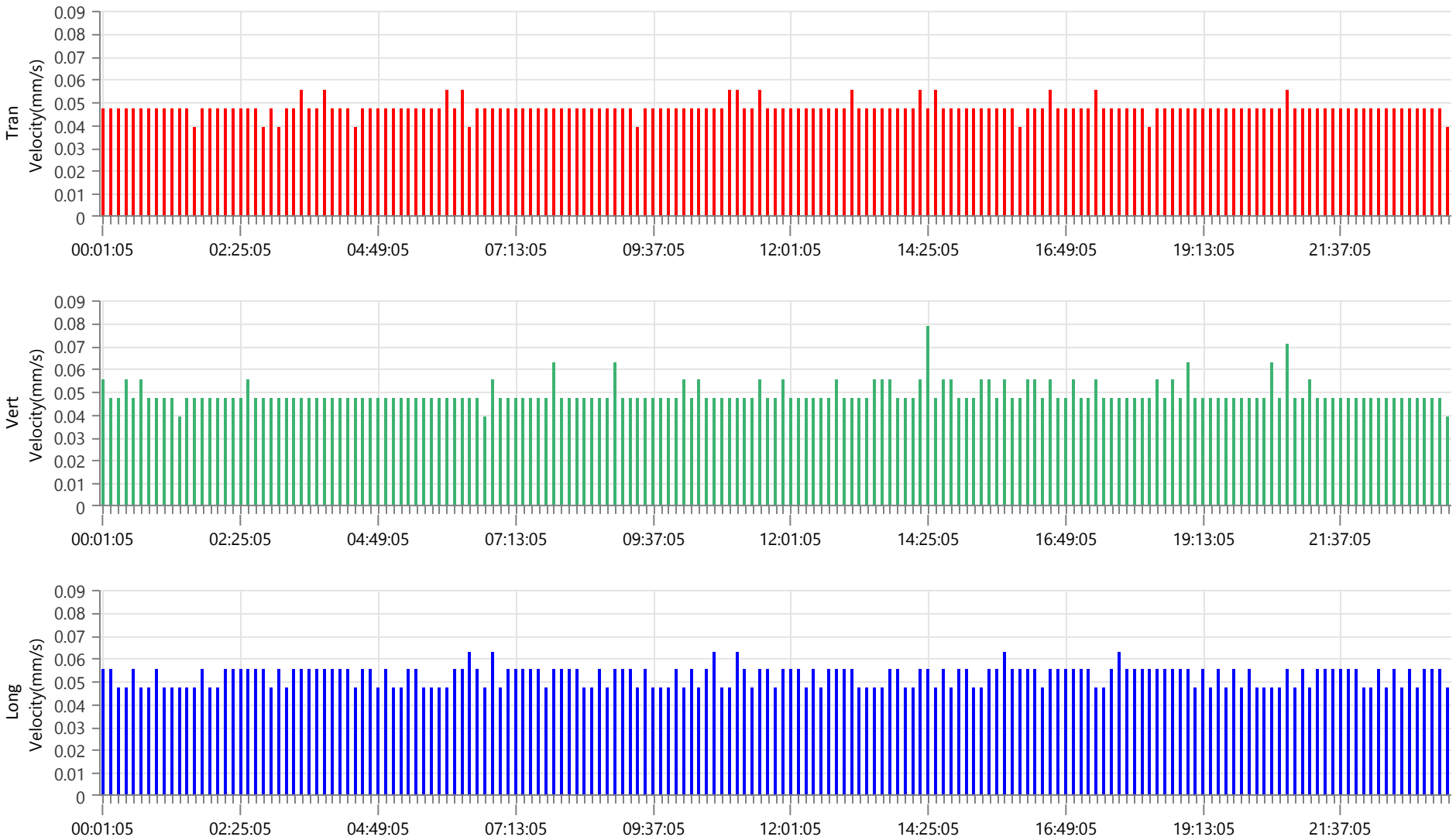
✓ Passed



✓ Passed



✓ Passed













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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 25, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 25, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241125000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

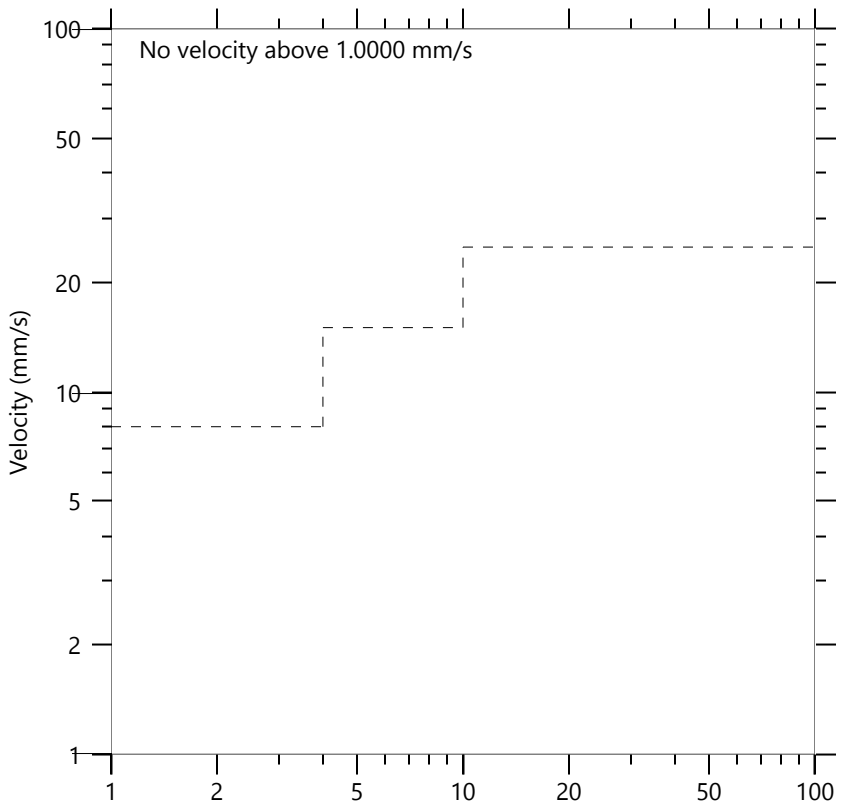
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

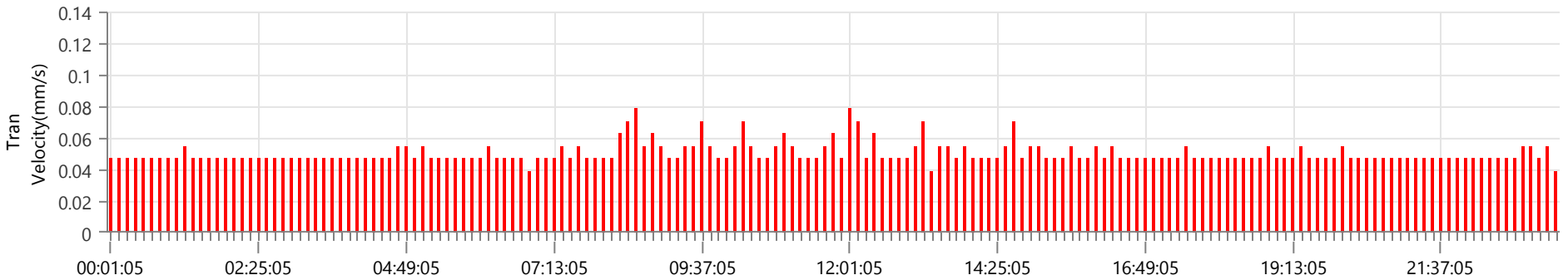
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 12.8 Hz | 21.3 Hz | 11.6 Hz |
| Date | Nov 25, 2024 | Nov 25, 2024 | Nov 25, 2024 |
| Time | 08:36:05 | 08:27:05 | 09:39:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

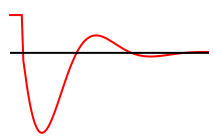
Peak Vector Sum 0.124 mm/s at November 25, 2024 12:03:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

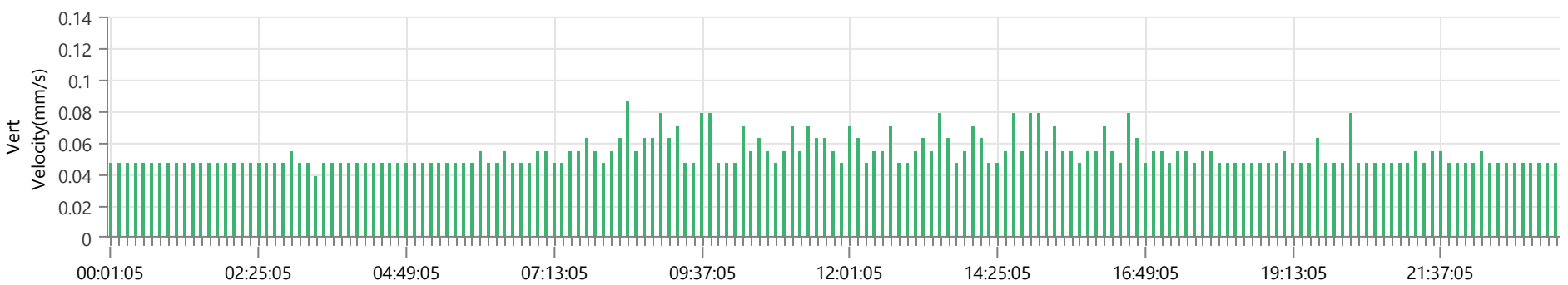


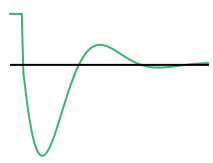

Sensor Check



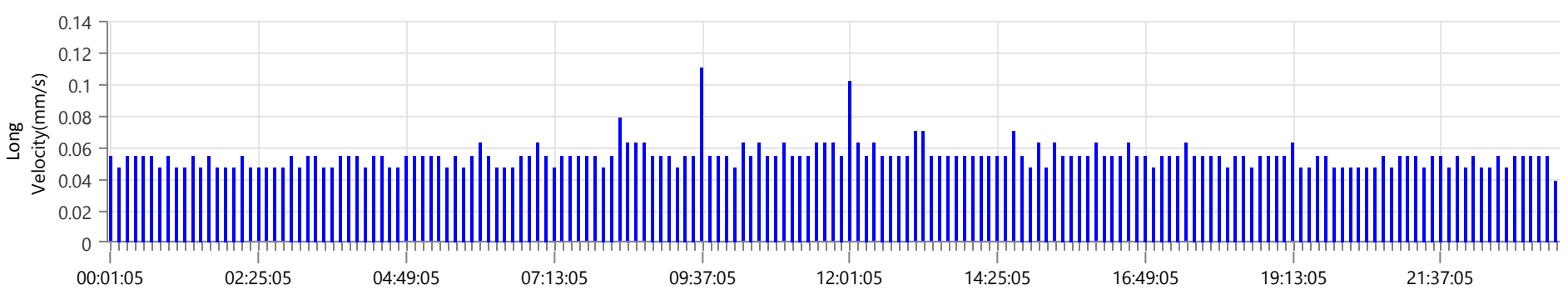



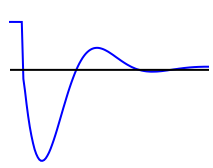
✓ Passed



✓ Passed



✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 26, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 26, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241126000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

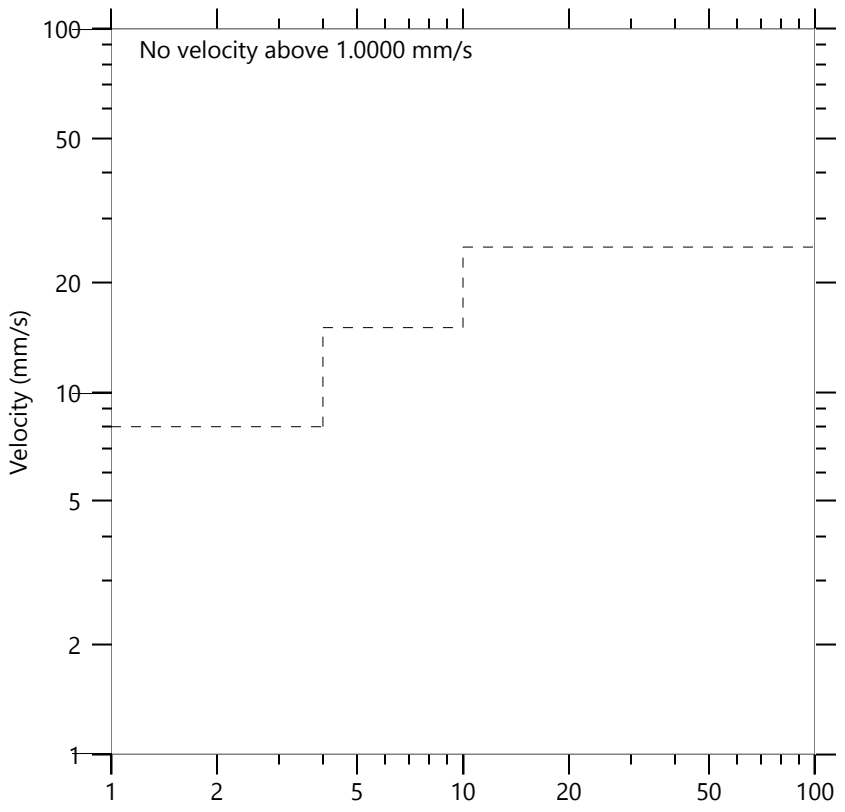
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

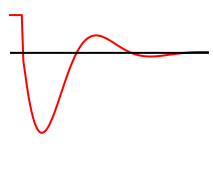
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 12.5 Hz | 25.6 Hz | 11.4 Hz |
| Date | Nov 26, 2024 | Nov 26, 2024 | Nov 26, 2024 |
| Time | 08:11:05 | 00:17:05 | 08:11:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.097 mm/s at November 26, 2024 08:11:05

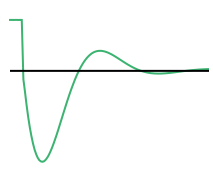
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



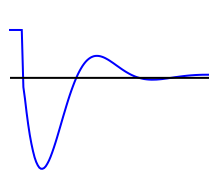

Sensor Check



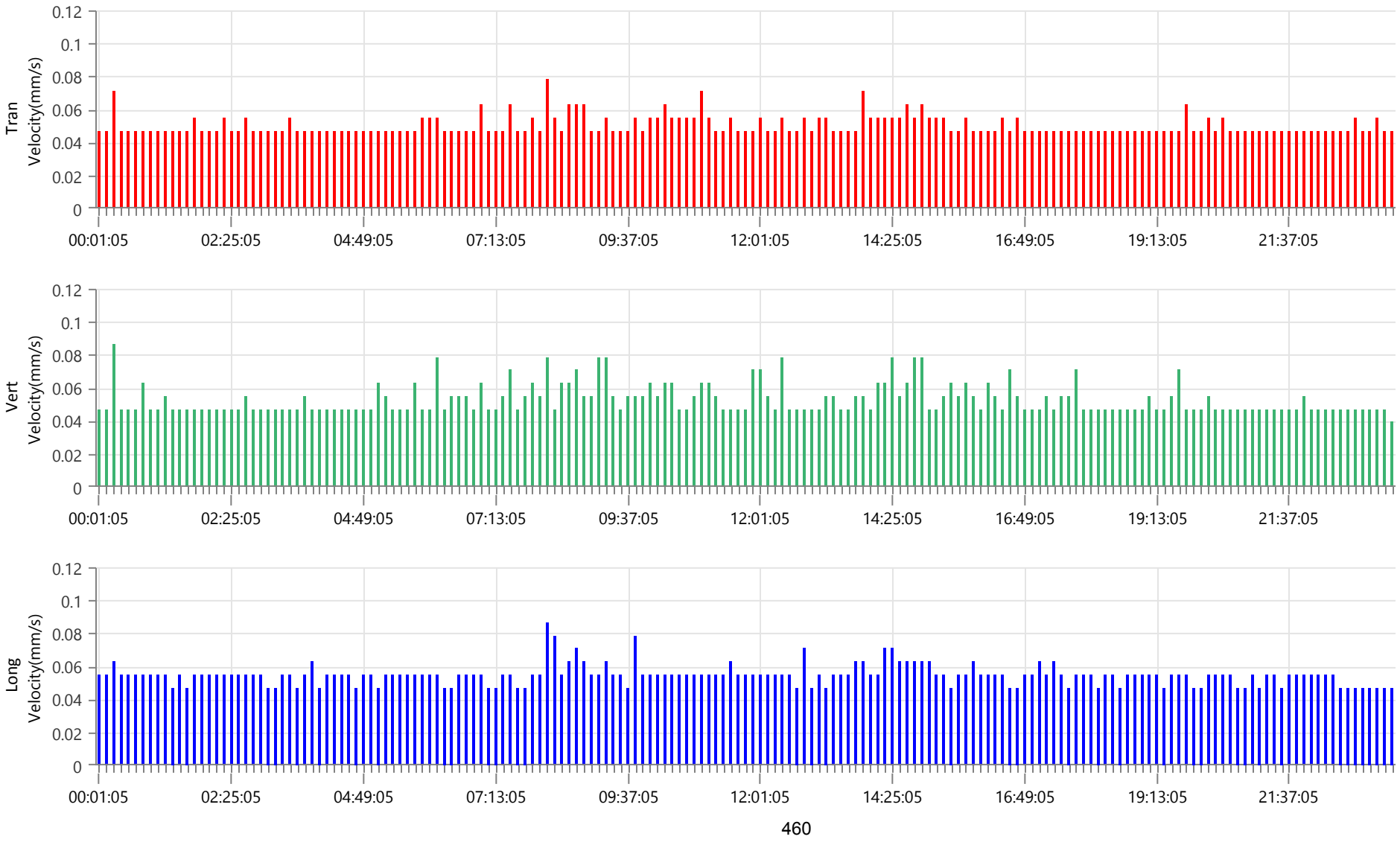
✓ Passed



✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 27, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 27, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241127000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

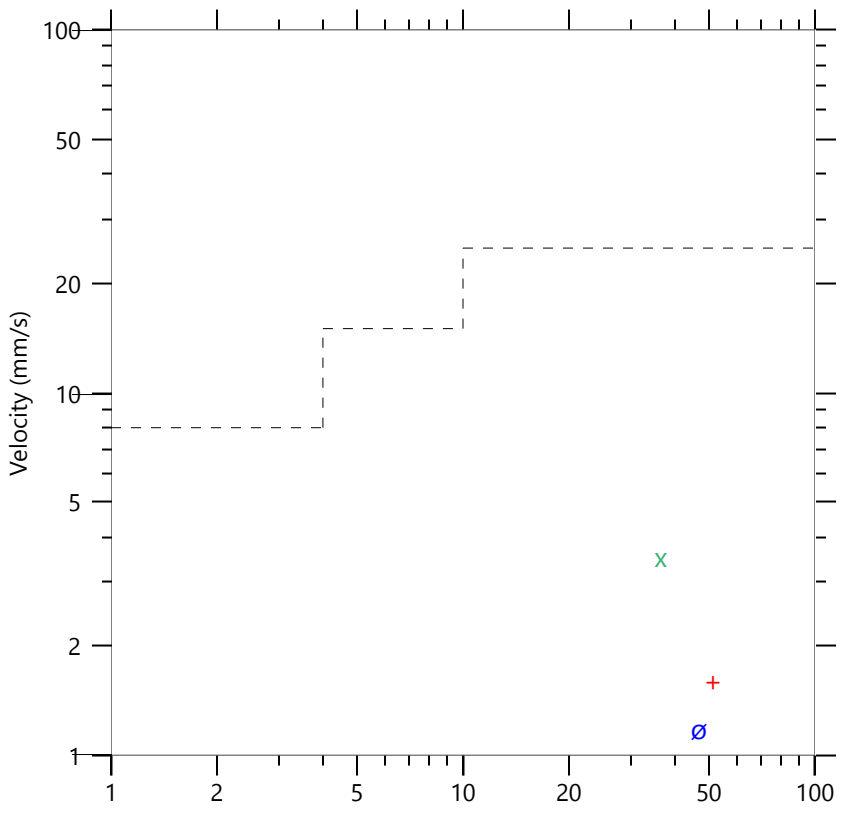
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

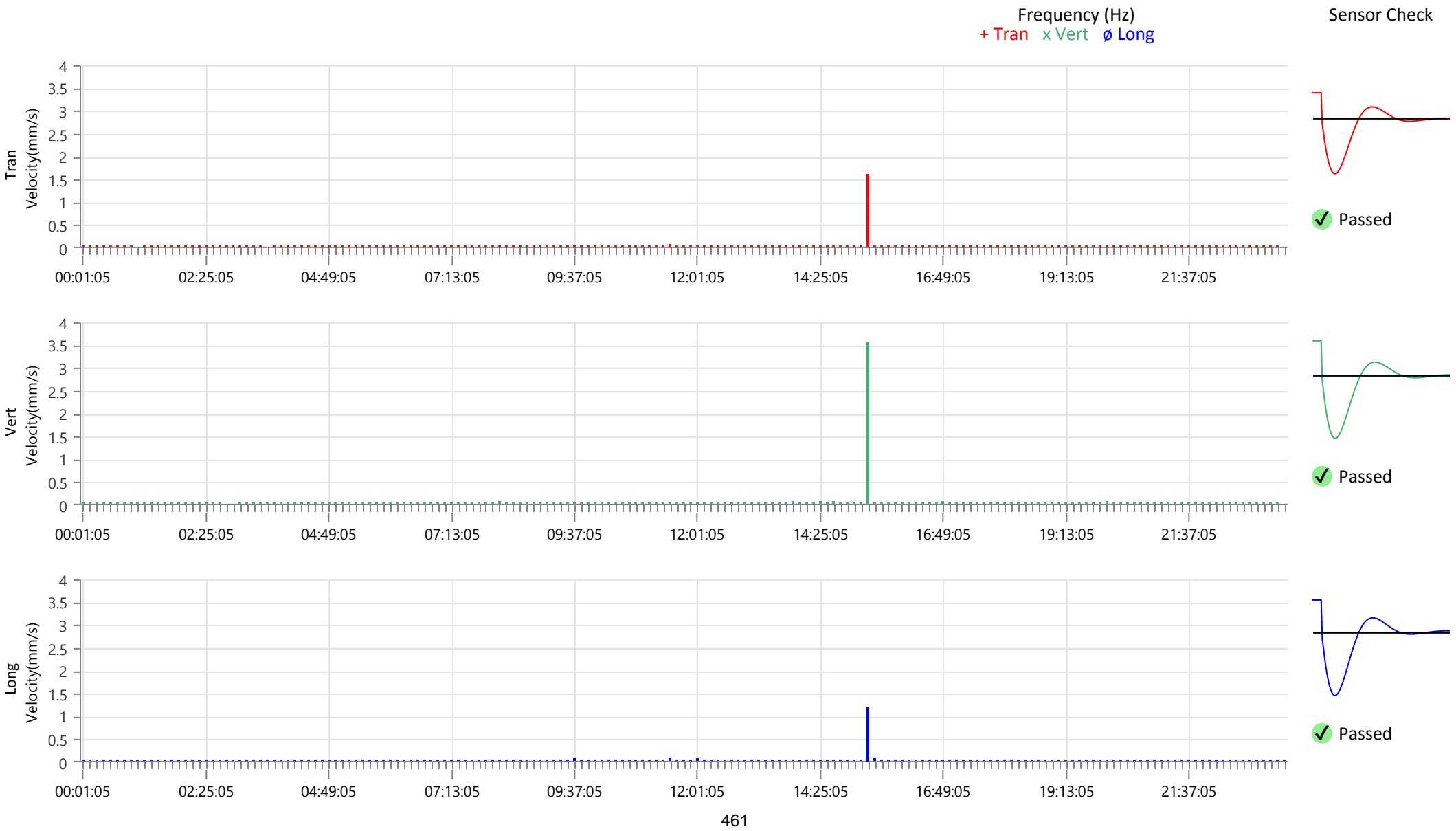
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 1.624 mm/s | 3.539 mm/s | 1.190 mm/s |
| Zero Crossing Frequency | 51.2 Hz | 36.6 Hz | 46.5 Hz |
| Date | Nov 27, 2024 | Nov 27, 2024 | Nov 27, 2024 |
| Time | 15:23:05 | 15:23:05 | 15:23:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 3.920 mm/s at November 27, 2024 15:23:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 28, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 28, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241128000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

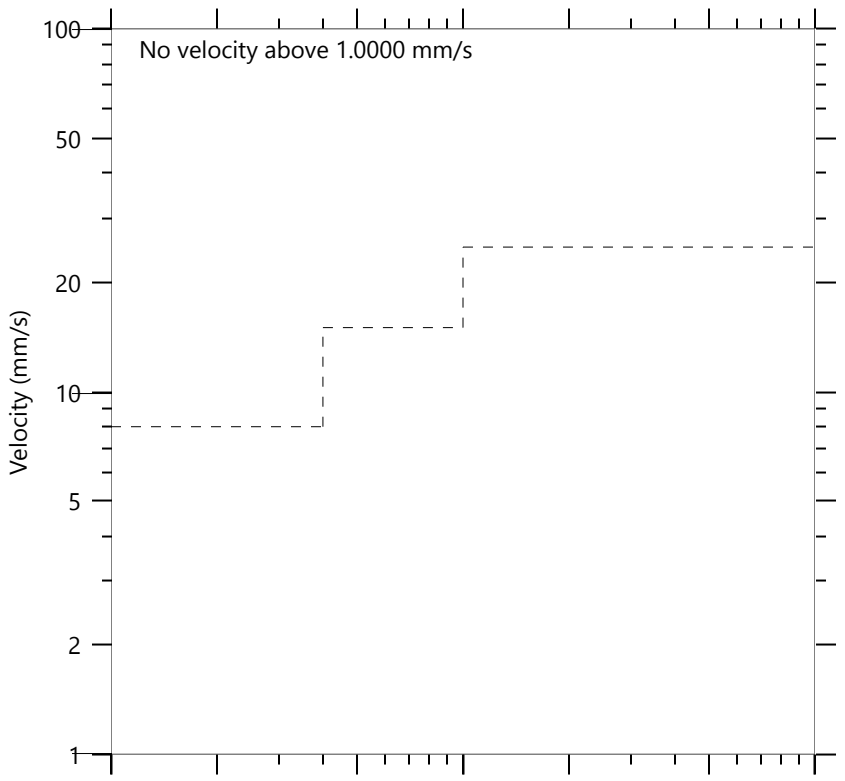
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

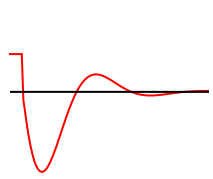
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 17.1 Hz | 22.3 Hz | 11.9 Hz |
| Date | Nov 28, 2024 | Nov 28, 2024 | Nov 28, 2024 |
| Time | 14:43:05 | 07:32:05 | 09:08:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.103 mm/s at November 28, 2024 09:08:05

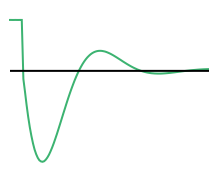
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



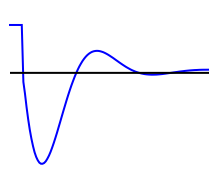

Sensor Check



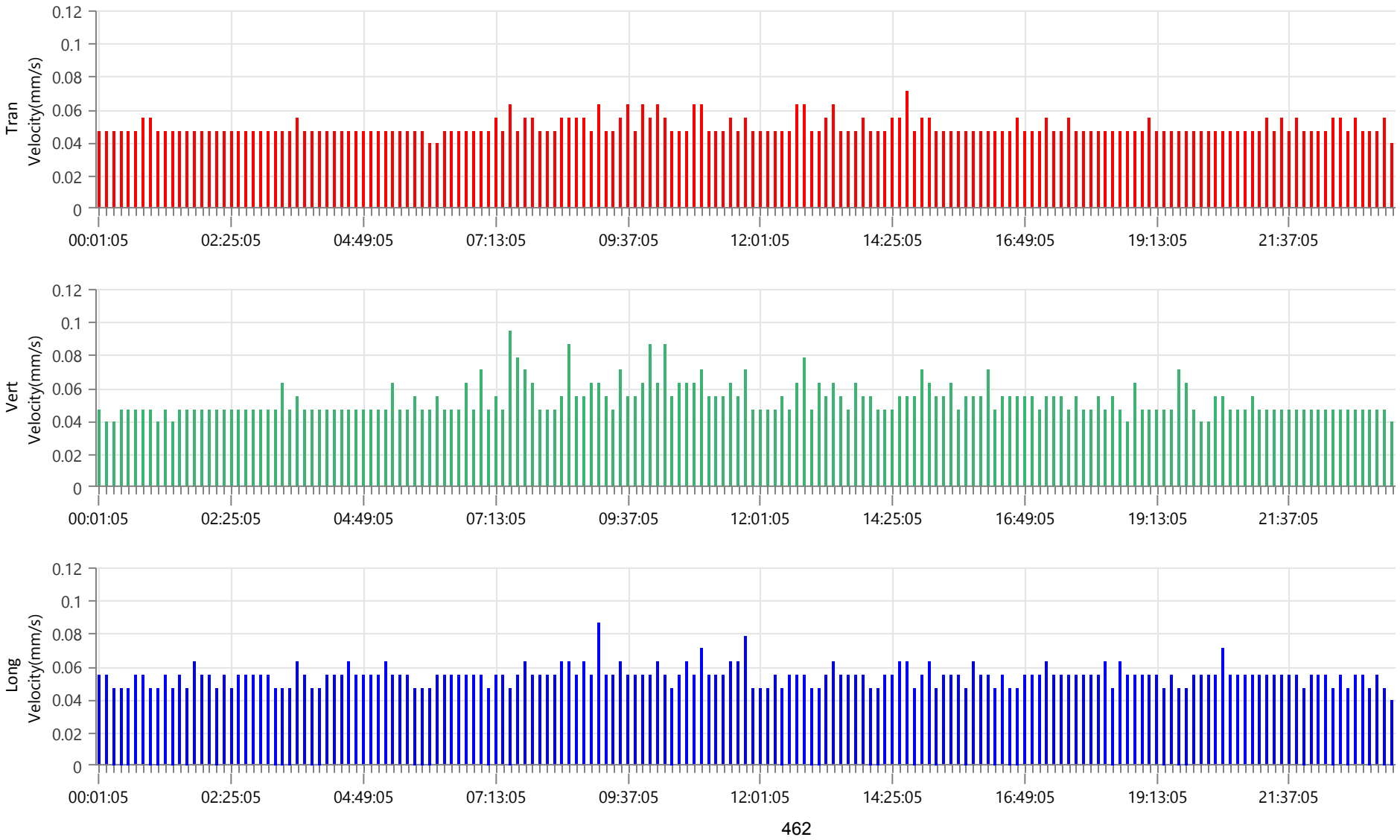
✓ Passed



✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 29, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 29, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241129000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

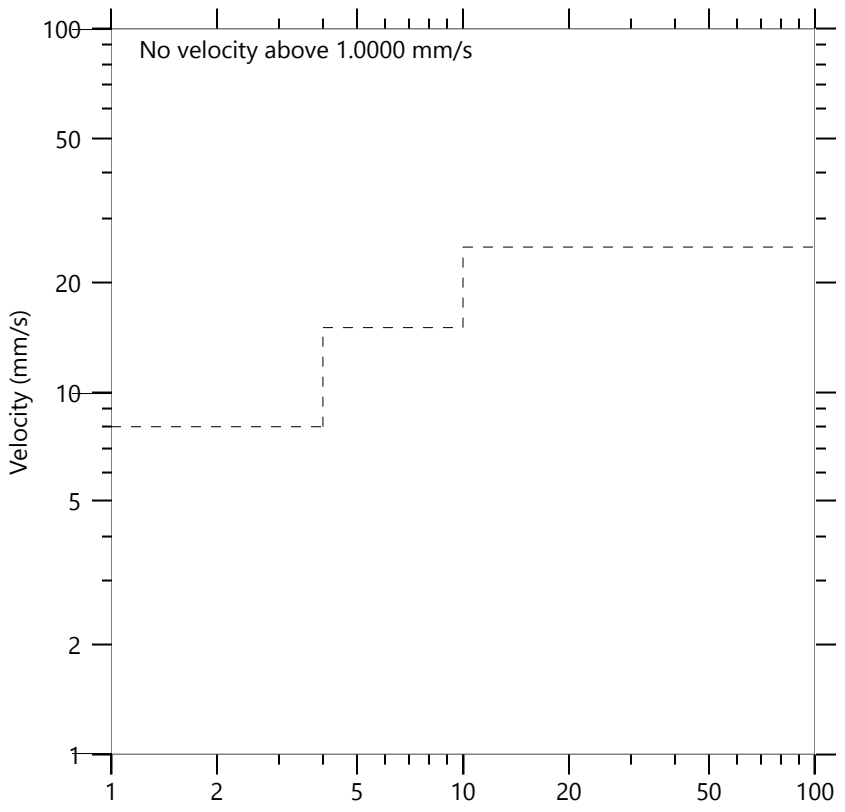
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

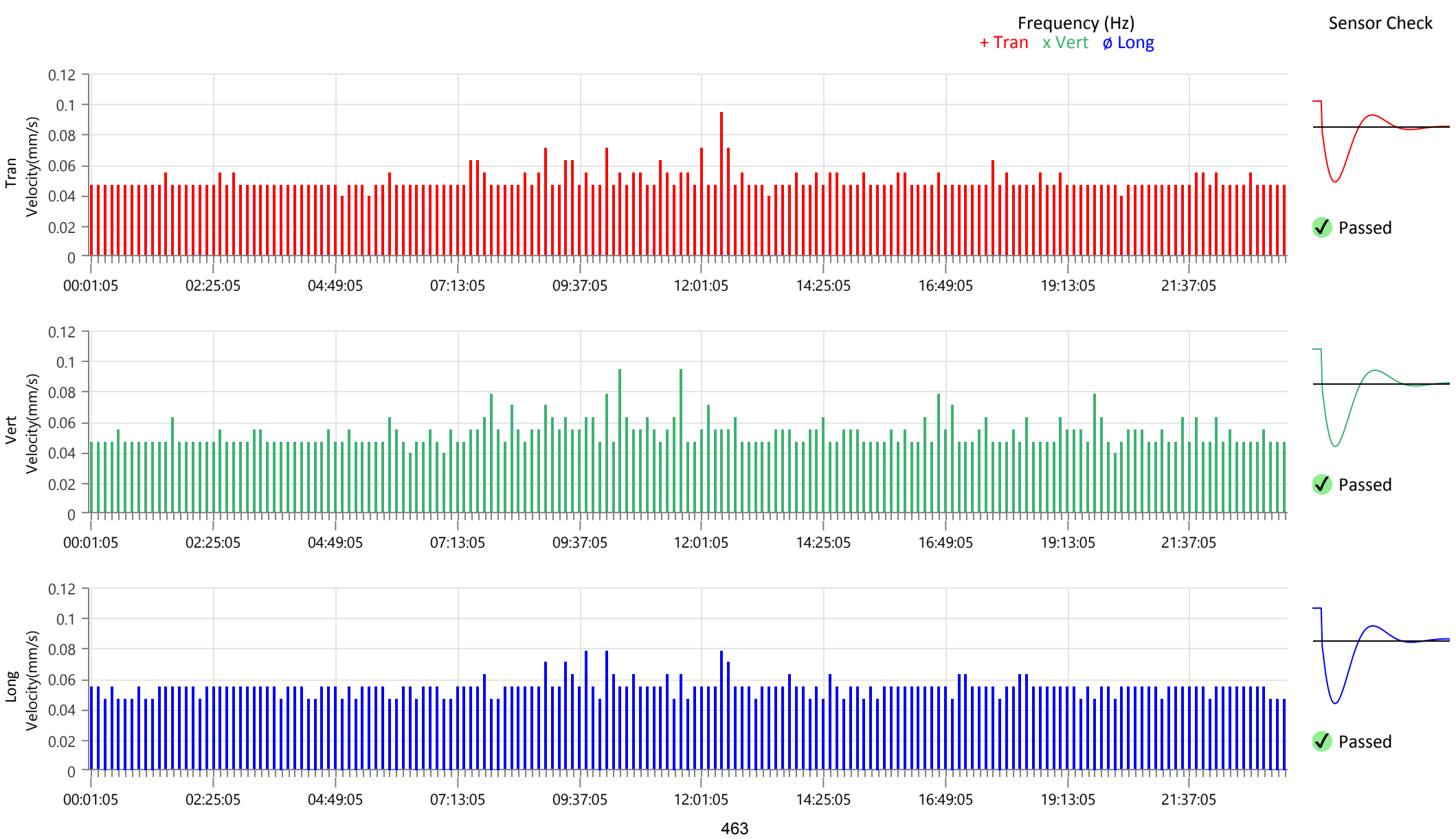
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 14.2 Hz | 23.3 Hz | 17.7 Hz |
| Date | Nov 29, 2024 | Nov 29, 2024 | Nov 29, 2024 |
| Time | 12:31:05 | 10:27:05 | 09:45:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.104 mm/s at November 29, 2024 12:31:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | November 30, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | November 30, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241130000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

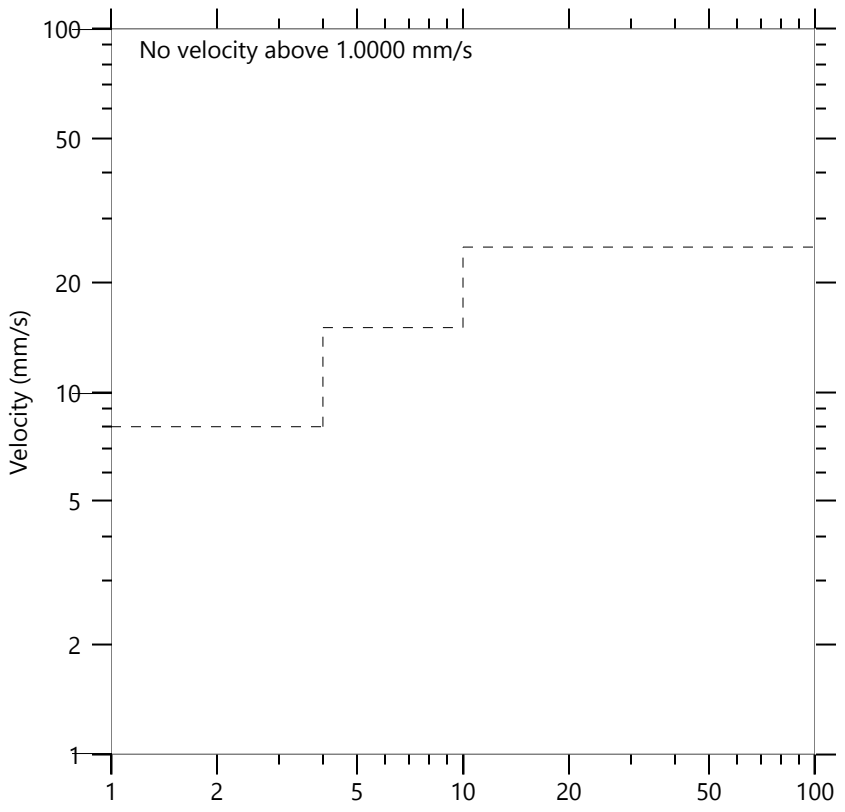
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

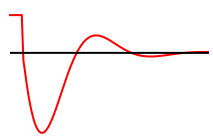
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 19.7 Hz | 22.3 Hz | 13.5 Hz |
| Date | Nov 30, 2024 | Nov 30, 2024 | Nov 30, 2024 |
| Time | 09:37:05 | 09:37:05 | 09:56:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.097 mm/s at November 30, 2024 09:56:05

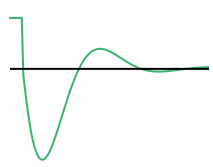
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



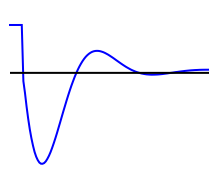

Sensor Check



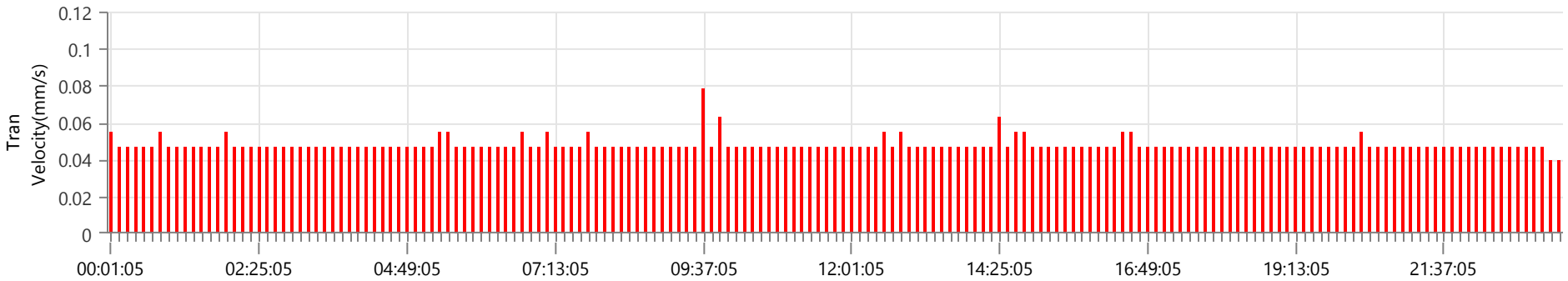
✓ Passed

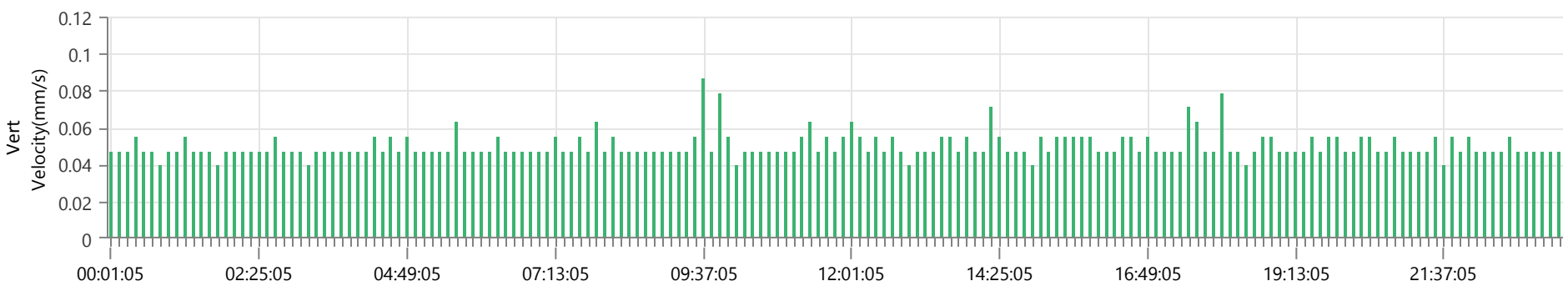


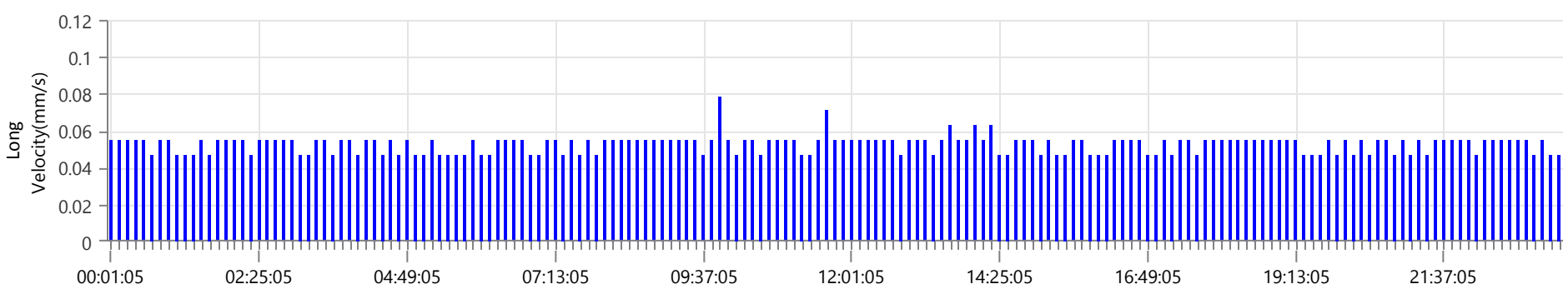
✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 1, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | December 1, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241201000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

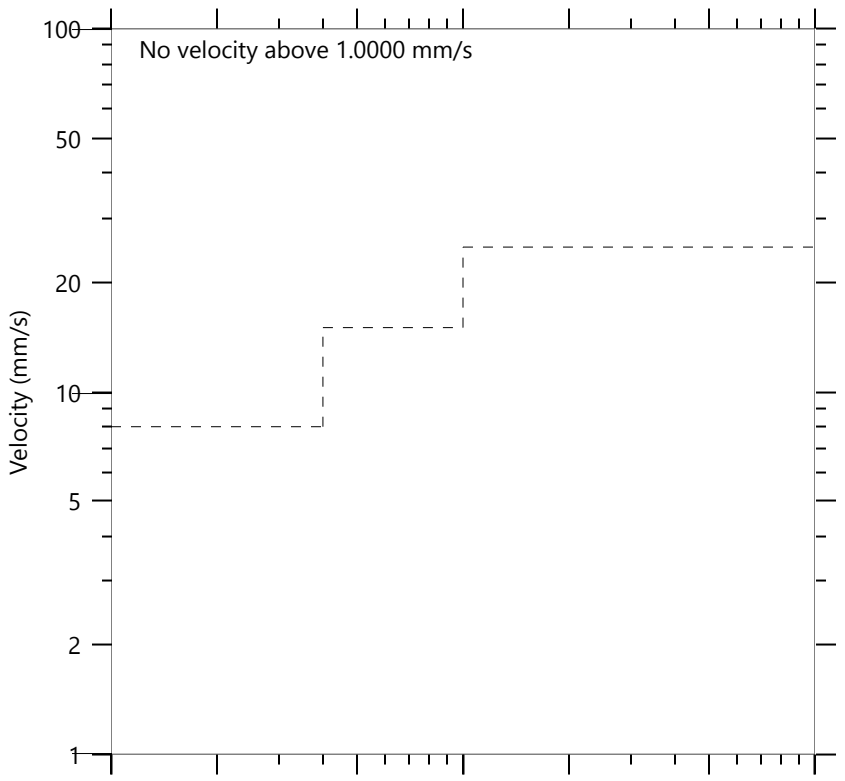
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

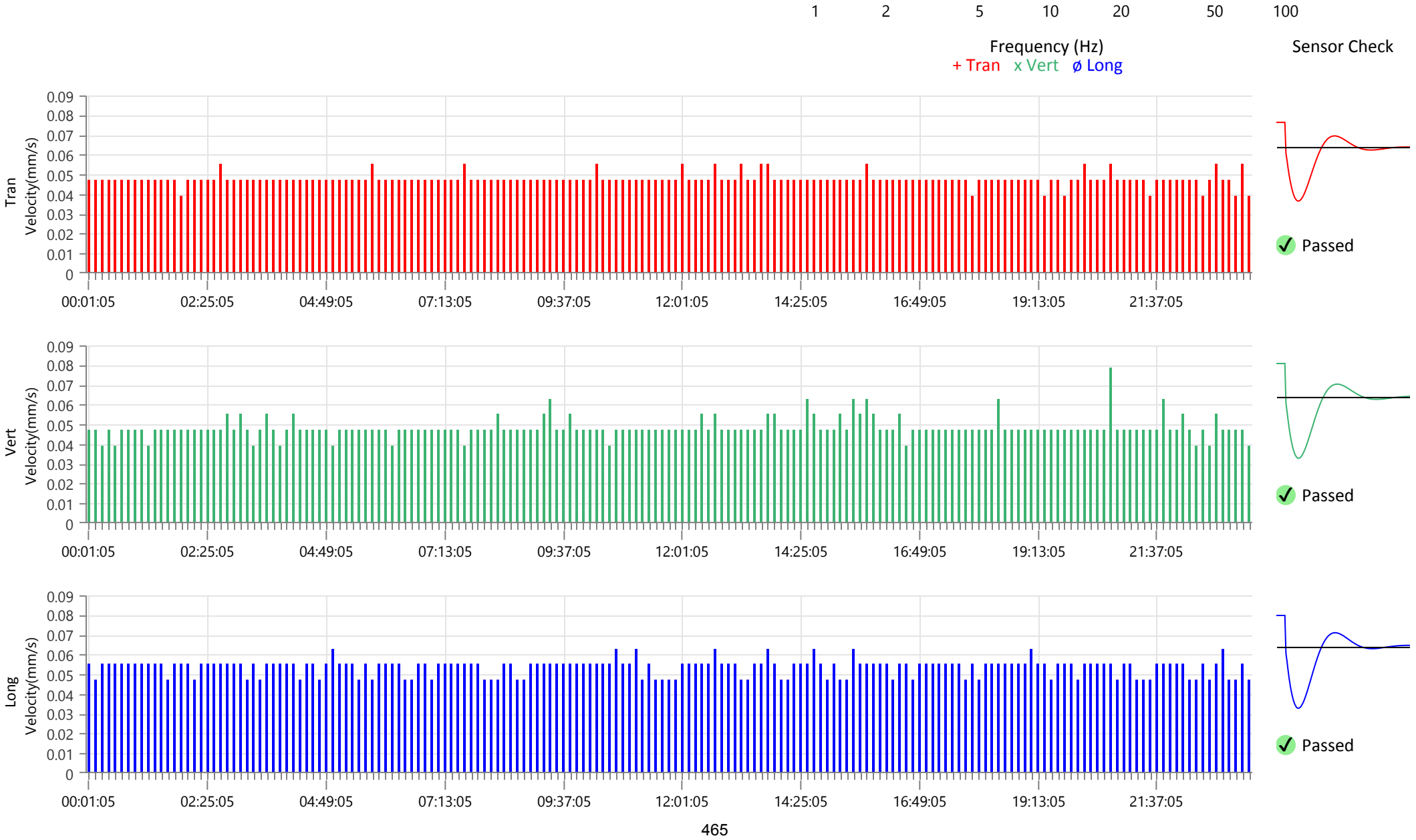
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | <0.127 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | >100 Hz | 21.3 Hz | >100 Hz |
| Date | Dec 1, 2024 | Dec 1, 2024 | Dec 1, 2024 |
| Time | 02:44:05 | 20:46:05 | 04:58:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.082 mm/s at December 1, 2024 20:46:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 2, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | December 2, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241202000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

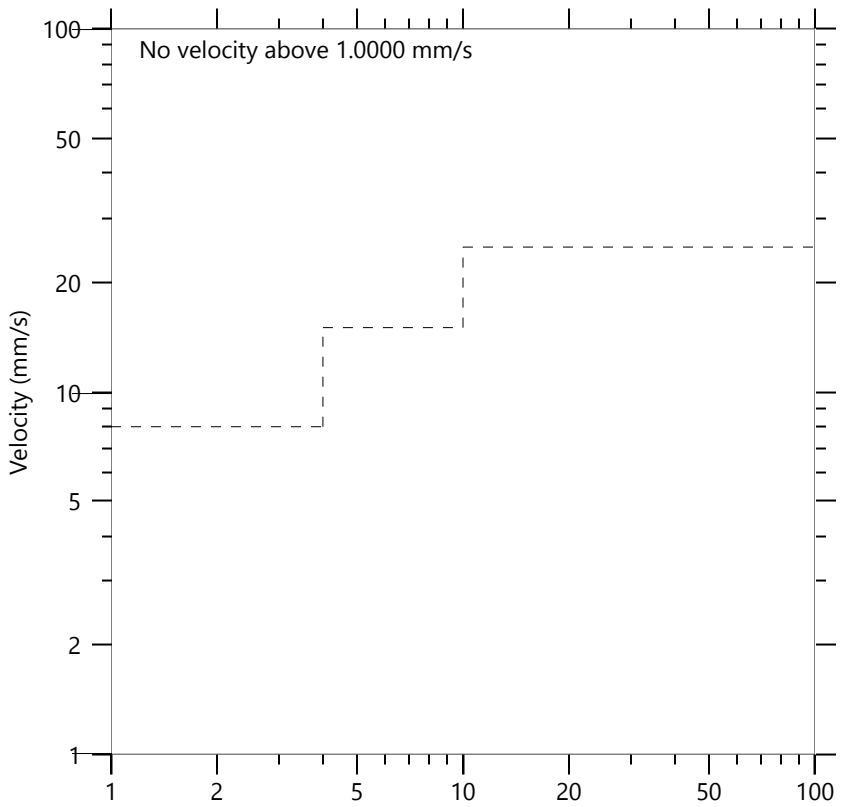
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

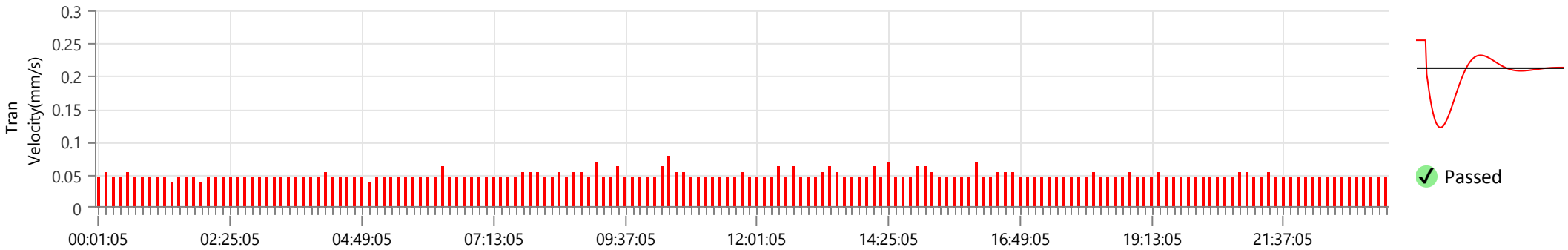
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | 0.268 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | 12.2 Hz | 46.5 Hz | 14.2 Hz |
| Date | Dec 2, 2024 | Dec 2, 2024 | Dec 2, 2024 |
| Time | 10:26:05 | 06:24:05 | 14:13:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.271 mm/s at December 2, 2024 06:24:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

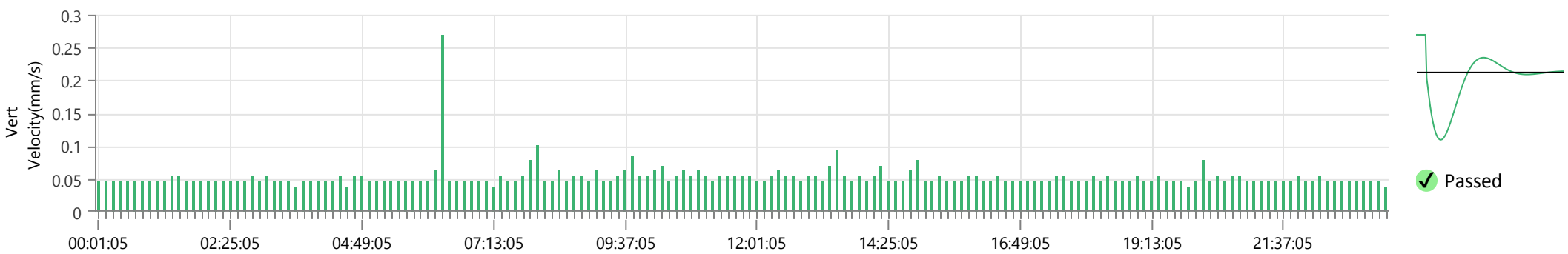



Sensor Check



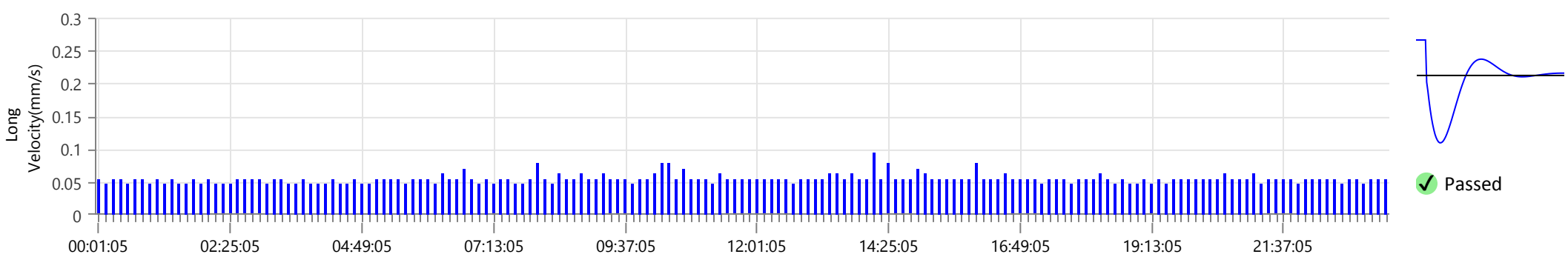



✓ Passed






✓ Passed






✓ Passed

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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 3, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | December 3, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241203000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

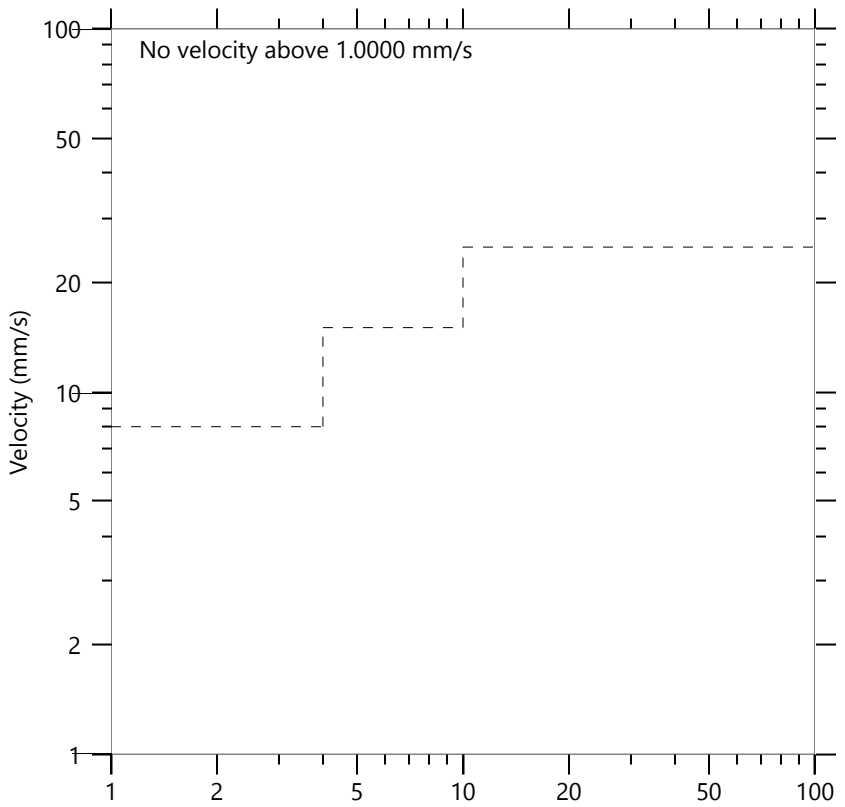
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

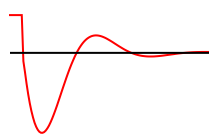
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | 0.142 mm/s | <0.127 mm/s | 0.150 mm/s |
| Zero Crossing Frequency | 12.8 Hz | 22.3 Hz | 12.5 Hz |
| Date | Dec 3, 2024 | Dec 3, 2024 | Dec 3, 2024 |
| Time | 12:49:05 | 14:11:05 | 12:49:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.191 mm/s at December 3, 2024 12:49:05

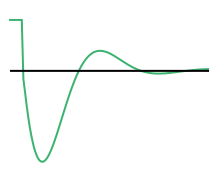
**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)



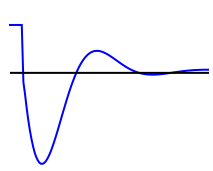

Sensor Check



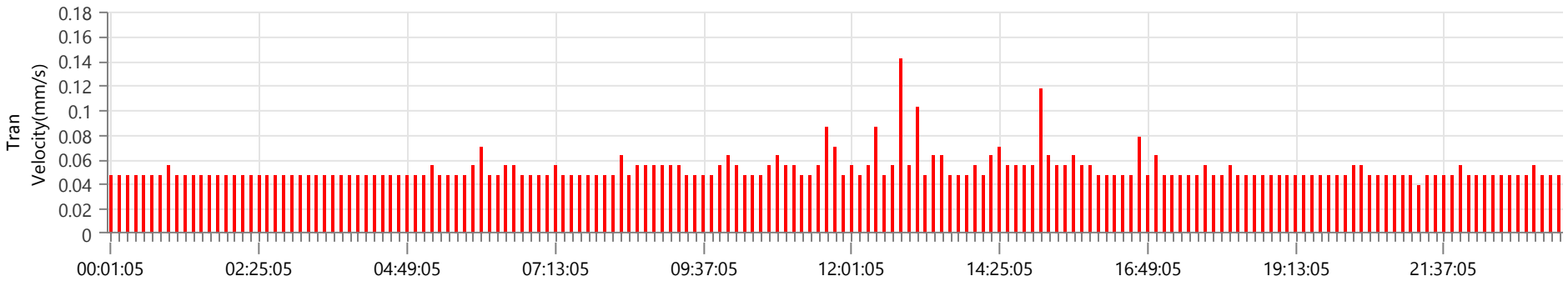
✓ Passed

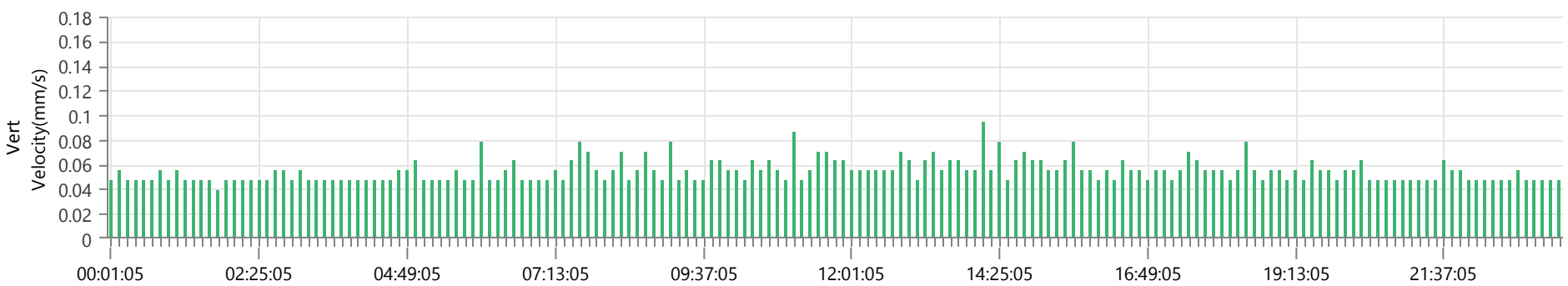


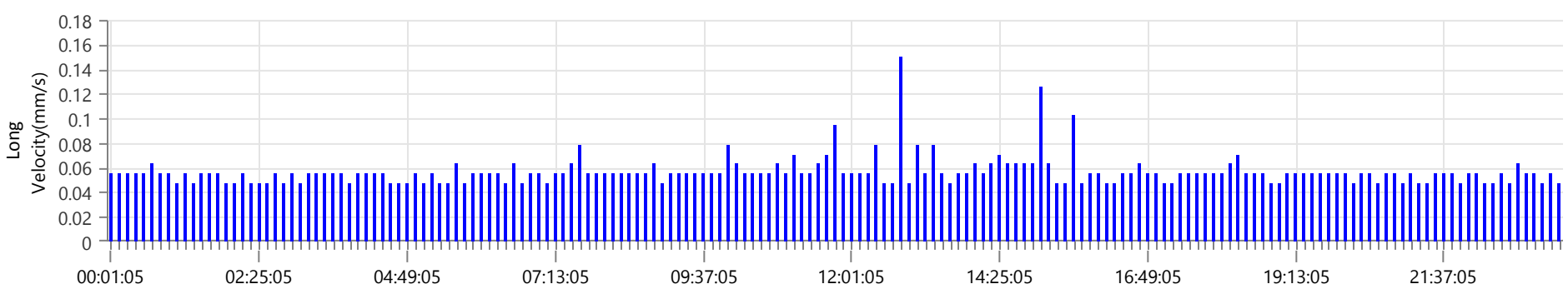
✓ Passed



✓ Passed







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 4, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | December 4, 2024 23:29:59 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 1409.90/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241204000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

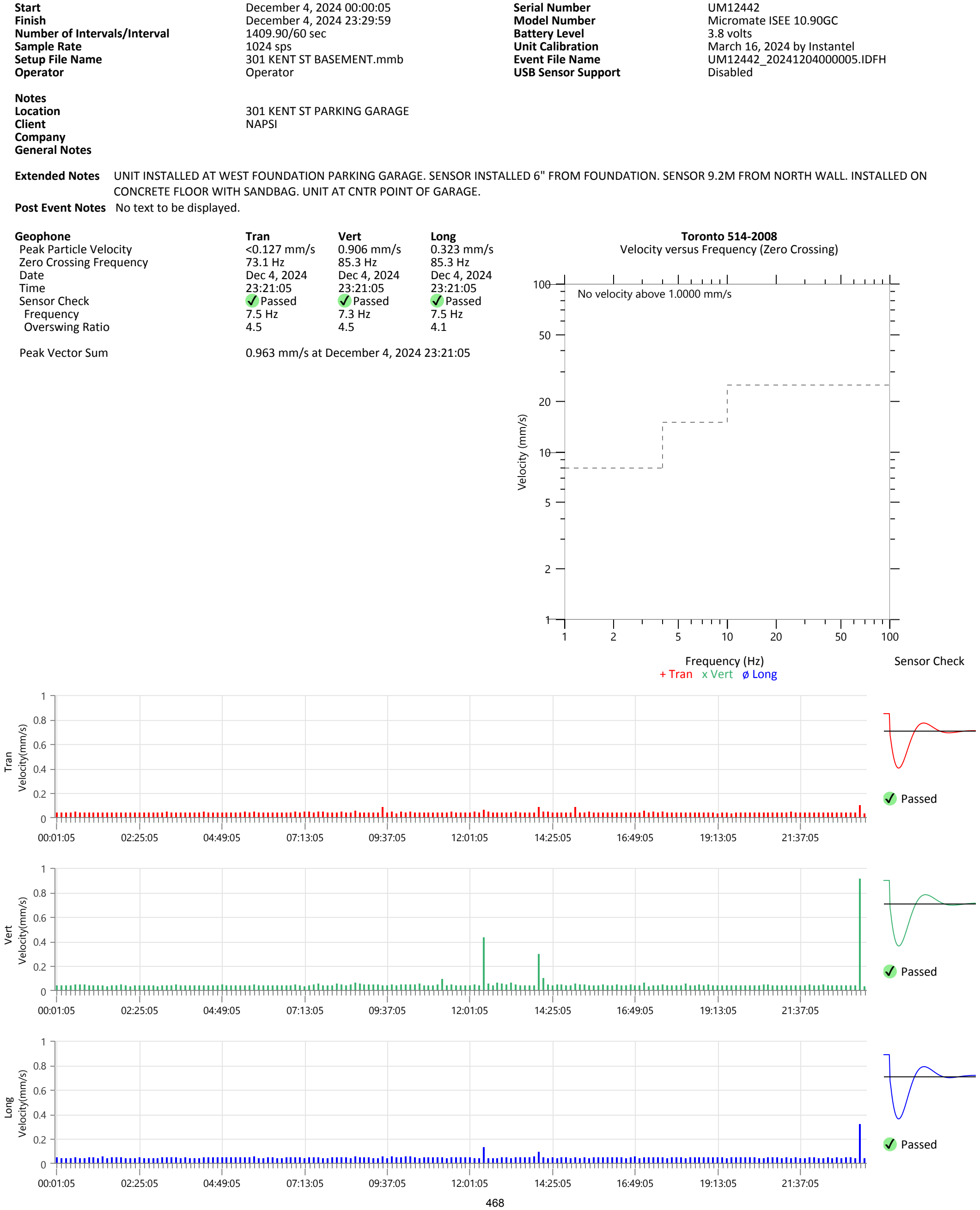
**Post Event Notes** No text to be displayed.

| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | 0.906 mm/s | 0.323 mm/s |
| Zero Crossing Frequency | 73.1 Hz | 85.3 Hz | 85.3 Hz |
| Date | Dec 4, 2024 | Dec 4, 2024 | Dec 4, 2024 |
| Time | 23:21:05 | 23:21:05 | 23:21:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.963 mm/s at December 4, 2024 23:21:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)







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# Event Report

| | | | |
|---|---|---|---|
| **Start** | December 5, 2024 00:00:05 | **Serial Number** | UM12442 |
| **Finish** | December 5, 2024 15:51:09 | **Model Number** | Micromate ISEE 10.90GC |
| **Number of Intervals/Interval** | 951.07/60 sec | **Battery Level** | 3.8 volts |
| **Sample Rate** | 1024 sps | **Unit Calibration** | March 16, 2024 by Instantel |
| **Setup File Name** | 301 KENT ST BASEMENT.mmb | **Event File Name** | UM12442_20241205000005.IDFH |
| **Operator** | Operator | **USB Sensor Support** | Disabled |

**Notes**
**Location** 301 KENT ST PARKING GARAGE
**Client** NAPSI
**Company**
**General Notes**

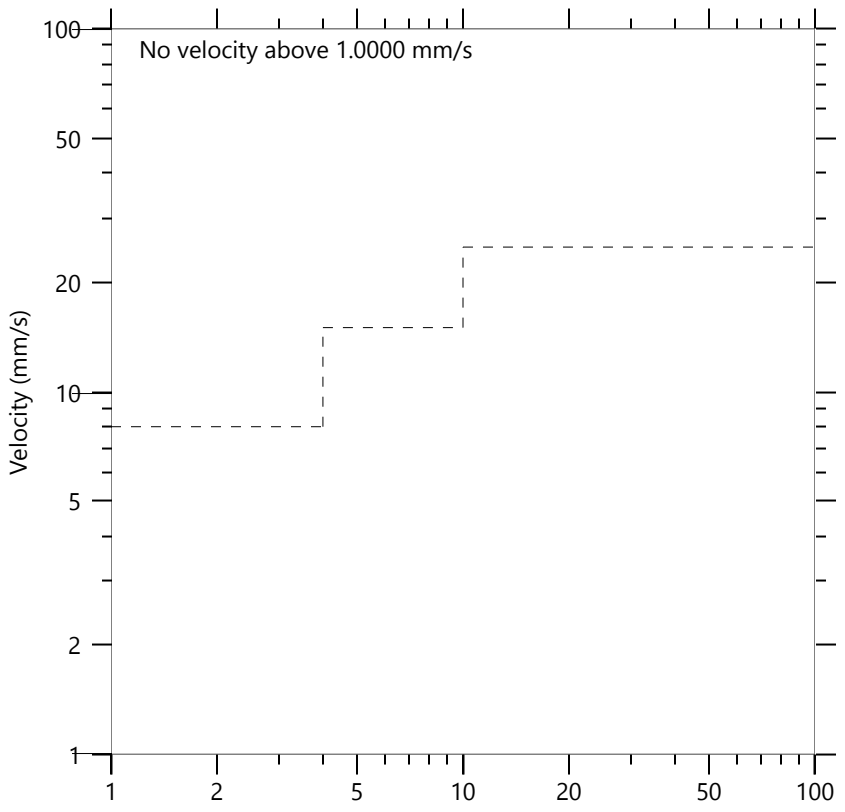
**Extended Notes** UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

**Post Event Notes** No text to be displayed.

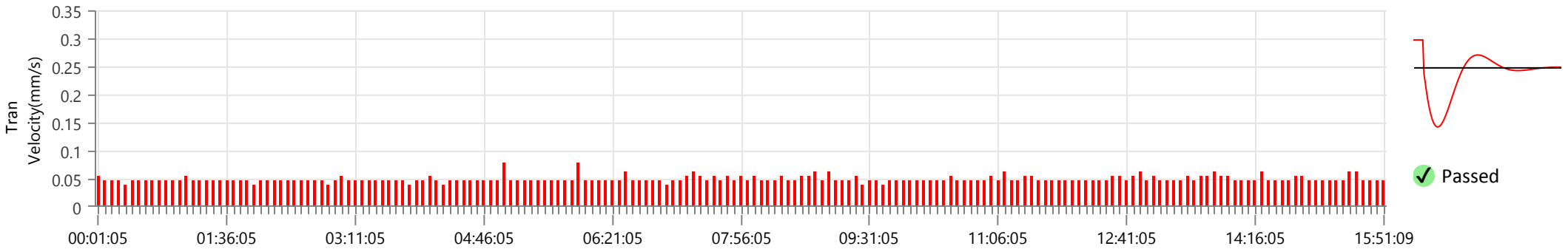
| **Geophone** | **Tran** | **Vert** | **Long** |
|---|---|---|---|
| Peak Particle Velocity | <0.127 mm/s | 0.315 mm/s | <0.127 mm/s |
| Zero Crossing Frequency | >100 Hz | 32.0 Hz | 30.1 Hz |
| Date | Dec 5, 2024 | Dec 5, 2024 | Dec 5, 2024 |
| Time | 05:03:05 | 05:57:05 | 05:57:05 |
| Sensor Check | ✓ Passed | ✓ Passed | ✓ Passed |
| Frequency | 7.5 Hz | 7.3 Hz | 7.5 Hz |
| Overswing Ratio | 4.5 | 4.5 | 4.1 |

Peak Vector Sum 0.319 mm/s at December 5, 2024 05:57:05

**Toronto 514-2008**
Velocity versus Frequency (Zero Crossing)

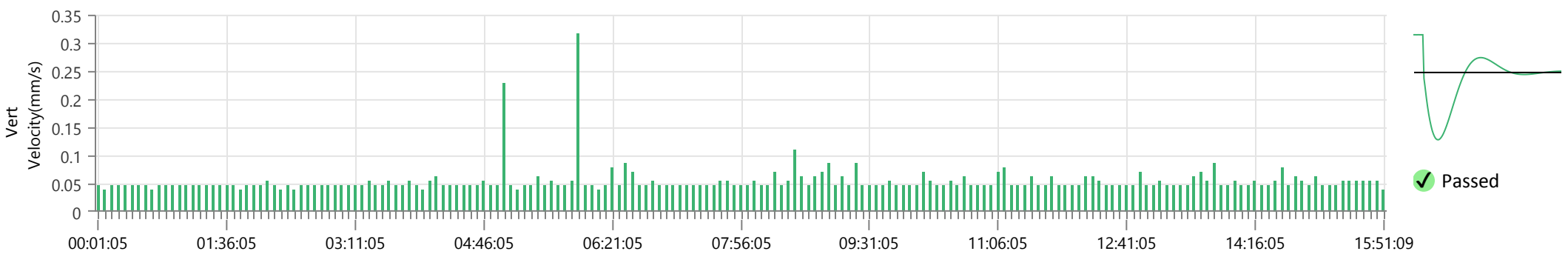



Sensor Check



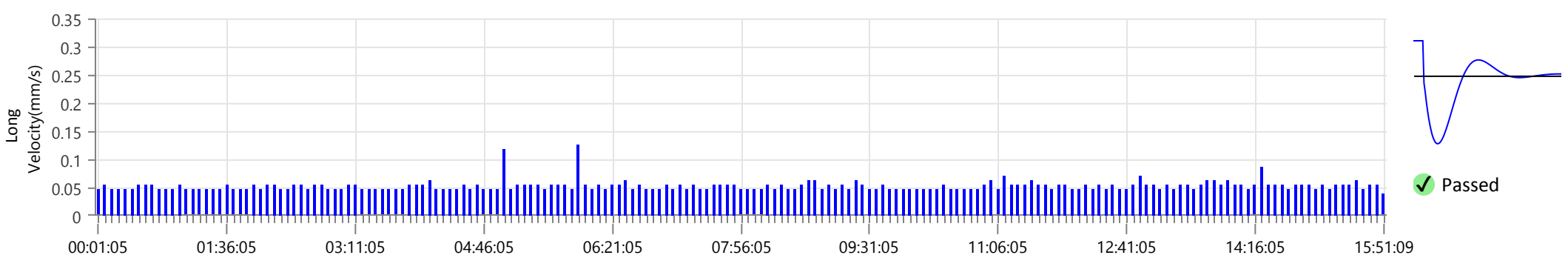



✓ Passed






✓ Passed






✓ Passed

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Attachment 3

Traffic Data

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

NB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | **1** | **131** | 24 | **1** | **3** | 2 | 4 | 4 | 3 | 2 | **20** | **2** | 39 | **236** |
| 11:00 | 0 | 102 | **39** | 0 | 1 | **4** | **5** | **13** | **4** | **6** | 15 | 1 | **42** | 232 |
| 12 PM | 1 | 79 | 44 | 0 | **4** | 2 | 4 | 7 | **5** | 5 | 14 | **2** | **51** | 218 |
| 13:00 | 0 | **120** | 32 | 0 | 3 | 2 | **10** | 9 | 4 | 6 | 15 | 1 | 35 | **237** |
| 14:00 | **3** | 108 | 43 | 0 | 2 | 1 | 4 | 3 | 4 | 7 | **30** | 2 | 17 | 224 |
| 15:00 | 3 | 88 | 42 | **1** | 0 | 4 | 5 | 13 | 5 | 5 | 19 | 2 | 33 | 220 |
| 16:00 | 0 | 104 | 32 | 0 | 2 | 3 | 5 | 11 | 3 | 8 | 18 | 2 | 38 | 226 |
| 17:00 | 0 | 98 | 45 | 0 | 1 | 2 | 0 | 11 | 4 | **9** | 17 | 2 | 36 | 225 |
| 18:00 | 1 | 106 | **51** | 0 | 0 | **5** | 2 | **15** | 1 | 2 | 23 | 1 | 21 | 228 |
| 19:00 | 1 | 112 | 42 | 0 | 1 | 0 | 1 | 4 | 1 | 1 | 16 | 0 | 8 | 187 |
| 20:00 | 0 | 101 | 34 | 0 | 1 | 1 | 4 | 0 | 1 | 0 | 13 | 0 | 3 | 158 |
| 21:00 | 0 | 62 | 23 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 1 | 92 |
| 22:00 | 0 | 71 | 14 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 88 |
| 23:00 | 0 | 26 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| Day Total | 10 | 1308 | 473 | 4 | 20 | 26 | 45 | 91 | 36 | 51 | 204 | 15 | 324 | 2607 |
| Percent | 0.4% | 50.2% | 18.1% | 0.2% | 0.8% | 1.0% | 1.7% | 3.5% | 1.4% | 2.0% | 7.8% | 0.6% | 12.4% | |
| AM Peak | 10:00 | 10:00 | 11:00 | 10:00 | 10:00 | 11:00 | 11:00 | 11:00 | 11:00 | 11:00 | 10:00 | 10:00 | 11:00 | 10:00 |
| Vol. | 1 | 131 | 39 | 1 | 3 | 4 | 5 | 13 | 4 | 6 | 20 | 2 | 42 | 236 |
| PM Peak | 14:00 | 13:00 | 18:00 | 15:00 | 12:00 | 18:00 | 13:00 | 18:00 | 12:00 | 17:00 | 14:00 | 12:00 | 12:00 | 13:00 |
| Vol. | 3 | 120 | 51 | 1 | 4 | 5 | 10 | 15 | 5 | 9 | 30 | 2 | 51 | 237 |

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

NB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 01:00 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 02:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 03:00 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| 04:00 | 1 | 15 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 05:00 | 0 | 46 | 16 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 66 |
| 06:00 | **3** | 101 | 26 | 0 | 0 | **2** | 1 | 1 | 1 | 0 | 3 | 2 | 2 | 142 |
| 07:00 | 0 | 121 | 42 | 1 | 1 | 1 | 3 | 6 | 0 | 2 | 11 | 2 | 4 | 194 |
| 08:00 | 0 | **129** | 45 | 2 | 2 | 2 | 6 | 11 | 3 | 2 | 11 | 4 | 27 | **244** |
| 09:00 | 1 | 106 | 37 | 0 | **3** | 0 | 4 | 11 | 3 | **5** | 18 | 0 | 21 | 209 |
| 10:00 | 2 | 99 | **46** | 0 | 0 | 2 | 3 | 7 | **6** | 3 | 21 | **5** | **31** | 225 |
| 11:00 | 0 | 91 | 36 | **3** | 2 | 1 | **7** | **14** | 4 | 4 | **23** | 2 | 30 | 217 |
| 12 PM | 2 | 82 | 27 | 0 | **4** | 2 | 7 | **15** | 3 | 3 | 20 | **2** | **41** | 208 |
| 13:00 | 2 | 94 | 38 | **1** | 0 | 3 | 5 | 14 | 1 | 3 | **23** | 1 | 40 | 225 |
| 14:00 | 0 | 114 | 45 | 0 | 4 | **6** | 5 | 12 | 1 | 2 | 14 | 0 | 39 | **242** |
| 15:00 | 2 | 108 | 47 | 0 | 2 | 4 | 7 | 9 | 3 | 5 | 20 | 1 | 33 | 241 |
| 16:00 | 1 | 97 | **53** | 1 | 0 | 1 | 5 | 7 | **8** | **6** | 21 | 1 | 37 | 238 |
| 17:00 | 1 | 110 | 37 | 0 | 0 | 2 | **8** | 7 | 6 | 2 | 19 | 2 | 41 | 235 |
| 18:00 | **3** | 117 | 42 | 0 | 2 | 1 | 3 | 8 | 3 | 3 | 7 | 0 | 23 | 212 |
| 19:00 | 1 | **124** | 44 | 0 | 1 | 1 | 3 | 6 | 0 | 2 | 9 | 0 | 5 | 196 |
| 20:00 | 0 | 79 | 21 | 0 | 1 | 0 | 1 | 3 | 3 | 0 | 4 | 0 | 3 | 115 |
| 21:00 | 1 | 78 | 31 | 1 | 1 | 0 | 2 | 3 | 1 | 1 | 3 | 0 | 3 | 125 |
| 22:00 | 0 | 68 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 83 |
| 23:00 | 0 | 25 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 35 |
| Day Total | 20 | 1835 | 667 | 9 | 25 | 28 | 71 | 134 | 49 | 43 | 231 | 22 | 380 | 3514 |
| Percent | 0.6% | 52.2% | 19.0% | 0.3% | 0.7% | 0.8% | 2.0% | 3.8% | 1.4% | 1.2% | 6.6% | 0.6% | 10.8% | |
| AM Peak | 06:00 | 08:00 | 10:00 | 11:00 | 09:00 | 06:00 | 11:00 | 11:00 | 10:00 | 09:00 | 11:00 | 10:00 | 10:00 | 08:00 |
| Vol. | 3 | 129 | 46 | 3 | 3 | 2 | 7 | 14 | 6 | 5 | 23 | 5 | 31 | 244 |
| PM Peak | 18:00 | 19:00 | 16:00 | 13:00 | 12:00 | 14:00 | 17:00 | 12:00 | 16:00 | 16:00 | 13:00 | 12:00 | 12:00 | 14:00 |
| Vol. | 3 | 124 | 53 | 1 | 4 | 6 | 8 | 15 | 8 | 6 | 23 | 2 | 41 | 242 |

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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 19 | 4 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 01:00 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 02:00 | 0 | 10 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 03:00 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 05:00 | 0 | 18 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 06:00 | 0 | 66 | 16 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 2 | 0 | 0 | 88 |
| 07:00 | 0 | 67 | **39** | 0 | 0 | 0 | 0 | **3** | 1 | 0 | 2 | 0 | **2** | **114** |
| 08:00 | 0 | **70** | 30 | 0 | 0 | **2** | 1 | 1 | 0 | 0 | **4** | 0 | 1 | 109 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 17:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 18:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 19:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 20:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 21:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 22:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 23:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Day Total | 0 | 270 | 107 | 0 | 1 | 4 | 2 | 5 | 3 | 0 | 8 | 0 | 3 | 403 |
| Percent | 0.0% | 67.0% | 26.6% | 0.0% | 0.2% | 1.0% | 0.5% | 1.2% | 0.7% | 0.0% | 2.0% | 0.0% | 0.7% | |
| AM Peak | | 08:00 | 07:00 | | 00:00 | 08:00 | 06:00 | 07:00 | 03:00 | | 08:00 | | 07:00 | 07:00 |
| Vol. | | 70 | 39 | | 1 | 2 | 1 | 3 | 1 | | 4 | | 2 | 114 |
| PM Peak | | | | | | | | | | | | | | |
| Vol. | | | | | | | | | | | | | | |
| Grand Total | 30 | 3413 | 1247 | 13 | 46 | 58 | 118 | 230 | 88 | 94 | 443 | 37 | 707 | 6524 |
| Percent | 0.5% | 52.3% | 19.1% | 0.2% | 0.7% | 0.9% | 1.8% | 3.5% | 1.3% | 1.4% | 6.8% | 0.6% | 10.8% | |

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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | 0 | 187 | 48 | **1** | **2** | 0 | **1** | 4 | **3** | **2** | 12 | **2** | 16 | 278 |
| 11:00 | **2** | **205** | **49** | 0 | 2 | **2** | 0 | **8** | 1 | 0 | **18** | 2 | **19** | **308** |
| 12 PM | 1 | 212 | 59 | 1 | **6** | 1 | 0 | 10 | 3 | 0 | 12 | 2 | 15 | 322 |
| 13:00 | **2** | 191 | 56 | 0 | 2 | 2 | **2** | 10 | **8** | **3** | 18 | **5** | 15 | 314 |
| 14:00 | 0 | **252** | 49 | 0 | 2 | **3** | 1 | **11** | 6 | 0 | 13 | 2 | 20 | **359** |
| 15:00 | 0 | 210 | 65 | **2** | 3 | 1 | 0 | 10 | 2 | 2 | **24** | 3 | 18 | 340 |
| 16:00 | 1 | 226 | 51 | 0 | 5 | 1 | 1 | 11 | 4 | 3 | 19 | 0 | **23** | 345 |
| 17:00 | 0 | 214 | **78** | 0 | 2 | 1 | 1 | 7 | 2 | 0 | 17 | 2 | 17 | 341 |
| 18:00 | 0 | 199 | 66 | 0 | 2 | 0 | 2 | 5 | 6 | 0 | 11 | 2 | 6 | 299 |
| 19:00 | 1 | 181 | 45 | 0 | 2 | 0 | 0 | 5 | 2 | 1 | 10 | 1 | 5 | 253 |
| 20:00 | 1 | 162 | 31 | 0 | 2 | 0 | 1 | 5 | 0 | 0 | 10 | 0 | 3 | 215 |
| 21:00 | 0 | 91 | 16 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 113 |
| 22:00 | 0 | 59 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 70 |
| 23:00 | 0 | 45 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 55 |
| Day Total | 8 | 2434 | 630 | 4 | 32 | 11 | 10 | 86 | 39 | 11 | 169 | 21 | 157 | 3612 |
| Percent | 0.2% | 67.4% | 17.4% | 0.1% | 0.9% | 0.3% | 0.3% | 2.4% | 1.1% | 0.3% | 4.7% | 0.6% | 4.3% | |
| AM Peak | 11:00 | 11:00 | 11:00 | 10:00 | 10:00 | 11:00 | 10:00 | 11:00 | 10:00 | 10:00 | 11:00 | 10:00 | 11:00 | 11:00 |
| Vol. | 2 | 205 | 49 | 1 | 2 | 2 | 1 | 8 | 3 | 2 | 18 | 2 | 19 | 308 |
| PM Peak | 13:00 | 14:00 | 17:00 | 15:00 | 12:00 | 14:00 | 13:00 | 14:00 | 13:00 | 13:00 | 15:00 | 13:00 | 16:00 | 14:00 |
| Vol. | 2 | 252 | 78 | 2 | 6 | 3 | 2 | 11 | 8 | 3 | 24 | 5 | 23 | 359 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 01:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 02:00 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 03:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 21 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 26 |
| 05:00 | 0 | 46 | 18 | **1** | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 67 |
| 06:00 | 0 | 94 | 37 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 3 | 0 | 0 | 139 |
| 07:00 | 1 | 149 | 44 | 0 | 3 | 1 | 0 | 3 | **3** | 0 | 15 | 0 | 7 | 226 |
| 08:00 | 1 | 171 | 57 | 0 | **6** | 1 | **2** | 5 | 0 | 1 | 11 | 0 | 12 | 267 |
| 09:00 | 0 | 182 | 47 | 1 | 4 | 1 | 0 | 7 | 1 | 1 | 17 | 2 | 11 | 274 |
| 10:00 | 0 | **211** | 50 | 1 | 4 | **2** | 2 | 11 | 3 | 0 | 13 | **3** | 12 | 312 |
| 11:00 | **2** | 191 | **65** | 0 | 1 | 1 | 2 | **13** | 3 | **2** | **18** | 2 | **14** | **314** |
| 12 PM | 2 | 212 | 54 | 0 | 1 | **2** | 0 | **16** | 2 | 3 | 10 | **4** | 15 | 321 |
| 13:00 | **3** | 209 | **63** | **1** | 2 | 2 | 0 | 9 | 3 | **5** | **21** | 3 | **16** | **337** |
| 14:00 | 1 | 220 | 44 | 0 | 1 | 2 | 0 | 8 | **7** | 1 | 14 | 2 | 15 | 315 |
| 15:00 | 3 | 195 | 49 | 0 | **5** | 0 | 1 | 15 | 1 | 1 | 16 | 2 | 13 | 301 |
| 16:00 | 0 | 211 | 50 | 0 | 2 | 0 | 0 | 8 | 7 | 0 | 20 | 0 | 13 | 311 |
| 17:00 | 0 | **222** | 54 | 0 | 2 | 1 | 0 | 10 | 5 | 1 | 14 | 1 | 8 | 318 |
| 18:00 | 0 | 168 | 57 | 0 | 1 | 0 | **2** | 6 | 0 | 0 | 18 | 1 | 7 | 260 |
| 19:00 | 1 | 174 | 45 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 7 | 0 | 4 | 237 |
| 20:00 | 0 | 153 | 32 | 0 | 2 | 0 | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 199 |
| 21:00 | 0 | 89 | 14 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 111 |
| 22:00 | 0 | 61 | 10 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 75 |
| 23:00 | 0 | 39 | 12 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 56 |
| Day Total | 14 | 3057 | 811 | 4 | 39 | 15 | 10 | 120 | 44 | 15 | 213 | 21 | 147 | 4510 |
| Percent | 0.3% | 67.8% | 18.0% | 0.1% | 0.9% | 0.3% | 0.2% | 2.7% | 1.0% | 0.3% | 4.7% | 0.5% | 3.3% | |
| AM Peak | 11:00 | 10:00 | 11:00 | 05:00 | 08:00 | 10:00 | 08:00 | 11:00 | 07:00 | 11:00 | 11:00 | 10:00 | 11:00 | 11:00 |
| Vol. | 2 | 211 | 65 | 1 | 6 | 2 | 2 | 13 | 3 | 2 | 18 | 3 | 14 | 314 |
| PM Peak | 13:00 | 17:00 | 13:00 | 13:00 | 15:00 | 12:00 | 18:00 | 12:00 | 14:00 | 13:00 | 13:00 | 12:00 | 13:00 | 13:00 |
| Vol. | 3 | 222 | 63 | 1 | 5 | 2 | 2 | 16 | 7 | 5 | 21 | 4 | 16 | 337 |

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 28 |
| 01:00 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16 |
| 02:00 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:00 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 05:00 | 0 | 24 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| 06:00 | 0 | 46 | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **1** | 61 |
| 07:00 | 0 | **85** | 11 | 0 | **2** | 0 | 0 | 0 | 1 | **1** | 2 | 0 | 0 | 102 |
| 08:00 | 0 | 73 | **37** | 0 | 1 | **2** | **1** | **2** | **2** | 1 | **3** | 0 | 0 | **122** |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 17:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 18:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 19:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 20:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 21:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 22:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 23:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Day Total | 0 | 286 | 77 | 0 | 3 | 2 | 1 | 2 | 6 | 2 | 7 | 0 | 1 | 387 |
| Percent | 0.0% | 73.9% | 19.9% | 0.0% | 0.8% | 0.5% | 0.3% | 0.5% | 1.6% | 0.5% | 1.8% | 0.0% | 0.3% | |
| AM Peak | | 07:00 | 08:00 | | 07:00 | 08:00 | 08:00 | 08:00 | 08:00 | 07:00 | 08:00 | | 06:00 | 08:00 |
| Vol. | | 85 | 37 | | 2 | 2 | 1 | 2 | 2 | 1 | 3 | | 1 | 122 |
| PM Peak | | | | | | | | | | | | | | |
| Vol. | | | | | | | | | | | | | | |
| Grand Total | 22 | 5777 | 1518 | 8 | 74 | 28 | 21 | 208 | 89 | 28 | 389 | 42 | 305 | 8509 |
| Percent | 0.3% | 67.9% | 17.8% | 0.1% | 0.9% | 0.3% | 0.2% | 2.4% | 1.0% | 0.3% | 4.6% | 0.5% | 3.6% | |

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Site Code: 1
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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

NB, SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | 1 | **318** | 72 | **2** | **5** | 2 | **5** | 8 | **6** | 4 | 32 | **4** | 55 | 514 |
| 11:00 | **2** | 307 | **88** | 0 | 3 | **6** | 5 | **21** | 5 | **6** | **33** | 3 | **61** | **540** |
| 12 PM | 2 | 291 | 103 | 1 | **10** | 3 | 4 | 17 | 8 | 5 | 26 | 4 | **66** | 540 |
| 13:00 | 2 | 311 | 88 | 0 | 5 | 4 | **12** | 19 | **12** | 9 | 33 | **6** | 50 | 551 |
| 14:00 | **3** | **360** | 92 | 0 | 4 | 4 | 5 | 14 | 10 | 7 | **43** | 4 | 37 | **583** |
| 15:00 | 3 | 298 | 107 | **3** | 3 | **5** | 5 | **23** | 7 | 7 | 43 | 5 | 51 | 560 |
| 16:00 | 1 | 330 | 83 | 0 | 7 | 4 | 6 | 22 | 7 | **11** | 37 | 2 | 61 | 571 |
| 17:00 | 0 | 312 | **123** | 0 | 3 | 3 | 1 | 18 | 6 | 9 | 34 | 4 | 53 | 566 |
| 18:00 | 1 | 305 | 117 | 0 | 2 | 5 | 4 | 20 | 7 | 2 | 34 | 3 | 27 | 527 |
| 19:00 | 2 | 293 | 87 | 0 | 3 | 0 | 1 | 9 | 3 | 2 | 26 | 1 | 13 | 440 |
| 20:00 | 1 | 263 | 65 | 0 | 3 | 1 | 5 | 5 | 1 | 0 | 23 | 0 | 6 | 373 |
| 21:00 | 0 | 153 | 39 | 0 | 3 | 0 | 1 | 0 | 3 | 0 | 5 | 0 | 1 | 205 |
| 22:00 | 0 | 130 | 23 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 158 |
| 23:00 | 0 | 71 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 91 |
| Day Total | 18 | 3742 | 1103 | 8 | 52 | 37 | 55 | 177 | 75 | 62 | 373 | 36 | 481 | 6219 |
| Percent | 0.3% | 60.2% | 17.7% | 0.1% | 0.8% | 0.6% | 0.9% | 2.8% | 1.2% | 1.0% | 6.0% | 0.6% | 7.7% | |
| AM Peak | 11:00 | 10:00 | 11:00 | 10:00 | 10:00 | 11:00 | 10:00 | 11:00 | 10:00 | 11:00 | 11:00 | 10:00 | 11:00 | 11:00 |
| Vol. | 2 | 318 | 88 | 2 | 5 | 6 | 5 | 21 | 6 | 6 | 33 | 4 | 61 | 540 |
| PM Peak | 14:00 | 14:00 | 17:00 | 15:00 | 12:00 | 15:00 | 13:00 | 15:00 | 13:00 | 16:00 | 14:00 | 13:00 | 12:00 | 14:00 |
| Vol. | 3 | 360 | 123 | 3 | 10 | 5 | 12 | 23 | 12 | 11 | 43 | 6 | 66 | 583 |

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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 34 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 01:00 | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 02:00 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 03:00 | 0 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17 |
| 04:00 | 1 | 36 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 47 |
| 05:00 | 0 | 92 | 34 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 133 |
| 06:00 | **3** | 195 | 63 | 0 | 0 | 3 | 1 | 3 | 3 | 0 | 6 | 2 | 2 | 281 |
| 07:00 | 1 | 270 | 86 | 1 | 4 | 2 | 3 | 9 | 3 | 2 | 26 | 2 | 11 | 420 |
| 08:00 | 1 | 300 | **102** | 2 | **8** | 3 | 8 | 16 | 3 | 3 | 22 | 4 | 39 | 511 |
| 09:00 | 1 | 288 | 84 | 1 | 7 | 1 | 4 | 18 | 4 | **6** | 35 | 2 | 32 | 483 |
| 10:00 | 2 | **310** | 96 | 1 | 4 | **4** | 5 | 18 | **9** | 3 | 34 | **8** | 43 | **537** |
| 11:00 | 2 | 282 | 101 | **3** | 3 | 2 | **9** | **27** | 7 | 6 | **41** | 4 | **44** | 531 |
| 12 PM | 4 | 294 | 81 | 0 | 5 | 4 | 7 | **31** | 5 | 6 | 30 | **6** | **56** | 529 |
| 13:00 | **5** | 303 | 101 | **2** | 2 | 5 | 5 | 23 | 4 | **8** | **44** | 4 | 56 | **562** |
| 14:00 | 1 | **334** | 89 | 0 | 5 | **8** | 5 | 20 | 8 | 3 | 28 | 2 | 54 | 557 |
| 15:00 | 5 | 303 | 96 | 0 | **7** | 4 | **8** | 24 | 4 | 6 | 36 | 3 | 46 | 542 |
| 16:00 | 1 | 308 | **103** | 1 | 2 | 1 | 5 | 15 | **15** | 6 | 41 | 1 | 50 | 549 |
| 17:00 | 1 | 332 | 91 | 0 | 2 | 3 | 8 | 17 | 11 | 3 | 33 | 3 | 49 | 553 |
| 18:00 | 3 | 285 | 99 | 0 | 3 | 1 | 5 | 14 | 3 | 3 | 25 | 1 | 30 | 472 |
| 19:00 | 2 | 298 | 89 | 0 | 3 | 1 | 3 | 8 | 2 | 2 | 16 | 0 | 9 | 433 |
| 20:00 | 0 | 232 | 53 | 0 | 3 | 0 | 1 | 5 | 7 | 0 | 10 | 0 | 3 | 314 |
| 21:00 | 1 | 167 | 45 | 1 | 3 | 0 | 3 | 3 | 1 | 1 | 7 | 1 | 3 | 236 |
| 22:00 | 0 | 129 | 23 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 158 |
| 23:00 | 0 | 64 | 21 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 91 |
| Day Total | 34 | 4892 | 1478 | 13 | 64 | 43 | 81 | 254 | 93 | 58 | 444 | 43 | 527 | 8024 |
| Percent | 0.4% | 61.0% | 18.4% | 0.2% | 0.8% | 0.5% | 1.0% | 3.2% | 1.2% | 0.7% | 5.5% | 0.5% | 6.6% | |
| AM Peak | 06:00 | 10:00 | 08:00 | 11:00 | 08:00 | 10:00 | 11:00 | 11:00 | 10:00 | 09:00 | 11:00 | 10:00 | 11:00 | 10:00 |
| Vol. | 3 | 310 | 102 | 3 | 8 | 4 | 9 | 27 | 9 | 6 | 41 | 8 | 44 | 537 |
| PM Peak | 13:00 | 14:00 | 16:00 | 13:00 | 15:00 | 14:00 | 15:00 | 12:00 | 16:00 | 13:00 | 13:00 | 12:00 | 12:00 | 13:00 |
| Vol. | 5 | 334 | 103 | 2 | 7 | 8 | 8 | 31 | 15 | 8 | 44 | 6 | 56 | 562 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 43 | 7 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 52 |
| 01:00 | 0 | 22 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 26 |
| 02:00 | 0 | 14 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 03:00 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| 04:00 | 0 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 05:00 | 0 | 42 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 61 |
| 06:00 | 0 | 112 | 28 | 0 | 0 | 1 | 1 | 1 | **2** | 0 | 3 | 0 | 1 | 149 |
| 07:00 | 0 | **152** | 50 | 0 | **2** | 0 | 0 | **3** | 2 | **1** | 4 | 0 | **2** | 216 |
| 08:00 | 0 | 143 | **67** | 0 | 1 | **4** | **2** | 3 | 2 | 1 | **7** | 0 | 1 | **231** |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 17:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 18:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 19:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 20:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 21:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 22:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 23:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Day Total | 0 | 556 | 184 | 0 | 4 | 6 | 3 | 7 | 9 | 2 | 15 | 0 | 4 | 790 |
| Percent | 0.0% | 70.4% | 23.3% | 0.0% | 0.5% | 0.8% | 0.4% | 0.9% | 1.1% | 0.3% | 1.9% | 0.0% | 0.5% | |
| AM Peak | | 07:00 | 08:00 | | 07:00 | 08:00 | 08:00 | 07:00 | 06:00 | 07:00 | 08:00 | | 07:00 | 08:00 |
| Vol. | | 152 | 67 | | 2 | 4 | 2 | 3 | 2 | 1 | 7 | | 2 | 231 |
| PM Peak | | | | | | | | | | | | | | |
| Vol. | | | | | | | | | | | | | | |
| Grand Total | 52 | 9190 | 2765 | 21 | 120 | 86 | 139 | 438 | 177 | 122 | 832 | 79 | 1012 | 15033 |
| Percent | 0.3% | 61.1% | 18.4% | 0.1% | 0.8% | 0.6% | 0.9% | 2.9% | 1.2% | 0.8% | 5.5% | 0.5% | 6.7% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | 0 | 25 | 8 | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 9 | 0 | 6 | 55 |
| 10:15 | 0 | 39 | 5 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 4 | 2 | 8 | 63 |
| 10:30 | 0 | 38 | 3 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 0 | 12 | 59 |
| 10:45 | 1 | 29 | 8 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 4 | 0 | 13 | 59 |
| | 1 | 131 | 24 | 1 | 3 | 2 | 4 | 4 | 3 | 2 | 20 | 2 | 39 | 236 |
| 11:00 | 0 | 28 | 9 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 4 | 0 | 9 | 55 |
| 11:15 | 0 | 19 | 15 | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 2 | 0 | 13 | 56 |
| 11:30 | 0 | 38 | 9 | 0 | 0 | 3 | 2 | 3 | 2 | 2 | 6 | 1 | 8 | 74 |
| 11:45 | 0 | 17 | 6 | 0 | 1 | 0 | 2 | 5 | 1 | 0 | 3 | 0 | 12 | 47 |
| | 0 | 102 | 39 | 0 | 1 | 4 | 5 | 13 | 4 | 6 | 15 | 1 | 42 | 232 |
| Total | 1 | 233 | 63 | 1 | 4 | 6 | 9 | 17 | 7 | 8 | 35 | 3 | 81 | 468 |
| Percent | 0.2% | 49.8% | 13.5% | 0.2% | 0.9% | 1.3% | 1.9% | 3.6% | 1.5% | 1.7% | 7.5% | 0.6% | 17.3% | |

**Ontario Traffic, Inc.**
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Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

NB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 1 | 13 | 5 | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 4 | 0 | 17 | 46 |
| 12:15 | 0 | 21 | 13 | 0 | 1 | 0 | 0 | 2 | 2 | 1 | 2 | 1 | 8 | 51 |
| 12:30 | 0 | 24 | 15 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 3 | 1 | 12 | 59 |
| 12:45 | 0 | 21 | 11 | 0 | 1 | 1 | 2 | 3 | 2 | 2 | 5 | 0 | 14 | 62 |
| | 1 | 79 | 44 | 0 | 4 | 2 | 4 | 7 | 5 | 5 | 14 | 2 | 51 | 218 |
| 13:00 | 0 | 25 | 9 | 0 | 1 | 1 | 3 | 3 | 0 | 3 | 2 | 1 | 11 | 59 |
| 13:15 | 0 | 37 | 10 | 0 | 2 | 0 | 3 | 1 | 0 | 0 | 4 | 0 | 7 | 64 |
| 13:30 | 0 | 23 | 6 | 0 | 0 | 1 | 3 | 3 | 1 | 1 | 5 | 0 | 10 | 53 |
| 13:45 | 0 | 35 | 7 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 4 | 0 | 7 | 61 |
| | 0 | 120 | 32 | 0 | 3 | 2 | 10 | 9 | 4 | 6 | 15 | 1 | 35 | 237 |
| 14:00 | 1 | 30 | 16 | 0 | 1 | 1 | 0 | 1 | 0 | 4 | 9 | 2 | 3 | 68 |
| 14:15 | 1 | 23 | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 5 | 0 | 5 | 43 |
| 14:30 | 1 | 31 | 13 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 7 | 0 | 5 | 61 |
| 14:45 | 0 | 24 | 9 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 9 | 0 | 4 | 52 |
| | 3 | 108 | 43 | 0 | 2 | 1 | 4 | 3 | 4 | 7 | 30 | 2 | 17 | 224 |
| 15:00 | 1 | 21 | 8 | 0 | 0 | 2 | 1 | 3 | 1 | 3 | 8 | 0 | 8 | 56 |
| 15:15 | 0 | 25 | 10 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 0 | 11 | 55 |
| 15:30 | 2 | 22 | 9 | 0 | 0 | 0 | 2 | 4 | 1 | 0 | 6 | 2 | 6 | 54 |
| 15:45 | 0 | 20 | 15 | 1 | 0 | 1 | 0 | 4 | 3 | 2 | 1 | 0 | 8 | 55 |
| | 3 | 88 | 42 | 1 | 0 | 4 | 5 | 13 | 5 | 5 | 19 | 2 | 33 | 220 |
| 16:00 | 0 | 23 | 7 | 0 | 0 | 0 | 2 | 5 | 0 | 3 | 3 | 1 | 9 | 53 |
| 16:15 | 0 | 29 | 9 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 5 | 0 | 9 | 57 |
| 16:30 | 0 | 27 | 6 | 0 | 1 | 1 | 2 | 2 | 1 | 2 | 6 | 0 | 9 | 57 |
| 16:45 | 0 | 25 | 10 | 0 | 0 | 2 | 1 | 3 | 0 | 2 | 4 | 1 | 11 | 59 |
| | 0 | 104 | 32 | 0 | 2 | 3 | 5 | 11 | 3 | 8 | 18 | 2 | 38 | 226 |
| 17:00 | 0 | 19 | 6 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 3 | 2 | 9 | 45 |
| 17:15 | 0 | 24 | 12 | 0 | 0 | 1 | 0 | 3 | 1 | 4 | 6 | 0 | 8 | 59 |
| 17:30 | 0 | 27 | 18 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 3 | 0 | 9 | 63 |
| 17:45 | 0 | 28 | 9 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 5 | 0 | 10 | 58 |
| | 0 | 98 | 45 | 0 | 1 | 2 | 0 | 11 | 4 | 9 | 17 | 2 | 36 | 225 |
| 18:00 | 1 | 33 | 12 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 9 | 0 | 3 | 63 |
| 18:15 | 0 | 31 | 14 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | 0 | 5 | 60 |
| 18:30 | 0 | 23 | 15 | 0 | 0 | 2 | 0 | 4 | 1 | 1 | 4 | 1 | 6 | 57 |
| 18:45 | 0 | 19 | 10 | 0 | 0 | 1 | 1 | 5 | 0 | 0 | 5 | 0 | 7 | 48 |
| | 1 | 106 | 51 | 0 | 0 | 5 | 2 | 15 | 1 | 2 | 23 | 1 | 21 | 228 |
| 19:00 | 1 | 29 | 5 | 0 | 0 | 0 | 1 | 3 | 0 | 1 | 7 | 0 | 1 | 48 |
| 19:15 | 0 | 26 | 14 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 4 | 50 |
| 19:30 | 0 | 30 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 47 |
| 19:45 | 0 | 27 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 42 |
| | 1 | 112 | 42 | 0 | 1 | 0 | 1 | 4 | 1 | 1 | 16 | 0 | 8 | 187 |
| 20:00 | 0 | 32 | 11 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 49 |
| 20:15 | 0 | 19 | 7 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 0 | 32 |
| 20:30 | 0 | 26 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 35 |
| 20:45 | 0 | 24 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 42 |
| | 0 | 101 | 34 | 0 | 1 | 1 | 4 | 0 | 1 | 0 | 13 | 0 | 3 | 158 |
| 21:00 | 0 | 25 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 35 |
| 21:15 | 0 | 14 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 20 |
| 21:30 | 0 | 13 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 18 |
| 21:45 | 0 | 10 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 19 |
| | 0 | 62 | 23 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 1 | 92 |
| 22:00 | 0 | 13 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 22:15 | 0 | 21 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 22:30 | 0 | 16 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 21 |
| 22:45 | 0 | 21 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| | 0 | 71 | 14 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 88 |
| 23:00 | 0 | 8 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 23:15 | 0 | 8 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 23:30 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 23:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 26 | 8 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| Total | 9 | 1075 | 410 | 3 | 16 | 20 | 36 | 74 | 29 | 43 | 169 | 12 | 243 | 2139 |
| Percent | 0.4% | 50.3% | 19.2% | 0.1% | 0.7% | 0.9% | 1.7% | 3.5% | 1.4% | 2.0% | 7.9% | 0.6% | 11.4% | |

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Date Start: 21-Nov-24
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NB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 00:15 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 00:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 00:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 01:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 02:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:45 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| 04:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 04:15 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:30 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 04:45 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 1 | 15 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 05:00 | 0 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 05:15 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 05:30 | 0 | 13 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 19 |
| 05:45 | 0 | 15 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 22 |
| | 0 | 46 | 16 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 66 |
| 06:00 | 0 | 12 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 18 |
| 06:15 | 0 | 23 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 30 |
| 06:30 | 2 | 28 | 12 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 1 | 1 | 49 |
| 06:45 | 1 | 38 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| | 3 | 101 | 26 | 0 | 0 | 2 | 1 | 1 | 1 | 0 | 3 | 2 | 2 | 142 |
| 07:00 | 0 | 26 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 36 |
| 07:15 | 0 | 30 | 8 | 0 | 0 | 1 | 2 | 1 | 0 | 1 | 4 | 0 | 1 | 48 |
| 07:30 | 0 | 27 | 15 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 50 |
| 07:45 | 0 | 38 | 12 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 4 | 0 | 2 | 60 |
| | 0 | 121 | 42 | 1 | 1 | 1 | 3 | 6 | 0 | 2 | 11 | 2 | 4 | 194 |
| 08:00 | 0 | 30 | 20 | 0 | 0 | 0 | 1 | 5 | 1 | 2 | 2 | 1 | 4 | 66 |
| 08:15 | 0 | 36 | 7 | 1 | 2 | 0 | 0 | 2 | 1 | 0 | 2 | 2 | 4 | 57 |
| 08:30 | 0 | 35 | 7 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 2 | 0 | 6 | 57 |
| 08:45 | 0 | 28 | 11 | 1 | 0 | 2 | 2 | 1 | 0 | 0 | 5 | 1 | 13 | 64 |
| | 0 | 129 | 45 | 2 | 2 | 2 | 6 | 11 | 3 | 2 | 11 | 4 | 27 | 244 |
| 09:00 | 0 | 29 | 17 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 8 | 0 | 2 | 62 |
| 09:15 | 0 | 27 | 7 | 0 | 2 | 0 | 0 | 3 | 1 | 2 | 4 | 0 | 7 | 53 |
| 09:30 | 1 | 29 | 10 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 7 | 50 |
| 09:45 | 0 | 21 | 3 | 0 | 1 | 0 | 3 | 3 | 1 | 2 | 5 | 0 | 5 | 44 |
| | 1 | 106 | 37 | 0 | 3 | 0 | 4 | 11 | 3 | 5 | 18 | 0 | 21 | 209 |
| 10:00 | 0 | 24 | 12 | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 5 | 2 | 6 | 55 |
| 10:15 | 1 | 30 | 16 | 0 | 0 | 1 | 0 | 2 | 2 | 1 | 3 | 1 | 2 | 59 |
| 10:30 | 0 | 23 | 6 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 5 | 2 | 12 | 52 |
| 10:45 | 1 | 22 | 12 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 8 | 0 | 11 | 59 |
| | 2 | 99 | 46 | 0 | 0 | 2 | 3 | 7 | 6 | 3 | 21 | 5 | 31 | 225 |
| 11:00 | 0 | 23 | 10 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 6 | 0 | 7 | 51 |
| 11:15 | 0 | 20 | 9 | 1 | 0 | 0 | 3 | 6 | 1 | 2 | 5 | 0 | 3 | 50 |
| 11:30 | 0 | 19 | 8 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 9 | 1 | 10 | 56 |
| 11:45 | 0 | 29 | 9 | 1 | 1 | 0 | 1 | 5 | 0 | 0 | 3 | 1 | 10 | 60 |
| | 0 | 91 | 36 | 3 | 2 | 1 | 7 | 14 | 4 | 4 | 23 | 2 | 30 | 217 |
| Total | 7 | 739 | 260 | 6 | 10 | 8 | 24 | 50 | 20 | 16 | 89 | 15 | 115 | 1359 |
| Percent | 0.5% | 54.4% | 19.1% | 0.4% | 0.7% | 0.6% | 1.8% | 3.7% | 1.5% | 1.2% | 6.5% | 1.1% | 8.5% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 27 | 7 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 8 | 1 | 16 | 63 |
| 12:15 | 0 | 15 | 7 | 0 | 4 | 0 | 2 | 6 | 0 | 0 | 4 | 1 | 7 | 46 |
| 12:30 | 0 | 22 | 9 | 0 | 0 | 0 | 3 | 4 | 2 | 1 | 4 | 0 | 5 | 50 |
| 12:45 | 2 | 18 | 4 | 0 | 0 | 1 | 1 | 5 | 0 | 1 | 4 | 0 | 13 | 49 |
| | 2 | 82 | 27 | 0 | 4 | 2 | 7 | 15 | 3 | 3 | 20 | 2 | 41 | 208 |
| 13:00 | 1 | 26 | 8 | 0 | 0 | 1 | 0 | 6 | 0 | 1 | 8 | 1 | 5 | 57 |
| 13:15 | 1 | 24 | 7 | 0 | 0 | 1 | 1 | 4 | 1 | 1 | 6 | 0 | 14 | 60 |
| 13:30 | 0 | 23 | 9 | 1 | 0 | 0 | 3 | 2 | 0 | 1 | 4 | 0 | 10 | 53 |
| 13:45 | 0 | 21 | 14 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 5 | 0 | 11 | 55 |
| | 2 | 94 | 38 | 1 | 0 | 3 | 5 | 14 | 1 | 3 | 23 | 1 | 40 | 225 |
| 14:00 | 0 | 18 | 7 | 0 | 1 | 1 | 1 | 5 | 1 | 1 | 6 | 0 | 9 | 50 |
| 14:15 | 0 | 37 | 11 | 0 | 3 | 1 | 2 | 3 | 0 | 0 | 1 | 0 | 7 | 65 |
| 14:30 | 0 | 31 | 16 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 14 | 68 |
| 14:45 | 0 | 28 | 11 | 0 | 0 | 3 | 1 | 3 | 0 | 1 | 3 | 0 | 9 | 59 |
| | 0 | 114 | 45 | 0 | 4 | 6 | 5 | 12 | 1 | 2 | 14 | 0 | 39 | 242 |
| 15:00 | 1 | 18 | 15 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 7 | 1 | 12 | 59 |
| 15:15 | 1 | 27 | 11 | 0 | 2 | 3 | 4 | 3 | 0 | 1 | 3 | 0 | 8 | 63 |
| 15:30 | 0 | 24 | 9 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 5 | 0 | 8 | 52 |
| 15:45 | 0 | 39 | 12 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 5 | 0 | 5 | 67 |
| | 2 | 108 | 47 | 0 | 2 | 4 | 7 | 9 | 3 | 5 | 20 | 1 | 33 | 241 |
| 16:00 | 0 | 23 | 19 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 6 | 0 | 13 | 64 |
| 16:15 | 0 | 26 | 8 | 1 | 0 | 1 | 0 | 3 | 1 | 1 | 4 | 0 | 9 | 54 |
| 16:30 | 1 | 21 | 17 | 0 | 0 | 0 | 3 | 0 | 3 | 2 | 7 | 0 | 7 | 61 |
| 16:45 | 0 | 27 | 9 | 0 | 0 | 0 | 2 | 2 | 4 | 2 | 4 | 1 | 8 | 59 |
| | 1 | 97 | 53 | 1 | 0 | 1 | 5 | 7 | 8 | 6 | 21 | 1 | 37 | 238 |
| 17:00 | 0 | 21 | 14 | 0 | 0 | 1 | 1 | 3 | 2 | 1 | 7 | 0 | 9 | 59 |
| 17:15 | 0 | 31 | 5 | 0 | 0 | 0 | 6 | 1 | 3 | 1 | 4 | 0 | 11 | 62 |
| 17:30 | 0 | 29 | 6 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 14 | 54 |
| 17:45 | 1 | 29 | 12 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 6 | 1 | 7 | 60 |
| | 1 | 110 | 37 | 0 | 0 | 2 | 8 | 7 | 6 | 2 | 19 | 2 | 41 | 235 |
| 18:00 | 2 | 23 | 7 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 1 | 0 | 9 | 47 |
| 18:15 | 0 | 28 | 10 | 0 | 2 | 1 | 0 | 1 | 1 | 1 | 4 | 0 | 6 | 54 |
| 18:30 | 0 | 33 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 5 | 55 |
| 18:45 | 1 | 33 | 11 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 2 | 0 | 3 | 56 |
| | 3 | 117 | 42 | 0 | 2 | 1 | 3 | 8 | 3 | 3 | 7 | 0 | 23 | 212 |
| 19:00 | 1 | 29 | 11 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 4 | 0 | 1 | 52 |
| 19:15 | 0 | 21 | 10 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 4 | 40 |
| 19:30 | 0 | 41 | 11 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 57 |
| 19:45 | 0 | 33 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 47 |
| | 1 | 124 | 44 | 0 | 1 | 1 | 3 | 6 | 0 | 2 | 9 | 0 | 5 | 196 |
| 20:00 | 0 | 23 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 35 |
| 20:15 | 0 | 29 | 5 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 38 |
| 20:30 | 0 | 17 | 7 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 29 |
| 20:45 | 0 | 10 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| | 0 | 79 | 21 | 0 | 1 | 0 | 1 | 3 | 3 | 0 | 4 | 0 | 3 | 115 |
| 21:00 | 1 | 21 | 10 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 37 |
| 21:15 | 0 | 16 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 21 |
| 21:30 | 0 | 19 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 36 |
| 21:45 | 0 | 22 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 31 |
| | 1 | 78 | 31 | 1 | 1 | 0 | 2 | 3 | 1 | 1 | 3 | 0 | 3 | 125 |
| 22:00 | 0 | 22 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| 22:15 | 0 | 18 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 22:30 | 0 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 22 |
| 22:45 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| | 0 | 68 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 83 |
| 23:00 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 8 |
| 23:15 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 23:30 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 23:45 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | 0 | 25 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 35 |
| Total | 13 | 1096 | 407 | 3 | 15 | 20 | 47 | 84 | 29 | 27 | 142 | 7 | 265 | 2155 |
| Percent | 0.6% | 50.9% | 18.9% | 0.1% | 0.7% | 0.9% | 2.2% | 3.9% | 1.3% | 1.3% | 6.6% | 0.3% | 12.3% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 00:15 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 00:30 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 00:45 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 19 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 01:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:15 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 01:30 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 02:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 02:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:30 | 0 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 02:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 10 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 03:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| 03:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 04:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 04:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 05:00 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:30 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 05:45 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| | 0 | 18 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 06:00 | 0 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 06:15 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 06:30 | 0 | 29 | 5 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 36 |
| 06:45 | 0 | 19 | 6 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 29 |
| | 0 | 66 | 16 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 88 |
| 07:00 | 0 | 13 | 7 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 22 |
| 07:15 | 0 | 17 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 27 |
| 07:30 | 0 | 13 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 07:45 | 0 | 24 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 42 |
| | 0 | 67 | 39 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 2 | 0 | 2 | 114 |
| 08:00 | 0 | 26 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 37 |
| 08:15 | 0 | 19 | 9 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 32 |
| 08:30 | 0 | 25 | 12 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 40 |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 270 | 107 | 0 | 1 | 4 | 2 | 5 | 3 | 0 | 8 | 0 | 3 | 403 |
| Percent | 0.0% | 67.0% | 26.6% | 0.0% | 0.2% | 1.0% | 0.5% | 1.2% | 0.7% | 0.0% | 2.0% | 0.0% | 0.7% | |
| Grand Total | 30 | 3413 | 1247 | 13 | 46 | 58 | 118 | 230 | 88 | 94 | 443 | 37 | 707 | 6524 |
| Percent | 0.5% | 52.3% | 19.1% | 0.2% | 0.7% | 0.9% | 1.8% | 3.5% | 1.3% | 1.4% | 6.8% | 0.6% | 10.8% | |

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | 0 | 43 | 10 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 3 | 0 | 2 | 63 |
| 10:15 | 0 | 40 | 10 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 4 | 0 | 8 | 65 |
| 10:30 | 0 | 58 | 17 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 4 | 82 |
| 10:45 | 0 | 46 | 11 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 3 | 2 | 2 | 68 |
| | 0 | 187 | 48 | 1 | 2 | 0 | 1 | 4 | 3 | 2 | 12 | 2 | 16 | 278 |
| 11:00 | 1 | 47 | 15 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 6 | 0 | 7 | 79 |
| 11:15 | 1 | 41 | 9 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 6 | 64 |
| 11:30 | 0 | 64 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 3 | 84 |
| 11:45 | 0 | 53 | 15 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 6 | 0 | 3 | 81 |
| | 2 | 205 | 49 | 0 | 2 | 2 | 0 | 8 | 1 | 0 | 18 | 2 | 19 | 308 |
| Total | 2 | 392 | 97 | 1 | 4 | 2 | 1 | 12 | 4 | 2 | 30 | 4 | 35 | 586 |
| Percent | 0.3% | 66.9% | 16.6% | 0.2% | 0.7% | 0.3% | 0.2% | 2.0% | 0.7% | 0.3% | 5.1% | 0.7% | 6.0% | |

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Site Code: 1
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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 50 | 15 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 6 | 78 |
| 12:15 | 0 | 61 | 16 | 1 | 1 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 3 | 89 |
| 12:30 | 0 | 52 | 12 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 5 | 1 | 2 | 76 |
| 12:45 | 1 | 49 | 16 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | 3 | 1 | 4 | 79 |
| | 1 | 212 | 59 | 1 | 6 | 1 | 0 | 10 | 3 | 0 | 12 | 2 | 15 | 322 |
| 13:00 | 0 | 48 | 15 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 2 | 2 | 2 | 75 |
| 13:15 | 1 | 48 | 13 | 0 | 1 | 2 | 0 | 0 | 3 | 1 | 5 | 1 | 5 | 80 |
| 13:30 | 1 | 57 | 19 | 0 | 1 | 0 | 1 | 3 | 3 | 0 | 2 | 2 | 5 | 94 |
| 13:45 | 0 | 38 | 9 | 0 | 0 | 0 | 1 | 3 | 1 | 1 | 9 | 0 | 3 | 65 |
| | 2 | 191 | 56 | 0 | 2 | 2 | 2 | 10 | 8 | 3 | 18 | 5 | 15 | 314 |
| 14:00 | 0 | 62 | 12 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 83 |
| 14:15 | 0 | 57 | 21 | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 4 | 1 | 5 | 95 |
| 14:30 | 0 | 59 | 6 | 0 | 1 | 0 | 1 | 4 | 1 | 0 | 4 | 0 | 6 | 82 |
| 14:45 | 0 | 74 | 10 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 3 | 1 | 6 | 99 |
| | 0 | 252 | 49 | 0 | 2 | 3 | 1 | 11 | 6 | 0 | 13 | 2 | 20 | 359 |
| 15:00 | 0 | 54 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 5 | 85 |
| 15:15 | 0 | 55 | 16 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 3 | 0 | 6 | 84 |
| 15:30 | 0 | 44 | 15 | 0 | 1 | 0 | 0 | 5 | 1 | 1 | 6 | 2 | 6 | 81 |
| 15:45 | 0 | 57 | 18 | 1 | 1 | 1 | 0 | 2 | 0 | 1 | 8 | 0 | 1 | 90 |
| | 0 | 210 | 65 | 2 | 3 | 1 | 0 | 10 | 2 | 2 | 24 | 3 | 18 | 340 |
| 16:00 | 1 | 45 | 15 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 7 | 0 | 8 | 79 |
| 16:15 | 0 | 69 | 11 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 8 | 0 | 3 | 96 |
| 16:30 | 0 | 69 | 11 | 0 | 1 | 0 | 0 | 2 | 3 | 1 | 4 | 0 | 5 | 96 |
| 16:45 | 0 | 43 | 14 | 0 | 3 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 7 | 74 |
| | 1 | 226 | 51 | 0 | 5 | 1 | 1 | 11 | 4 | 3 | 19 | 0 | 23 | 345 |
| 17:00 | 0 | 64 | 17 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 2 | 1 | 4 | 92 |
| 17:15 | 0 | 52 | 23 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 8 | 91 |
| 17:30 | 0 | 47 | 14 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 3 | 70 |
| 17:45 | 0 | 51 | 24 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 5 | 1 | 2 | 88 |
| | 0 | 214 | 78 | 0 | 2 | 1 | 1 | 7 | 2 | 0 | 17 | 2 | 17 | 341 |
| 18:00 | 0 | 52 | 12 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 1 | 4 | 75 |
| 18:15 | 0 | 45 | 19 | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 4 | 0 | 1 | 74 |
| 18:30 | 0 | 50 | 17 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 71 |
| 18:45 | 0 | 52 | 18 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 3 | 1 | 1 | 79 |
| | 0 | 199 | 66 | 0 | 2 | 0 | 2 | 5 | 6 | 0 | 11 | 2 | 6 | 299 |
| 19:00 | 1 | 54 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 2 | 75 |
| 19:15 | 0 | 50 | 10 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 4 | 0 | 1 | 68 |
| 19:30 | 0 | 35 | 11 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 2 | 53 |
| 19:45 | 0 | 42 | 10 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 57 |
| | 1 | 181 | 45 | 0 | 2 | 0 | 0 | 5 | 2 | 1 | 10 | 1 | 5 | 253 |
| 20:00 | 1 | 51 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 64 |
| 20:15 | 0 | 36 | 11 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 51 |
| 20:30 | 0 | 34 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 2 | 48 |
| 20:45 | 0 | 41 | 5 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 0 | 52 |
| | 1 | 162 | 31 | 0 | 2 | 0 | 1 | 5 | 0 | 0 | 10 | 0 | 3 | 215 |
| 21:00 | 0 | 18 | 6 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 26 |
| 21:15 | 0 | 31 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 37 |
| 21:30 | 0 | 23 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 21:45 | 0 | 19 | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 26 |
| | 0 | 91 | 16 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 113 |
| 22:00 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15 |
| 22:15 | 0 | 18 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 22:30 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 22:45 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 23 |
| | 0 | 59 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 70 |
| 23:00 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 23:15 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 15 |
| 23:30 | 0 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13 |
| 23:45 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 0 | 45 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 55 |
| Total | 6 | 2042 | 533 | 3 | 28 | 9 | 9 | 74 | 35 | 9 | 139 | 17 | 122 | 3026 |
| Percent | 0.2% | 67.5% | 17.6% | 0.1% | 0.9% | 0.3% | 0.3% | 2.4% | 1.2% | 0.3% | 4.6% | 0.6% | 4.0% | |

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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
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SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 00:15 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 00:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 00:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 01:00 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 01:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 02:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:15 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:30 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 04:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 |
| | 0 | 21 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 26 |
| 05:00 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 05:15 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 05:30 | 0 | 11 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 05:45 | 0 | 25 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| | 0 | 46 | 18 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 67 |
| 06:00 | 0 | 17 | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 26 |
| 06:15 | 0 | 21 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 32 |
| 06:30 | 0 | 28 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 35 |
| 06:45 | 0 | 28 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 46 |
| | 0 | 94 | 37 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 3 | 0 | 0 | 139 |
| 07:00 | 0 | 26 | 14 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 45 |
| 07:15 | 1 | 47 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 64 |
| 07:30 | 0 | 35 | 10 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 | 55 |
| 07:45 | 0 | 41 | 9 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 6 | 0 | 2 | 62 |
| | 1 | 149 | 44 | 0 | 3 | 1 | 0 | 3 | 3 | 0 | 15 | 0 | 7 | 226 |
| 08:00 | 1 | 30 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 4 | 49 |
| 08:15 | 0 | 56 | 10 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 75 |
| 08:30 | 0 | 49 | 20 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 2 | 77 |
| 08:45 | 0 | 36 | 17 | 0 | 3 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 5 | 66 |
| | 1 | 171 | 57 | 0 | 6 | 1 | 2 | 5 | 0 | 1 | 11 | 0 | 12 | 267 |
| 09:00 | 0 | 49 | 11 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 7 | 0 | 1 | 73 |
| 09:15 | 0 | 43 | 12 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 2 | 64 |
| 09:30 | 0 | 38 | 14 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 2 | 60 |
| 09:45 | 0 | 52 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 6 | 77 |
| | 0 | 182 | 47 | 1 | 4 | 1 | 0 | 7 | 1 | 1 | 17 | 2 | 11 | 274 |
| 10:00 | 0 | 55 | 16 | 1 | 1 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 3 | 81 |
| 10:15 | 0 | 57 | 10 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4 | 2 | 3 | 78 |
| 10:30 | 0 | 56 | 11 | 0 | 3 | 1 | 1 | 4 | 1 | 0 | 3 | 0 | 0 | 80 |
| 10:45 | 0 | 43 | 13 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | 1 | 6 | 73 |
| | 0 | 211 | 50 | 1 | 4 | 2 | 2 | 11 | 3 | 0 | 13 | 3 | 12 | 312 |
| 11:00 | 0 | 41 | 18 | 0 | 0 | 1 | 0 | 5 | 1 | 0 | 7 | 1 | 4 | 78 |
| 11:15 | 1 | 64 | 14 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 9 | 0 | 2 | 93 |
| 11:30 | 0 | 50 | 15 | 0 | 1 | 0 | 1 | 4 | 2 | 1 | 2 | 0 | 4 | 80 |
| 11:45 | 1 | 36 | 18 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 4 | 63 |
| | 2 | 191 | 65 | 0 | 1 | 1 | 2 | 13 | 3 | 2 | 18 | 2 | 14 | 314 |
| Total | 4 | 1104 | 327 | 3 | 18 | 8 | 6 | 41 | 12 | 4 | 79 | 7 | 56 | 1669 |
| Percent | 0.2% | 66.1% | 19.6% | 0.2% | 1.1% | 0.5% | 0.4% | 2.5% | 0.7% | 0.2% | 4.7% | 0.4% | 3.4% | |

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 57 | 11 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 1 | 1 | 3 | 79 |
| 12:15 | 0 | 60 | 18 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 3 | 0 | 5 | 90 |
| 12:30 | 1 | 44 | 13 | 0 | 1 | 1 | 0 | 4 | 1 | 1 | 4 | 1 | 3 | 74 |
| 12:45 | 1 | 51 | 12 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 2 | 2 | 4 | 78 |
| | 2 | 212 | 54 | 0 | 1 | 2 | 0 | 16 | 2 | 3 | 10 | 4 | 15 | 321 |
| 13:00 | 0 | 62 | 13 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 5 | 0 | 5 | 90 |
| 13:15 | 0 | 44 | 14 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 5 | 2 | 8 | 79 |
| 13:30 | 0 | 60 | 16 | 1 | 1 | 0 | 0 | 2 | 3 | 1 | 7 | 0 | 0 | 91 |
| 13:45 | 3 | 43 | 20 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 4 | 1 | 3 | 77 |
| | 3 | 209 | 63 | 1 | 2 | 2 | 0 | 9 | 3 | 5 | 21 | 3 | 16 | 337 |
| 14:00 | 0 | 54 | 12 | 0 | 0 | 1 | 0 | 4 | 2 | 1 | 0 | 1 | 4 | 79 |
| 14:15 | 0 | 40 | 11 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 8 | 1 | 5 | 68 |
| 14:30 | 1 | 58 | 7 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 5 | 77 |
| 14:45 | 0 | 68 | 14 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 0 | 1 | 91 |
| | 1 | 220 | 44 | 0 | 1 | 2 | 0 | 8 | 7 | 1 | 14 | 2 | 15 | 315 |
| 15:00 | 0 | 50 | 9 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 4 | 74 |
| 15:15 | 2 | 52 | 16 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 1 | 0 | 82 |
| 15:30 | 0 | 39 | 12 | 0 | 2 | 0 | 1 | 5 | 0 | 0 | 3 | 1 | 5 | 68 |
| 15:45 | 1 | 54 | 12 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 4 | 77 |
| | 3 | 195 | 49 | 0 | 5 | 0 | 1 | 15 | 1 | 1 | 16 | 2 | 13 | 301 |
| 16:00 | 0 | 54 | 14 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 5 | 79 |
| 16:15 | 0 | 51 | 11 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 4 | 0 | 3 | 74 |
| 16:30 | 0 | 51 | 13 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 7 | 0 | 3 | 77 |
| 16:45 | 0 | 55 | 12 | 0 | 1 | 0 | 0 | 1 | 4 | 0 | 6 | 0 | 2 | 81 |
| | 0 | 211 | 50 | 0 | 2 | 0 | 0 | 8 | 7 | 0 | 20 | 0 | 13 | 311 |
| 17:00 | 0 | 64 | 14 | 0 | 0 | 0 | 0 | 6 | 2 | 0 | 7 | 0 | 2 | 95 |
| 17:15 | 0 | 59 | 15 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 78 |
| 17:30 | 0 | 53 | 14 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 5 | 1 | 2 | 81 |
| 17:45 | 0 | 46 | 11 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 | 3 | 64 |
| | 0 | 222 | 54 | 0 | 2 | 1 | 0 | 10 | 5 | 1 | 14 | 1 | 8 | 318 |
| 18:00 | 0 | 43 | 12 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 2 | 62 |
| 18:15 | 0 | 45 | 16 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 1 | 70 |
| 18:30 | 0 | 35 | 21 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 4 | 65 |
| 18:45 | 0 | 45 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 63 |
| | 0 | 168 | 57 | 0 | 1 | 0 | 2 | 6 | 0 | 0 | 18 | 1 | 7 | 260 |
| 19:00 | 0 | 50 | 16 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 70 |
| 19:15 | 1 | 52 | 13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 70 |
| 19:30 | 0 | 35 | 10 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 49 |
| 19:45 | 0 | 37 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 48 |
| | 1 | 174 | 45 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 7 | 0 | 4 | 237 |
| 20:00 | 0 | 53 | 10 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 68 |
| 20:15 | 0 | 38 | 7 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 48 |
| 20:30 | 0 | 33 | 9 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 45 |
| 20:45 | 0 | 29 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 38 |
| | 0 | 153 | 32 | 0 | 2 | 0 | 0 | 2 | 4 | 0 | 6 | 0 | 0 | 199 |
| 21:00 | 0 | 26 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 33 |
| 21:15 | 0 | 27 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 31 |
| 21:30 | 0 | 10 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 21:45 | 0 | 26 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 30 |
| | 0 | 89 | 14 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 111 |
| 22:00 | 0 | 20 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 23 |
| 22:15 | 0 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 22:30 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 22:45 | 0 | 15 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 19 |
| | 0 | 61 | 10 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 75 |
| 23:00 | 0 | 14 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 22 |
| 23:15 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 10 |
| 23:30 | 0 | 11 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 |
| 23:45 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 0 | 39 | 12 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 56 |
| Total | 10 | 1953 | 484 | 1 | 21 | 7 | 4 | 79 | 32 | 11 | 134 | 14 | 91 | 2841 |
| Percent | 0.4% | 68.7% | 17.0% | 0.0% | 0.7% | 0.2% | 0.1% | 2.8% | 1.1% | 0.4% | 4.7% | 0.5% | 3.2% | |

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Site Code: 1
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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 12 |
| 00:15 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 00:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 00:45 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 28 |
| 01:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 01:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 01:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16 |
| 02:00 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 02:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 02:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 02:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 03:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 03:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 04:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:45 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 05:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 05:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 05:30 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 05:45 | 0 | 15 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19 |
| | 0 | 24 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| 06:00 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 11 |
| 06:15 | 0 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 16 |
| 06:30 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 |
| 06:45 | 0 | 18 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| | 0 | 46 | 12 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 61 |
| 07:00 | 0 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 07:15 | 0 | 25 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 29 |
| 07:30 | 0 | 16 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 24 |
| 07:45 | 0 | 22 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| | 0 | 85 | 11 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 102 |
| 08:00 | 0 | 22 | 9 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 0 | 0 | 38 |
| 08:15 | 0 | 26 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 08:30 | 0 | 25 | 15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 44 |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 286 | 77 | 0 | 3 | 2 | 1 | 2 | 6 | 2 | 7 | 0 | 1 | 387 |
| Percent | 0.0% | 73.9% | 19.9% | 0.0% | 0.8% | 0.5% | 0.3% | 0.5% | 1.6% | 0.5% | 1.8% | 0.0% | 0.3% | |
| Grand Total | 22 | 5777 | 1518 | 8 | 74 | 28 | 21 | 208 | 89 | 28 | 389 | 42 | 305 | 8509 |
| Percent | 0.3% | 67.9% | 17.8% | 0.1% | 0.9% | 0.3% | 0.2% | 2.4% | 1.0% | 0.3% | 4.6% | 0.5% | 3.6% | |

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3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
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NB, SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/21/24 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 00:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | 0 | 68 | 18 | 2 | 3 | 1 | 0 | 2 | 3 | 1 | 12 | 0 | 8 | 118 |
| 10:15 | 0 | 79 | 15 | 0 | 1 | 0 | 1 | 4 | 1 | 1 | 8 | 2 | 16 | 128 |
| 10:30 | 0 | 96 | 20 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 5 | 0 | 16 | 141 |
| 10:45 | 1 | 75 | 19 | 0 | 1 | 0 | 3 | 1 | 1 | 2 | 7 | 2 | 15 | 127 |
| | 1 | 318 | 72 | 2 | 5 | 2 | 5 | 8 | 6 | 4 | 32 | 4 | 55 | 514 |
| 11:00 | 1 | 75 | 24 | 0 | 0 | 1 | 0 | 3 | 1 | 3 | 10 | 0 | 16 | 134 |
| 11:15 | 1 | 60 | 24 | 0 | 1 | 2 | 1 | 7 | 0 | 1 | 4 | 0 | 19 | 120 |
| 11:30 | 0 | 102 | 19 | 0 | 0 | 3 | 2 | 4 | 2 | 2 | 10 | 3 | 11 | 158 |
| 11:45 | 0 | 70 | 21 | 0 | 2 | 0 | 2 | 7 | 2 | 0 | 9 | 0 | 15 | 128 |
| | 2 | 307 | 88 | 0 | 3 | 6 | 5 | 21 | 5 | 6 | 33 | 3 | 61 | 540 |
| Total | 3 | 625 | 160 | 2 | 8 | 8 | 10 | 29 | 11 | 10 | 65 | 7 | 116 | 1054 |
| Percent | 0.3% | 59.3% | 15.2% | 0.2% | 0.8% | 0.8% | 0.9% | 2.8% | 1.0% | 0.9% | 6.2% | 0.7% | 11.0% | |

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Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

NB, SB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 1 | 63 | 20 | 0 | 3 | 2 | 0 | 3 | 1 | 1 | 7 | 0 | 23 | 124 |
| 12:15 | 0 | 82 | 29 | 1 | 2 | 0 | 0 | 6 | 4 | 1 | 3 | 1 | 11 | 140 |
| 12:30 | 0 | 76 | 27 | 0 | 3 | 0 | 2 | 2 | 0 | 1 | 8 | 2 | 14 | 135 |
| 12:45 | 1 | 70 | 27 | 0 | 2 | 1 | 2 | 6 | 3 | 2 | 8 | 1 | 18 | 141 |
| | 2 | 291 | 103 | 1 | 10 | 3 | 4 | 17 | 8 | 5 | 26 | 4 | 66 | 540 |
| 13:00 | 0 | 73 | 24 | 0 | 1 | 1 | 3 | 7 | 1 | 4 | 4 | 3 | 13 | 134 |
| 13:15 | 1 | 85 | 23 | 0 | 3 | 2 | 3 | 1 | 3 | 1 | 9 | 1 | 12 | 144 |
| 13:30 | 1 | 80 | 25 | 0 | 1 | 1 | 4 | 6 | 4 | 1 | 7 | 2 | 15 | 147 |
| 13:45 | 0 | 73 | 16 | 0 | 0 | 0 | 2 | 5 | 4 | 3 | 13 | 0 | 10 | 126 |
| | 2 | 311 | 88 | 0 | 5 | 4 | 12 | 19 | 12 | 9 | 33 | 6 | 50 | 551 |
| 14:00 | 1 | 92 | 28 | 0 | 1 | 4 | 0 | 2 | 0 | 4 | 11 | 2 | 6 | 151 |
| 14:15 | 1 | 80 | 26 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 9 | 1 | 10 | 138 |
| 14:30 | 1 | 90 | 19 | 0 | 2 | 0 | 2 | 4 | 3 | 0 | 11 | 0 | 11 | 143 |
| 14:45 | 0 | 98 | 19 | 0 | 1 | 0 | 2 | 4 | 3 | 1 | 12 | 1 | 10 | 151 |
| | 3 | 360 | 92 | 0 | 4 | 4 | 5 | 14 | 10 | 7 | 43 | 4 | 37 | 583 |
| 15:00 | 1 | 75 | 24 | 1 | 1 | 2 | 1 | 3 | 1 | 3 | 15 | 1 | 13 | 141 |
| 15:15 | 0 | 80 | 26 | 0 | 0 | 1 | 2 | 5 | 1 | 0 | 7 | 0 | 17 | 139 |
| 15:30 | 2 | 66 | 24 | 0 | 1 | 0 | 2 | 9 | 2 | 1 | 12 | 4 | 12 | 135 |
| 15:45 | 0 | 77 | 33 | 2 | 1 | 2 | 0 | 6 | 3 | 3 | 9 | 0 | 9 | 145 |
| | 3 | 298 | 107 | 3 | 3 | 5 | 5 | 23 | 7 | 7 | 43 | 5 | 51 | 560 |
| 16:00 | 1 | 68 | 22 | 0 | 1 | 0 | 3 | 5 | 0 | 4 | 10 | 1 | 17 | 132 |
| 16:15 | 0 | 98 | 20 | 0 | 1 | 0 | 0 | 4 | 3 | 2 | 13 | 0 | 12 | 153 |
| 16:30 | 0 | 96 | 17 | 0 | 2 | 1 | 2 | 4 | 4 | 3 | 10 | 0 | 14 | 153 |
| 16:45 | 0 | 68 | 24 | 0 | 3 | 3 | 1 | 9 | 0 | 2 | 4 | 1 | 18 | 133 |
| | 1 | 330 | 83 | 0 | 7 | 4 | 6 | 22 | 7 | 11 | 37 | 2 | 61 | 571 |
| 17:00 | 0 | 83 | 23 | 0 | 0 | 0 | 1 | 6 | 1 | 2 | 5 | 3 | 13 | 137 |
| 17:15 | 0 | 76 | 35 | 0 | 0 | 2 | 0 | 3 | 1 | 4 | 13 | 0 | 16 | 150 |
| 17:30 | 0 | 74 | 32 | 0 | 2 | 1 | 0 | 4 | 0 | 2 | 6 | 0 | 12 | 133 |
| 17:45 | 0 | 79 | 33 | 0 | 1 | 0 | 0 | 5 | 4 | 1 | 10 | 1 | 12 | 146 |
| | 0 | 312 | 123 | 0 | 3 | 3 | 1 | 18 | 6 | 9 | 34 | 4 | 53 | 566 |
| 18:00 | 1 | 85 | 24 | 0 | 0 | 1 | 0 | 5 | 1 | 1 | 12 | 1 | 7 | 138 |
| 18:15 | 0 | 76 | 33 | 0 | 0 | 1 | 3 | 4 | 2 | 0 | 9 | 0 | 6 | 134 |
| 18:30 | 0 | 73 | 32 | 0 | 1 | 2 | 0 | 5 | 2 | 1 | 5 | 1 | 6 | 128 |
| 18:45 | 0 | 71 | 28 | 0 | 1 | 1 | 1 | 6 | 2 | 0 | 8 | 1 | 8 | 127 |
| | 1 | 305 | 117 | 0 | 2 | 5 | 4 | 20 | 7 | 2 | 34 | 3 | 27 | 527 |
| 19:00 | 2 | 83 | 19 | 0 | 0 | 0 | 1 | 4 | 0 | 1 | 9 | 1 | 3 | 123 |
| 19:15 | 0 | 76 | 24 | 0 | 1 | 0 | 0 | 2 | 3 | 0 | 7 | 0 | 5 | 118 |
| 19:30 | 0 | 65 | 25 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 2 | 100 |
| 19:45 | 0 | 69 | 19 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 4 | 0 | 3 | 99 |
| | 2 | 293 | 87 | 0 | 3 | 0 | 1 | 9 | 3 | 2 | 26 | 1 | 13 | 440 |
| 20:00 | 1 | 83 | 20 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 3 | 0 | 1 | 113 |
| 20:15 | 0 | 55 | 18 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 5 | 0 | 1 | 83 |
| 20:30 | 0 | 60 | 9 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 3 | 83 |
| 20:45 | 0 | 65 | 18 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 6 | 0 | 1 | 94 |
| | 1 | 263 | 65 | 0 | 3 | 1 | 5 | 5 | 1 | 0 | 23 | 0 | 6 | 373 |
| 21:00 | 0 | 43 | 14 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 61 |
| 21:15 | 0 | 45 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 57 |
| 21:30 | 0 | 36 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 42 |
| 21:45 | 0 | 29 | 12 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 45 |
| | 0 | 153 | 39 | 0 | 3 | 0 | 1 | 0 | 3 | 0 | 5 | 0 | 1 | 205 |
| 22:00 | 0 | 25 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| 22:15 | 0 | 39 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 22:30 | 0 | 24 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 31 |
| 22:45 | 0 | 42 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 48 |
| | 0 | 130 | 23 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 158 |
| 23:00 | 0 | 26 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 23:15 | 0 | 19 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 26 |
| 23:30 | 0 | 14 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 20 |
| 23:45 | 0 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| | 0 | 71 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 91 |
| Total | 15 | 3117 | 943 | 6 | 44 | 29 | 45 | 148 | 64 | 52 | 308 | 29 | 365 | 5165 |
| Percent | 0.3% | 60.3% | 18.3% | 0.1% | 0.9% | 0.6% | 0.9% | 2.9% | 1.2% | 1.0% | 6.0% | 0.6% | 7.1% | |

**Ontario Traffic, Inc.**
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U260
3 Angeline St S south of Kent St W

Date Start: 21-Nov-24
Date End: 23-Nov-24

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| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/22/24 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 00:15 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 00:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 00:45 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| | 0 | 34 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 01:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 01:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 01:45 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 02:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 02:45 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 03:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:30 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 03:45 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 |
| | 0 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 17 |
| 04:00 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 04:15 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 04:30 | 0 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 04:45 | 1 | 12 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 16 |
| | 1 | 36 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 47 |
| 05:00 | 0 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 05:15 | 0 | 16 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 05:30 | 0 | 24 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 38 |
| 05:45 | 0 | 40 | 11 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 55 |
| | 0 | 92 | 34 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 133 |
| 06:00 | 0 | 29 | 11 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 44 |
| 06:15 | 0 | 44 | 15 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 62 |
| 06:30 | 2 | 56 | 16 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 4 | 1 | 1 | 84 |
| 06:45 | 1 | 66 | 21 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 91 |
| | 3 | 195 | 63 | 0 | 0 | 3 | 1 | 3 | 3 | 0 | 6 | 2 | 2 | 281 |
| 07:00 | 0 | 52 | 21 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 1 | 2 | 81 |
| 07:15 | 1 | 77 | 19 | 0 | 0 | 2 | 2 | 1 | 0 | 1 | 8 | 0 | 1 | 112 |
| 07:30 | 0 | 62 | 25 | 1 | 3 | 0 | 0 | 3 | 1 | 0 | 5 | 1 | 4 | 105 |
| 07:45 | 0 | 79 | 21 | 0 | 1 | 0 | 1 | 3 | 2 | 1 | 10 | 0 | 4 | 122 |
| | 1 | 270 | 86 | 1 | 4 | 2 | 3 | 9 | 3 | 2 | 26 | 2 | 11 | 420 |
| 08:00 | 1 | 60 | 30 | 0 | 0 | 0 | 1 | 6 | 1 | 2 | 5 | 1 | 8 | 115 |
| 08:15 | 0 | 92 | 17 | 1 | 4 | 1 | 0 | 3 | 1 | 0 | 6 | 2 | 5 | 132 |
| 08:30 | 0 | 84 | 27 | 0 | 1 | 0 | 4 | 5 | 1 | 0 | 4 | 0 | 8 | 134 |
| 08:45 | 0 | 64 | 28 | 1 | 3 | 2 | 3 | 2 | 0 | 1 | 7 | 1 | 18 | 130 |
| | 1 | 300 | 102 | 2 | 8 | 3 | 8 | 16 | 3 | 3 | 22 | 4 | 39 | 511 |
| 09:00 | 0 | 78 | 28 | 0 | 0 | 1 | 0 | 6 | 2 | 2 | 15 | 0 | 3 | 135 |
| 09:15 | 0 | 70 | 19 | 1 | 3 | 0 | 0 | 4 | 1 | 2 | 8 | 0 | 9 | 117 |
| 09:30 | 1 | 67 | 24 | 0 | 1 | 0 | 1 | 5 | 0 | 0 | 2 | 0 | 9 | 110 |
| 09:45 | 0 | 73 | 13 | 0 | 3 | 0 | 3 | 3 | 1 | 2 | 10 | 2 | 11 | 121 |
| | 1 | 288 | 84 | 1 | 7 | 1 | 4 | 18 | 4 | 6 | 35 | 2 | 32 | 483 |
| 10:00 | 0 | 79 | 28 | 1 | 1 | 0 | 2 | 4 | 3 | 1 | 6 | 2 | 9 | 136 |
| 10:15 | 1 | 87 | 26 | 0 | 0 | 1 | 0 | 3 | 3 | 1 | 7 | 3 | 5 | 137 |
| 10:30 | 0 | 79 | 17 | 0 | 3 | 1 | 2 | 7 | 1 | 0 | 8 | 2 | 12 | 132 |
| 10:45 | 1 | 65 | 25 | 0 | 0 | 2 | 1 | 4 | 2 | 1 | 13 | 1 | 17 | 132 |
| | 2 | 310 | 96 | 1 | 4 | 4 | 5 | 18 | 9 | 3 | 34 | 8 | 43 | 537 |
| 11:00 | 0 | 64 | 28 | 0 | 0 | 1 | 1 | 6 | 3 | 1 | 13 | 1 | 11 | 129 |
| 11:15 | 1 | 84 | 23 | 1 | 0 | 0 | 4 | 7 | 1 | 3 | 14 | 0 | 5 | 143 |
| 11:30 | 0 | 69 | 23 | 1 | 2 | 1 | 3 | 6 | 3 | 2 | 11 | 1 | 14 | 136 |
| 11:45 | 1 | 65 | 27 | 1 | 1 | 0 | 1 | 8 | 0 | 0 | 3 | 2 | 14 | 123 |
| | 2 | 282 | 101 | 3 | 3 | 2 | 9 | 27 | 7 | 6 | 41 | 4 | 44 | 531 |
| Total | 11 | 1843 | 587 | 9 | 28 | 16 | 30 | 91 | 32 | 20 | 168 | 22 | 171 | 3028 |
| Percent | 0.4% | 60.9% | 19.4% | 0.3% | 0.9% | 0.5% | 1.0% | 3.0% | 1.1% | 0.7% | 5.5% | 0.7% | 5.6% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 PM | 0 | 84 | 18 | 0 | 0 | 2 | 1 | 4 | 2 | 1 | 9 | 2 | 19 | 142 |
| 12:15 | 0 | 75 | 25 | 0 | 4 | 0 | 2 | 9 | 0 | 1 | 7 | 1 | 12 | 136 |
| 12:30 | 1 | 66 | 22 | 0 | 1 | 1 | 3 | 8 | 3 | 2 | 8 | 1 | 8 | 124 |
| 12:45 | 3 | 69 | 16 | 0 | 0 | 1 | 1 | 10 | 0 | 2 | 6 | 2 | 17 | 127 |
| | 4 | 294 | 81 | 0 | 5 | 4 | 7 | 31 | 5 | 6 | 30 | 6 | 56 | 529 |
| 13:00 | 1 | 88 | 21 | 0 | 0 | 2 | 0 | 9 | 0 | 2 | 13 | 1 | 10 | 147 |
| 13:15 | 1 | 68 | 21 | 0 | 0 | 2 | 1 | 6 | 1 | 4 | 11 | 2 | 22 | 139 |
| 13:30 | 0 | 83 | 25 | 2 | 1 | 0 | 3 | 4 | 3 | 2 | 11 | 0 | 10 | 144 |
| 13:45 | 3 | 64 | 34 | 0 | 1 | 1 | 1 | 4 | 0 | 0 | 9 | 1 | 14 | 132 |
| | 5 | 303 | 101 | 2 | 2 | 5 | 5 | 23 | 4 | 8 | 44 | 4 | 56 | 562 |
| 14:00 | 0 | 72 | 19 | 0 | 1 | 2 | 1 | 9 | 3 | 2 | 6 | 1 | 13 | 129 |
| 14:15 | 0 | 77 | 22 | 0 | 3 | 1 | 2 | 4 | 2 | 0 | 9 | 1 | 12 | 133 |
| 14:30 | 1 | 89 | 23 | 0 | 1 | 2 | 1 | 2 | 1 | 0 | 6 | 0 | 19 | 145 |
| 14:45 | 0 | 96 | 25 | 0 | 0 | 3 | 1 | 5 | 2 | 1 | 7 | 0 | 10 | 150 |
| | 1 | 334 | 89 | 0 | 5 | 8 | 5 | 20 | 8 | 3 | 28 | 2 | 54 | 557 |
| 15:00 | 1 | 68 | 24 | 0 | 2 | 0 | 2 | 2 | 1 | 1 | 15 | 1 | 16 | 133 |
| 15:15 | 3 | 79 | 27 | 0 | 2 | 3 | 4 | 12 | 0 | 1 | 5 | 1 | 8 | 145 |
| 15:30 | 0 | 63 | 21 | 0 | 2 | 0 | 1 | 8 | 1 | 2 | 8 | 1 | 13 | 120 |
| 15:45 | 1 | 93 | 24 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 8 | 0 | 9 | 144 |
| | 5 | 303 | 96 | 0 | 7 | 4 | 8 | 24 | 4 | 6 | 36 | 3 | 46 | 542 |
| 16:00 | 0 | 77 | 33 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 9 | 0 | 18 | 143 |
| 16:15 | 0 | 77 | 19 | 1 | 0 | 1 | 0 | 7 | 2 | 1 | 8 | 0 | 12 | 128 |
| 16:30 | 1 | 72 | 30 | 0 | 1 | 0 | 3 | 2 | 3 | 2 | 14 | 0 | 10 | 138 |
| 16:45 | 0 | 82 | 21 | 0 | 1 | 0 | 2 | 3 | 8 | 2 | 10 | 1 | 10 | 140 |
| | 1 | 308 | 103 | 1 | 2 | 1 | 5 | 15 | 15 | 6 | 41 | 1 | 50 | 549 |
| 17:00 | 0 | 85 | 28 | 0 | 0 | 1 | 1 | 9 | 4 | 1 | 14 | 0 | 11 | 154 |
| 17:15 | 0 | 90 | 20 | 0 | 0 | 0 | 6 | 2 | 3 | 2 | 5 | 0 | 12 | 140 |
| 17:30 | 0 | 82 | 20 | 0 | 2 | 1 | 0 | 2 | 3 | 0 | 7 | 2 | 16 | 135 |
| 17:45 | 1 | 75 | 23 | 0 | 0 | 1 | 1 | 4 | 1 | 0 | 7 | 1 | 10 | 124 |
| | 1 | 332 | 91 | 0 | 2 | 3 | 8 | 17 | 11 | 3 | 33 | 3 | 49 | 553 |
| 18:00 | 2 | 66 | 19 | 0 | 0 | 0 | 4 | 4 | 1 | 0 | 2 | 0 | 11 | 109 |
| 18:15 | 0 | 73 | 26 | 0 | 2 | 1 | 0 | 4 | 1 | 1 | 9 | 0 | 7 | 124 |
| 18:30 | 0 | 68 | 35 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 3 | 0 | 9 | 120 |
| 18:45 | 1 | 78 | 19 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 11 | 1 | 3 | 119 |
| | 3 | 285 | 99 | 0 | 3 | 1 | 5 | 14 | 3 | 3 | 25 | 1 | 30 | 472 |
| 19:00 | 1 | 79 | 27 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 7 | 0 | 1 | 122 |
| 19:15 | 1 | 73 | 23 | 0 | 1 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 6 | 110 |
| 19:30 | 0 | 76 | 21 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 3 | 0 | 2 | 106 |
| 19:45 | 0 | 70 | 18 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 95 |
| | 2 | 298 | 89 | 0 | 3 | 1 | 3 | 8 | 2 | 2 | 16 | 0 | 9 | 433 |
| 20:00 | 0 | 76 | 17 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 4 | 0 | 3 | 103 |
| 20:15 | 0 | 67 | 12 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 86 |
| 20:30 | 0 | 50 | 16 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 3 | 0 | 0 | 74 |
| 20:45 | 0 | 39 | 8 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 51 |
| | 0 | 232 | 53 | 0 | 3 | 0 | 1 | 5 | 7 | 0 | 10 | 0 | 3 | 314 |
| 21:00 | 1 | 47 | 14 | 1 | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 1 | 0 | 70 |
| 21:15 | 0 | 43 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 52 |
| 21:30 | 0 | 29 | 20 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 53 |
| 21:45 | 0 | 48 | 7 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 61 |
| | 1 | 167 | 45 | 1 | 3 | 0 | 3 | 3 | 1 | 1 | 7 | 1 | 3 | 236 |
| 22:00 | 0 | 42 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 49 |
| 22:15 | 0 | 35 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 22:30 | 0 | 28 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| 22:45 | 0 | 24 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 31 |
| | 0 | 129 | 23 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 158 |
| 23:00 | 0 | 18 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 30 |
| 23:15 | 0 | 17 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 20 |
| 23:30 | 0 | 16 | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 24 |
| 23:45 | 0 | 13 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| | 0 | 64 | 21 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 91 |
| Total | 23 | 3049 | 891 | 4 | 36 | 27 | 51 | 163 | 61 | 38 | 276 | 21 | 356 | 4996 |
| Percent | 0.5% | 61.0% | 17.8% | 0.1% | 0.7% | 0.5% | 1.0% | 3.3% | 1.2% | 0.8% | 5.5% | 0.4% | 7.1% | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/24 | 0 | 18 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 23 |
| 00:15 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 00:30 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 00:45 | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| | 0 | 43 | 7 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 52 |
| 01:00 | 0 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 01:15 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:30 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 01:45 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 22 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 26 |
| 02:00 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 02:15 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 02:30 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 02:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 14 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 03:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 03:15 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 03:45 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| 04:00 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 04:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 04:45 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| | 0 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 05:00 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 05:15 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 05:30 | 0 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 05:45 | 0 | 26 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 33 |
| | 0 | 42 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 61 |
| 06:00 | 0 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 23 |
| 06:15 | 0 | 20 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 27 |
| 06:30 | 0 | 38 | 7 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 48 |
| 06:45 | 0 | 37 | 10 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 51 |
| | 0 | 112 | 28 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 3 | 0 | 1 | 149 |
| 07:00 | 0 | 35 | 9 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 46 |
| 07:15 | 0 | 42 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 56 |
| 07:30 | 0 | 29 | 14 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 47 |
| 07:45 | 0 | 46 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 67 |
| | 0 | 152 | 50 | 0 | 2 | 0 | 0 | 3 | 2 | 1 | 4 | 0 | 2 | 216 |
| 08:00 | 0 | 48 | 18 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 4 | 0 | 0 | 75 |
| 08:15 | 0 | 45 | 22 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 72 |
| 08:30 | 0 | 50 | 27 | 0 | 1 | 2 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 84 |
| 08:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
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| 11:15 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:30 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:45 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 556 | 184 | 0 | 4 | 6 | 3 | 7 | 9 | 2 | 15 | 0 | 4 | 790 |
| Percent | 0.0% | 70.4% | 23.3% | 0.0% | 0.5% | 0.8% | 0.4% | 0.9% | 1.1% | 0.3% | 1.9% | 0.0% | 0.5% | |
| Grand Total | 52 | 9190 | 2765 | 21 | 120 | 86 | 139 | 438 | 177 | 122 | 832 | 79 | 1012 | 15033 |
| Percent | 0.3% | 61.1% | 18.4% | 0.1% | 0.8% | 0.6% | 0.9% | 2.9% | 1.2% | 0.8% | 5.5% | 0.5% | 6.7% | |

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# Stage 1 Archaeological Assessment
# Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

## ORIGINAL REPORT

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# Stage 1 Archaeological Assessment
# Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

Original Report - March 31, 2021

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Report in PDF format distribution:

Ainley Graham & Associates Ltd.
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Bringing the past to the present for the future

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* Rob von Bitter, Ministry of Tourism, Culture and Sport.
* The Victoria County Land Registry Office.
* The staff at the Trent University Maps and Geospatial Resources section of the Bata Library, Peterborough.

## ACRONYMS

| | |
|---|---|
| a.s.l. | above sea level |
| AG | Ainley Graham & Associates |
| AP | Archaeological Potential |
| cm | centimeter (s) |
| CAGI | Central Archaeology Group Inc. |
| CoKL | City of Kawartha Lakes |
| MSIFN | Mississauga of Scugog Island First Nation |
| CR | County Road |
| GToO | Geographic Township of Ops |
| Hwy | Highway |
| km | kilometre (s) |
| m | metre (s) |
| MTCS | Ministry of Tourism, Culture and Sport |
| NAP | No Archaeological Potential |
| VC | Victoria County |

## EXECUTIVE SUMMARY

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 1 archaeological assessment in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC). The purpose of this study therefore, is to provide a baseline level of data on known and potential cultural heritage resources within the subject property and to delineate the archaeological potential of the project area.

This study involved the examination of records such as historic settlement maps, land titles and documents, historical land use and ownership records, primary and secondary sources, and the Ministry of Tourism, Culture and Sport's archaeological sites database. This report also outlines the First Nations pre-contact and historic archaeological sequence, the Euro-Canadian historic settlement record for the area, physiography of the project area and determines archaeological potential based on the analysis of this information.

The property project area was visited on August 28, 2018. The survey revealed that portions of the project area were disturbed. Archaeological recommendations have been made based on the background historic research, locations of known or registered archaeological sites and previous archaeological assessments. These recommendations include the following:

1) A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;

2) No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in gray on Maps 9 and 10);

3) The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

4) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development

activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

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# 1.0 PROJECT CONTEXT

## 1.1 Objectives

The objectives of a Stage 1 background study, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (2011:13), are as follows:

- Provide information on the subject property's geography, history, previous archaeological fieldwork and current land condition;
- Evaluate the archaeological potential for the property and support recommendations for a Stage 2 survey; and,
- Recommend appropriate strategies for future assessments within the property.

## 1.2. Development Context

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 1 archaeological assessment in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC) (Plan 1; Map 1; Image 1). The purpose of this study is to provide a baseline level of data on known and potential cultural heritage resources within the subject property and to conduct a property survey on the expansion area.

Permission for access to conduct the archaeological assessment was granted by Sam Wilson (AG); no limits were placed on this access.

The archaeological assessment was undertaken in accordance with the requirements of the Ontario Heritage Act (R.S.O. 1990), the Standards and Guidelines for Consultant Archaeologists (2011) and the Environmental Assessment Act (1990). All archaeological consulting activities were performed under the Professional Archaeological License of Laura McRae (P248). The Ontario Ministry of Tourism, Culture and Sport has designated this assessment as PIF P248-0332-2018. This project is further identified as CAGI-2018-LM21 under CAGI records.

## 1.3 Historical Context

### 1.3.1 Historic Documentation

There are several histories of Victoria County, from its use by the pre-contact First Nations peoples through to the English period, Loyalist migration and Euro-Canadian settlement.

Some of the more useful documents include: *Victoria Supplement in Illustrated Atlas of the County of Victoria, Ontario* (Belden 1881), *Peterborough and the Kawarthas* (Brunger 1975), *Trent Waterway Archaeological Survey* (Hakas 1967), *Historic Lindsay* (Capon 1974), *Land of Plenty* (Carr 1968) and *County of Victoria Centennial History* (Kirkconnell 1967).

There are also a significant number of consultant reports (archaeological and built heritage) available for consultation from the City of Kawartha Lakes, the Ministry of Tourism, Culture and Sport and the local historical societies.

In addition to historical literature and consultant reports, historical maps and plans, fire insurance plans, orthographic images and photographs from the National Air Photo Library (NAPL).

The study area is situated within the Former Township of Ops, now referred to as the City of Kawartha Lakes, created in 2001 by the Provincial government by amalgamating Victoria County and its constituent municipalities. The history of the area will be discussed below.

### 1.3.2 Pre-Contact Period

Although eastern Ontario has a unique deglaciation history, which would have prohibited early occupation, some of the work done further to the west, in the Great Lakes region can be extrapolated. In the 1970s archaeologists in southern Ontario began looking at ancient glacial lake beaches for Palaeoamerican and Archaic archaeological sites with positive results (Jackson et al. 2000, Storck 2004). Traditionally, and which is still common practice to this date, archaeological investigations in eastern Ontario were being conducted at modern water levels and archaeologists were only testing easily accessible areas which yielded “likely” locations of past human occupation (Hurley 1971a; 1971b), overlooking the drastic environmental changes that occurred over the past 10,000 years. Some archaeologists are just beginning to realize that sites can be found further inland on the former beaches of the Champlain Sea and the Fossmill outlet (Kennett and Branson 1999:97). Since very little investigation have been undertaken in these areas (Watson 1999:38), thus far, only a small number of Palaeoamerican sites and few Archaic and Woodland period sites have been found.

In the first half of the twentieth century, the focus of research in First Nations culture in Canada was primarily on linguistics and ethnology (Trigger 2006:312). As a result, it is not until the beginning of the latter half of the twentieth century did archaeological undertakings begin to focus on building cultural chronologies, primarily technological innovation (Mason 1981:161). In Ontario, three broad cultural periods have been identified based on the material culture that has been left behind by past individuals and cultural groups. These cultural periods are: the Palaeoamerican Period (ca. 11,000-8000 BCE), Archaic Period (ca. 8,000-800

BCE), and the Woodland Period (ca. 800 BCE– 1650 CE). Pollock (2005:9) has recently adjusted the dates for eastern Ontario, including the Ottawa Valley and they include: the Palaeoamerican Period (ca. 11,000-6,000 BCE), Archaic Period (ca. 6,000-500 BCE), and Woodland Period (ca. 500 BCE-1600 CE). A cultural summary of these periods, largely focusing on technology, is provided below.

*Palaeoamerican (ca. 11,000-6,000 BCE).* Only a handful of Palaeoamerican sites and suspected Palaeoamerican sites have been found in eastern Ontario (Gordon and McAndrews 1992:80; Pollock 2005:10). If 9,000 BP (approximately 8,000BC) is accepted by archaeologists as the end of the Palaeoamerican period in eastern Ontario, given the glacial history associated with the formation of the Champlain Sea and methods of field research traditionally used by archaeologists in Ontario, to date, there have only a handful of Palaeoamerican sites found in eastern Ontario (Watson 1999a:38). To find such sites, archaeologists must study local geological events that altered lake levels and shorelines (Storck 1997; 2004).

During the height of the Wisconsinian glacial period the Laurentian Ice sheet covered most of Canada and extended as far south as New York City (Watson 1999a:28). The retreat of the Laurentide glacier from the St. Lawrence River and the Ottawa Valley began approximately 11,000 BP. As the ice receded, the Atlantic Ocean flooded the St. Lawrence Valley and portions of the Ottawa Valley, creating the Champlain Sea. It is on these ancient shores of the Champlain Sea, where there will be significant potential for the discovery of Late Palaeoamerican people, who likely subsisted off of maritime resources for part of the year. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of the St. Lawrence River and Ottawa River. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of these two rivers.

Given isostatic rebound, shoreline destruction, and inundation, little is known about the maritime adaption of Palaeoamerican people. For the most part, it can be posited from other places in North America (Faught 1996; 2004; Faught and Brinnen 1998; Faught and Donoghue 1997; Faught and Gusick 2011; Gusick and Faught 2011; Marks and Faught 2003). Nonetheless, in general, Palaeoamericans are distinguished by the distances they travelled over land and their lithic assemblage. Artifacts have been recovered from archaeological sites in Ontario that were made from high quality cherts found hundreds of kilometers from where they were finally deposited (Storck 2004:33).

Palaeoamericans produced lance-shaped points which lacked the notches and stemming crafted by later peoples for hafting purposes (Ellis and Deller 1990:38). Since Palaeoamerican groups traveled significant distances away from their chert sources, they produced heavily re-sharpened and retouched tools (Dickson 2011:52; Ellis and Deller 1990:45), such as end-scrapers, side-scrapers, knives, gravers, and drills (Ellis and Deller 1990:49, 59). Assemblages found on sites vary depending on the proximity to the chert source used for lithic manufacture (Dickson 2011:52). Archaeological sites that are a fair distance away from a chert source will have no evidence of core reduction or early stage preform reduction. This activity was usually undertaken at or near quarry sites (Dickson 2011:52; Ellis and Deller 1990:45).

Ultimately these tools assisted Palaeoamericans in day-to-day activities, in particular, food and resource extraction. A variety of subsistence options were available in eastern Ontario at the time. The land would have supplied large game like caribou and whales (white, humpback, and common finback), harbour porpoise, harp seal, and bladder-nose seal as well as shore birds, ducks, and several fish species (Watson 1999a:33). There is evidence from other Palaeoamerican sites in southern Ontario that fish was processed (Storck 1997:278). Most of these resources would have been found along the shore of the Champlain Sea. It is likely that the Palaeoamerican groups that inhabited eastern Ontario practiced a seasonal transhumance, relying on maritime resources during certain parts of the year and travelling inland, perhaps during the winter, to hunt migratory and herd- based species. This subsistence pattern is more inline with maritime-based Palaeoamerican groups found along the east coast of North American, rather than the traditional inland based subsistence economy subscribed to by many archaeologists for southwest Ontario.

To date, there have been three types of Palaeoamerican sites found in Ontario by archaeologists. These are dropped point sites, quarry sites, and short occupation camp sites. Palaeoamerican sites have been found near Perth (Pilon 2005:14, Watson 1999a:34) and in Lanark County (Branson and Kennett 1999:77).

*Early Archaic (ca. 6000-5000 BCE).* During the later Palaeoamerican Period, people began to settle and develop a pattern of movement within specific geographic ranges (Stock 2004:125). Eventually, it is believed, movements became seasonal in pursuit of food resources (Storck 2004:126). This seasonal resource economy continued and became commonplace during the Archaic Period. Lakes and river shores formed an important ecotone for human occupation (Ellis et al. 1990:68, 91; Gordon and McAndrews 1992:80; GRAO 2011:16; Wright 1972:33). These locations would have been easy to access by people travelling in watercraft (Wright1972:36). Travel between sites would have been quicker, improving communication and trade between people. In addition, more could be transported in a boat than carrying overland.

The Archaic period is characterized by the exploitation of a wide range of raw materials for tool manufacture (Clermont and Chapdelaine 1998; Ellis et al. 1990:65, 66). Unlike Palaeoamericans, who used high quality cherts for their lithic assemblage, during the Archaic Period localized materials and glacial till were also used for tool construction. Projectile points were being notched and stemmed and the larger flakes produced during the earliest stages of tool production were now being used as expedient tools (Dickson 2011:52; Ellis and Deller 1990:45; Ellis et al. 1990:66). A new technique in tool production, grinding and pecking, produced ground stone implements (Ellis et al. 1990:65).

Like the Palaeoamerican Period, the Early Archaic in eastern Ontario is not well known. It is believed that Early Archaic sites diminish in number north of Lake Ontario as these Early Archaic groups were contemporaneous with Late Palaeoamerican groups (Ellis et al. 1990:68). It is not until the Middle Archaic that there is evidence of Archaic people in eastern Ontario.

*Middle Archaic (ca. 5000-2500 BCE)*. The Middle Archaic is characterized by a decrease in mobility across the landscape and a greater use of local stone for lithic production. Therefore, overall there is a decrease in the size of the territories being exploited. For example, groups resided for longer periods of time in one place, and multiple interments found on sites, have lead archeologists to believe that people were returning to the same locations for a number of years to exploit a single or multiple resources in the locale.

Eastern Ontario is further defined in the literature as being inhabited by the Laurentian Archaic groups. The Laurentian Archaic people made a number of distinct ground stone tools. These include: stemmed points, bayonets, and semi-lunar knives (Ellis et al. 1990:84; Wright 1995:224;). They also extensively produced tools made of bone and thus, little remains in the archaeological record, especially in areas were soil acidity is high. These tools include stemmed, socketed and barbed points, unilaterally barbed harpoons with holes, pointed awls, gouges, fish hooks, bipointed gorges, whistles, flutes, beaver incisors used as scrapers or knives, and large and small needles (Clermont 1999:49; Clermont and Chapdelaine 1998; Ellis et al. 1990:87; Mason 1981:166; Wright 1995:219). Due to the environment and the limited availability of plant food resources in the Canadian Biotic Province, Laurentian Archaic sites yield less plant processing tools, and show a heavier reliance on hunting and fishing activities (Ellis et al. 1990:91).

Many of the bone tools listed above, have counterparts made from copper (Ellis et al. 1990:88). The appearance of copper artefacts represents far reaching trade networks. Copper artefacts found on Laurentian Archaic sites indicate trade with Shield Archaic peoples who exploited the copper resources around Lake Superior. The Shield Archaic, as the name implies, represents the cultural remains of a people living in the Canadian Shield. The Shield culture covers a large territory from the southwestern portion of the Northwest Territories, most of Manitoba, northern Ontario, northern Québec and Labrador (Wright 1972:1995).

Given the location of the project area, the region likely witnessed influence by both Laurentian and Shield Archaic groups.

Unlike the archaeological assemblages found on the Laurentian Archaic sites of eastern Ontario, early Shield Archaic sites have an absence of ground stone tools (Wright 1995:262). Their settlement pattern and distant trade patterns suggest the use of watercraft. The people of the Shield Archaic made side-notched, stemmed and lancolate projectile points, end-scrapers, side-scrappers and flake scrapers, wedges, bifacial cores, preforms, bifacial and unifacial flakes, knives, drills, hammers, awls etc. These tools were commonly made out of quarts, some chert varieties, and copper. Throughout pre-European contact, settlement patterns and subsistence activities remain largely unchanged for the Shield Archaic (Wright 1999:705). Nonetheless, the extent of divergence between the Shield and Laurentian Archaic groups is limited to the tool assemblage. Laurentian Archaic tool artifacts have been found in territories often associated with the Shield Archaic and vice versa. In northeastern Ontario on the Abitibi Narrows, a ground slate point, a projectile point of the Laurentian Archaic, was found with stemmed and lanceolate point forms, which belong to be Shield Archaic. Therefore, clearly interaction between these two technologically distinct groups was taking place. A mixture of both Laurentian and Archaic tools can than be expected in the artifact assemblage in archaeological sites located along the perceived boundary between the two technological traditions.

*Late Archaic (ca. 2500-800 BCE).* Late Archaic sites in southern Ontario are larger and more frequent in the archaeological record than the Early and Middle Archaic periods. Around 4500 BP water levels in the Great Lakes and the Ottawa River Valley began to assume modern day levels and it is at these levels on islands, near the mouths of rivers, rapids, and near marshlands that larger camp sites are found. Populations increased and people began to aggregate in much larger groups along bigger bodies of water. They stayed on these lakes and rivers during spring, summer and early fall, than broke into smaller familiar groups moved into the interior for the winter.

In Ontario, three Late Archaic cultural complexes are defined based on the style of projectile points: Narrow Point (ca. 4500-3800 BP), Broad Point (ca. 4500-3500 BP), and Small Point (ca. 3500-3000 BP). However, in eastern Ontario, there are no distinctive projectile points for this time period. Laurentian cultural material begins to appear with different styles of projectile points that have been expediently made and are difficult to assign to any particular time period or cultural group. The reduction in size of projectile points could indicate the beginning of bow and arrow use (Ellis et al. 1990:106).

During the Late Archaic period and carrying on into the Woodland period there is evidence of extensive trade networks operating in eastern Ontario. Copper tools were exchanged in the Early and Middle Archaic periods but by the Late Archaic there is evidence of non-utilitarian

goods made out of material like copper and marine shell still be traded (Spence et al. 1990:166). Since populations are presumably getting larger, some raw materials that use to be exploited by a variety of groups are now found in a single group's territory (Spence et al. 1990:166). Therefore, trade becomes essential to obtain valued resources. With populations increasing, inter-band marriage was also likely and gifts between bands could have been made to establish and secure relationships. Near the end of the Middle Archaic, at the Leamy Park (BiFw-20) site in Gatineau, copper tools become rare and projectile points of the Lamoka (Narrow Point) and Susquehanna (Broad Point) types begin to appear beside Brewerton points and some ground slate points typical of the Laurentian Archaic (GRAO 2011:17).

*Early Woodland (ca. 1000-50 BCE).* The Early Woodland Period in most of Ontario is marked by the appearance of fired clay ceramics. Southern Ontario is described as having two complexes, Meadowood (ca. 900-400 BCE) and Middlesex (ca. 450-0 BCE). Ceramic vessels made during the Early Woodland, called Vinette I, are thick, have conoidal bases, and are believed to have been used for cooking and food storage (GRAO 2011:18; Spence et al. 1990:128; Watson 1999b:56).

The Meadowood tradition, known throughout the St. Lawrence Valley and as far north as Abititbi, has produced a wide range of artifacts that are found in both cemeteries and habitation sites (Spence et al. 1990:128). The northern limits of the Meadowood tradition are believed to extend to Rosebary Lake in Algonquin Park and the Deep River site on the Ottawa River (Spence et al. 1990:131). A common artifact of this tradition is a biface blade, often referred to as a cache blade, which is posited to have been used as a preform for the manufacture of various types of tools (Spence et al. 1990:128; Watson 1999b:57). Early Woodland peoples created side-notched points which were frequently recycled into other tool forms, such as end scrapers and perforators.

During the Early Woodland Period, people began to bury their dead in cemeteries, places exclusively reserved for the disposal of the dead. Burials indicative of this funerary tradition, called Middlesex, have been located in the Ottawa Valley. These burials are characterized by an absence of cremation, the presence of polished slate gorgets, tubular pipes, adzes and cylindrical copper pearl necklaces as burial goods,. Overall, the tradition has its origins in the states of Ohio and Michigan with the Adena complex. The Morrison Island site, found and excavated by Clyde Kennedy in 1958, had burials that dated to this period, and some of the burials contained cooper beads, and copper bracelets (Clermon and Chapdelaine 1998:21, 22, 25).

*Middle Woodland (ca. 50 BCE-950 CE)*. During the Middle Woodland Period, population sizes increase as does the duration of site occupation. This change is mirrored by a dramatic increase in the exploitation of wetland plants and animals (Lovis et al. 2001:628). Base camp sites, satellite sites, and gathering places are all represented in the archaeological record (Reid

and Rajnovich 1991:221).The social patterning of the Middle Woodland Period is also beginning to resemble what is reported on ethnographically in early European documentation. In Ontario, there are four main cultural complexes associated with the Middle Woodland Period: Point Peninsula, Saugeen, Couture, and Laurel. However, only the Point Peninsula and Laurel complexes pertain to the study area.

The Point Peninsula complex extends throughout south central and eastern Ontario, western and northern New York, and northwestern Vermont (Spence et al. 1990:157). Common tools recovered during this period are barbed bone and antler harpoons, decorated antler combs, bone fish hooks, antler-hafted beaver incisors, and a wide variety of projectile points, celts and gorgets. However, none of the aforementioned tools are exclusive to the Point Peninsula complex (Spence et al. 1990:159). The dead are increasingly buried or relocated to burial mounds. Each mound, or addition to a mound, is considered to represent the accumulated dead of one generation. Bodies were thought to be placed in primary burials, than exhumed at a later date, and relocated to the mounds.

*Late Woodland Period (ca. 950-1500 CE).* The beginning of the Late Woodland Period in the St. Lawrence Valley and the Upper Great Lakes is marked by the emergence of sedentary settlements. The cultural manifestations during this time period are believed to have been very similar to the ones witnessed by the first Europeans who visited the region. The earliest evidence of agriculture begins to appear around 700 years ago with year round settlement in small villages (GRAO 2011:19). Since sedentary villages are seen as a Woodland Period transition into the Iroquois Period of history in southern Ontario, and that the project area and the surrounding region has traditionally been Algonquin territory, these larger sedentary village sites are not expected in the archaeological record. Instead, it is believed that the Algonquin largely maintained a pattern of seasonal transhumance as witnessed in the early periods of Ontario history. Nonetheless, the project area does lie near the boundary with Iroquoian-speaking groups to the south, and it is possible, with the fluidity of the frontier, that Iroquoian-speaking groups, generally associated the St. Lawrence River watershed, may have inhabited or obtained resources in the region surrounding the project area.

During the Late Woodland period ceramics manufactured in the St. Lawrence River Valley begin to show a distinct regional style characterized by more complex decoration. The vessels have globular bodies and have a narrow neck with a flared rim decorated with castellations using the paddle and anvil technique. Pipes, beads and tokens are also made from ceramics. Stone tools are rare, bone and animal teeth (particularly beaver incisors) are more common materials used in the manufacture of tools (GRAO 2011:19). With trade routes extending north of the Great Lakes, this material culture can be expected in archaeological contexts in the Ottawa River watershed.

By the transition of the Terminal Woodland Period to the Early Iroquois Period (ca. 1500 CE), the Algonquin-speaking groups in eastern Ontario continue to practice a hunting and gathering subsistence economy that has not changed much since the Archaic. However, it is likely that some horticultural activities were undertaken. Although referred to as the Early Iroquois Period in Iroquois- speaking territory to the west, in eastern Ontario, this period is referred to in the literature as the Pickering Complex.

The Pickering Complex in eastern Ontario is defined by a distinct ceramic tradition, which shifts from cord impressions to linear and dentate stamps and exterior bossing along the neck and rim and ribbed paddle or checked stamps on the body of the vessel. Other distinctive technology during this period includes triangular shaped projectile points, bone awls and beads, and ceramic pipes. In addition, Iroquoian-like ceramic vessels appear in small numbers in northeastern Ontario and northwestern Québec (Guindon 2009:68). The presence of these ceramics suggests a change in the interaction network that had been in place between the residence of the Ottawa River watershed and the Canadian Shield since the Archaic period. In Québec archaeologists have defined a period, Mamiwinnik (1350 to 1650 CE), which is characterized by the rapid increase in the number of Iroquoian pots found on Algonquin sites in northwestern Québec (Guindon 2009:85). This is important to note since people would have travelled up and down the Ottawa River and may have stopped at the mouths of any of the major tributaries in eastern Ontario to camp, trade or perform subsistence activities.

*Historic Period (ca. 1500 CE - to the present).* With the arrival of Europeans, distinguishing specific cultural groups inhabiting the region becomes less arduous, since it is now possible to draw upon ethnohistoric accounts, which could include the journals of early explorers and visitors to the more in-depth accounts of missionaries, who were charged by the European authorities and the Church with converting the Aboriginal population, often to the detriment of the First Nations, and thus obligated to provide details to their progress. However, piecing together the post contact First Nations history for the project area still remains challenging simply because little effort has been made to date to consolidate the known resources into a logical and comprehensive history.

The predominate First Nations group inhabiting the region at the time of contact are the Michi Saagiig (Mississauga Anishinaabeg). The following write-up was provided to CAGI from Curve Lake First Nation. It was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation. It has been been copied verbatim into this report so as to limit potential errors.

*The Michi Saagiig Nation*. The traditional homelands of the Michi Saagiig encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and

fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the "Peacekeepers" among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the "Old Ones" who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5$^{th}$ transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and

these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

> *"We weren't affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.*
>
> *There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.*
>
> *We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.*

> *Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis."*

Often times, southern Ontario is described as being "vacant" after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

Table 1. Summary of the First Nations archaeological sequence in southern Ontario.

| Date | Periods and Cultural Tradition |
|---|---|
| 11,000 BCE - 6,000 BCE | Palaeoamerican |
| 11,000 BCE - 8,000 BCE | Early Palaeoamerican |
| 8,000 BCE - 6,000 BCE | Late Palaeoamerican |
| 6,000 BCE - 800 BCE | Archaic |
| 6,000 BCE - 5,000 BCE | Early Archaic |
| 5,000 BCE - 2,500 BCE | Middle Archaic |
| 2,500 BCE - 800 BCE | Late Archaic |
| 1,000 BCE - 1,500 CE | Woodland |
| 1,000 BCE - 50 BCE | Early Woodland |
| 50 BCE - 950 CE | Middle Woodland |
| 950 CE - 1,500 CE | Late Woodland |
| 1,500 CE - Present | Historic |

### 1.3.3 Post-Contact Period

The first recorded European visitor to the Trent Valley region was Samuel de Champlain in 1615, who travelled from Lake Simcoe to New York State with a party of Hurons on a military campaign against the Oneida Iroquois (Trigger 1985:157, 180). Champlain's exact route is a matter of contention, but he probably portaged from the Otonabee River to Chemong Lake (Brunger 1972:44). There are indications in the historical and archaeological records that the Trent Valley was used only as an occasional transportation corridor and hunting-fishing territory by the Hurons in the seventeenth century (Sutton 1990:3). At that time, the main transportation corridor was the Ottawa River drainage to the north, while the main focus of Huron occupation was west and north of Lake Simcoe (Huronia). These were the areas of concentration for the French fur trade, and eventually mission colonies. In 1649-50, the Huron's settlements were destroyed by the Iroquois, and the people dispersed.

For the remainder of the seventeenth century, the upper and middle Trent Valley remained as a buffer zone between Algonkians on the south edge of the Canadian Shield, and the New York Iroquois on Lake Ontario and the lower Trent, including reportedly Rice Lake, where they are rumoured to have had a fortified village (Brunger 1985:99; MCR 1981:58). By the 1690s, French supported Algonkian bands forced a southward retreat of the Iroquois (MCR 1981:58). Algonquian-speaking Mississauga Ojibway bands then migrated south from Georgian Bay and established a permanent presence in the Trent Valley (MCR 1981:61-65), which by this time, was of little interest to the French (Brunger 1985:99).

The construction of the French outpost of Fort Frontenac near the mouth of the Cataraqui River in 1673, resulted in a sporadic European presence at the eastern end of Lake Ontario during the late seventeenth and eighteenth centuries. The main function of the fort was to store supplies intended for the military and trading posts. It was often abandoned when circumstances forced the retreat of the French military garrison. Fort Frontenac was surrendered to a British force in 1758 during the Seven Years' War, and all of New France surrendered by 1760.

The end of the French regime of Canada in 1760, brought little change to the region and British settlement along the north bank of the upper St. Lawrence River and the eastern end of Lake Ontario did not begin in earnest until 1784 when the counties opposite the New York border were settled by refugees of the American Revolution (Moore 1984:236). The Trent Valley became incorporated within the Newcastle District in 1798 (Brunger 1985:99), and township land surveys were begun. The Trent Valley was an unexploited frontier during the early stages of British colonization and attention did not turn to the northern regions of the district until the Lake Ontario fringe began to fill with settlers.

*Victoria County (Map 2).* Permanent European settlement of Victoria County proceeded roughly from south to north – according to the relative productivity of soils for agriculture –

and saw several waves of immigrants from the British Isles. Ops Township was surveyed for settlement in 1828, and the first recorded homestead was that of Patrick O'Connell who settled on Lot 7, Concession 2 (Belden 1881:8). The rich farmland of the interlake area was in great demand and by the mid-1830s, most land suitable for agriculture was settled mainly by recent Irish immigrants (Capon 1974:9). Communities with services to support the new agriculturalists were generally oriented toward water bodies, with rapids being particularly important for the establishment of grist and sawmills, and eventually other services and industries. In this way, the village that would become Lindsay grew up above the rapids near the outlet of the Scugog River. The founders of the settlement were William Purdy and sons who had received a charter in 1829 to build mills on the future townsite (Belden 1881:8). The Purdy's mill dam raised the water level on the Scugog River by as much as three metres causing severe flooding on the low-lying land as far as the southern shore of Lake Scugog. A second mill dam built at Bobcaygeon soon after raised water levels of Sturgeon Lake and the widespread flooding sparked fever epidemics that plagued the area for decades. In the spring of 1838, flooded out farmers coming from as far south as Port Perry destroyed the Purdy dam by force with no opposition from the local authorities (Capon 1974:10). A new government dam was later built below the rapids of the river and the Purdy's were given special water privileges (Capon 1974:10). Somehow Lindsay survived in the early troubles and by 1852, the general census records 450 residents in the village.

Throughout the nineteenth and twentieth centuries, First Nation people maintain a presence in the middle Trent Valley. Treaty 20 gave title of the Newcastle District to the Crown in 1818, and reserves were established in 1829 for the Mississauga Ojibway at Scugog Lake, Curve Lake (the junction of Chemong and Buckhorn Lakes), Hiawatha on Rice Lake, and several on Lake Simcoe (Williams and McCue 1981:25). The total First Nation population of Mississauga in the region was thought to be about 1250 persons, with the residential affiliation remaining fluid throughout the reserves of the Kawartha Lakes (Hall 1990:155). These formerly northerly Algonkian peoples did not establish long term, continuously inhabited settlements at specific reserve locations until forced to do so by Indian agents following increasing immigration pressure and Canadian Confederation in the 1850s and 1860s (Hall 1990:152).

*City of Kawartha Lakes*. The City of Kawartha Lakes is the product of an amalgamation of the communities of Bobcaygeon, Fenelon Falls, Linsday, Omemee and Woodville and the former Victoria County. The amalgamation came into effect in 2001 during the reign of Mike Harris, former Premier of the Province of Ontario. The name "Kawartha" is derived from the Anishinaabe *Kawatha* which means "land of reflections." This perfectly suits the area as it is comprised of a multitude of lakes, rivers, creeks and low-lying areas.

### 1.3.4 Study Area History

*Town of Lindsay*. Lindsay straddles the Scugog River and is the seat for the City of Kawartha Lakes (formerly Victoria County). It is situated within the Geographic Township of Ops which was surveyed in 1825 by Colonel Duncan McDonell. The area witnessed immediate movement into the area and settlement of the Village began shortly after the town site was surveyed. The village flourished around Purdy's mills (sawmill and grist mill) and grew into a lumbering and farming centre of the region.

The Port Hope, Lindsay and Beaverton Railway (PHL&B) reached the town in 1857 and provided an impetus for additional growth and development. The town was incorporated in the same year. A second railway made its ways to the town in 1871. Known originally as the Fenelon Falls Railway, then as the Fenelon Falls & Ottawa River Valley Railway and then as the Victoria Railway, it connected with the Midland Railway at Victoria Junction on William Street North. The third railway was the Port Whitby & Port Perry Railway, which extended from Port Perry to Lindsay in 1876. By 1877, the railway was known as the Whitby, Port Perry & Lindsay Railway (WPP&L). By 1887, the Midland Railway made Lindsay its headquarters.

### 1.3.5 Summary

The land registries, census records and historic maps show that this area was mainly rural and had a low level of occupancy in the eighteenth and nineteenth centuries (and even the twentieth and twenty-first) centuries. Through historical background research, there is no evidence to suggest that the any of the project area was occupied during the Euro-Canadian settlement of the the township.

## 1.4 Archaeological Context

### 1.4.1 Current Conditions

The entire Project Area was comprised of road right-of-ways with residences, commercial and industrial buildings on either side of the corridors. Natural vegetation was not present and there were manicured lawns, ornamental trees and shrubs, asphalt pavement and concrete walkways present within the PA.

Images 4 to 10 illustrate the current conditions of Angeline Street North. These can be found in Section 8.0.

### 1.4.2 Physiography

The assessment of physical and environmental conditions of a region is important to the analysis of past human settlement behaviour as well as for the interpretation of features and site patterns on the landscape. The cultural development of every society is strongly

influenced by the surrounding natural environment which provides a finite set of resources that humans use to fulfill a variety of needs. Geomorphology, soils, water sources, climate, and vegetation are all significant factors in understanding patterns on the landscape. Changes in the landscape over time influences the types of cultural materials found during an archaeological assessment as well as their visibility.

*Location.* The project area is located within the City of Kawartha Lakes in the Geographic Township of Ops, Victoria County. The project area is flat but is surrounded by elevated areas (drumlins). Although drained by the Scugog River, which flows to the east, the PA are surrounded mostly by residence and commercial areas (Image 1).

Victoria County is located in central Ontario, north and east of Ontario County, north of the Geographic Township of Carden, northwest of the Geographic Township of Laxton, west of the Geographic Township of Digby and southwest of the Geographic Township of Longford. The Town of Lindsay is the closest urban centre, although there are a number of smaller towns and villages in the surrounding area such as Little Britain, Reaboro, Cunningham's Corners, Elm Tree Corners, O'Donnell Landing, Linden Valley and Cambray. The Geographic Township of Ops is situated within the southcentral portion of the county.

*Glacial History and Geomorphology.* Landscape features seen today are the result of the most recent period of glaciation. Beginning with the Illinoian glacier and ending with the Wisconsinan, the ice masses advanced as far south as Ohio and as far east as the continental shelf edges. The first interstadial period, the Sangamonian, witnessed ice retreat of the Illinoian glacier as far north as Hudson Bay. At this time, Easton (1992) posits that global temperatures were warmer or similar to that which we experience today. This period extended until approximately 75,000 years BP with the onset of the Wisconsinan glaciation.

The Wisconsinan glaciation is characterized by a series of advances (stadials) and retreats (interstadials), scouring, transporting and depositing surface materials across Ontario. Seven major stadials and six interstadials, along with several minor phases, have been recorded (Table 2).

Table 2. Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).

| Period | Stadial / Interstadial | Years BP | Feature /s |
|---|---|---|---|
| Nicolet | Stadial | 70,000 | -blocked the St. Lawrence River<br>-caused water to dam into Lake Scarborough<br>-created the Scarborough Bluffs |

| | | | |
|---|---|---|---|
| St. Pierre | Interstadial | 67,000 | -St. Lawrence is free of ice<br>-Great Lakes waters drain towards the Atlantic Ocean |
| Guildwood | Stadial | 55,000 | -ice covers all of Ontario and extends into northern US |
| Port Talbot | Interstadial | 48,000 - 36,000 | -two warm intervals separated by a cold phase<br>-palynological studies indicate boreal tree taxa<br>-meltwaters drain through present-day New York |
| Cherrytree | Stadial | 35,000 - 28,000 | -ice sheet covers most of Southern Ontario<br>-formation of Glacial Lake Thorncliffe |
| Plum Point | Interstadial | 27,000 | -ice retreats across Ontario |
| Nissouri | Stadial | 20,000 | -ice sheet reaches maximum extent |
| Erie | Interstadial | 15,000 | -ice retreats<br>-Lake Erie drains eastward through the St. Lawrence River |
| Port Bruce | Stadial | 14,000 | -ice advances across Ontario and into US |
| Mackinaw | Interstadial | 13,000 | -ice retreat causes splitting of ice lobes<br>-split exposes a dome of higher land called Ontario Island<br>-Proglacial Lakes Arkona I, II and III form at southern ice margins |
| Port Huron | Stadial | 12,900 | -short-lived advance<br>-Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form |
| North Bary | Interstadial | 11,840 - 8,100 | -warmer climate<br>-ice retreats across Canadian Shield<br>-drainage flows east<br>-formation of Glacial Lake Grassmere |

| | | | |
|---|---|---|---|
| Driftwood | Stadial | 8,200 - 8,100 | -deposition of clay tills in the Lake Barlow-Ojibway region<br>-about 8,000 Glacial Lakes Ojibway and Agassiz catastrophically drain into Hudson Bay |

The North Bay Interstadial, as it retreated across the landscape, exposed our project area.

Retreat during this phase was quite rapid and a number of post glacial lakes developed as a result of meltwater flow and drainage, ice dams and glacial deposits (i.e., Lake Algonquin, Lake Iroquois, Lake Erie and the Champlain Sea). Consequently, substantial areas would have been inundated by the copious flow of meltwaters at elevations well above modern sea levels before the formation of drainage outlets. Three major drainage outlets formed during this period: the Kirkfield Outlet (~11,500 BP) which drained Lake Algonquin into Lake Iroquois across the Kawarthas (just north of the project area); the Fossmill Outlet (~10,800) which drained Lake Algonquin into the Champlain Sea to the Atlantic Ocean through Algonquin Park by way of the Petawawa and Barron Rivers; and, the Mattawa Outlet was exposed as the glacier receded northward and exposed lower outlets (~10,000) which continued to drain Lake Algonquin into the Champlain Sea via the Mattawa River (Chapman and Putnam 1984:25-39; Larsen 1987:19; and Kaszycki 1985).

In existence from ~12,800 BP - 10,000 BP (Chapman and Putnam 1984:39; Gadd 1980), the Champlain Sea was a temporary inlet of the Atlantic Ocean. Although the maximum extent of this marine transgression is not yet known in specific terms, it has been posited that its eastern limits extended to the clay beds found within Leeds County and the Frontenac Axis, an eastern extension of the Canadian Shield which reaches into the Appalachian region of the United States. We also know that the northwestern arm of the Champlain Sea extended just north of Deep River (Barnett 1988). Unfortunately, because of the rocky nature of the region, the shoreline features of the western extension of the Champlain Sea remain unknown (Chapman and Putnam 1973:117).

As these glacial water sources drained, the zones created could have supported an extensive variety of animal, insect, bird, and vegetation species. Resource exploitation of these zones by early peoples is supported by the discovery of archaeological sites along the edges of ancient shorelines (palaeoshorelines) across North America.

*Palaeoecology*. The last ice age completely disturbed vegetational patterns throughout the Eastern Ontario. Climatic warming marked an official end to the Pleistocene Period and caused an abrupt change in the composition of forests, woodlands and parklands south of the ice sheets.

With deglaciation, vegetation migrated northwards and different species populated the ice free margins. Palynological analysis of pollen grains (Pielou 1991; Remmel 2009:30; Wright 1964) illustrates that more diversified vegetation developed with slight differences noted between the west side of the continent and the lowlands and east side of the continent. Furthermore, the process of recolonization depended on the production rates of different species and their ability to grow on freshly exposed terrain which may have reduced pH levels (Matthews 1992:122). Initially, species more common to herbaceous tundra environs grew (i.e., herbs, mosses and lichens) followed by shrub tundra communities (i.e., sedges and small shrubs) and then to spruce (Picea ssp.) and poplar (Populus ssp.) woodlands. Warming temperatures also encouraged deciduous growth like hemlock and beech and also caused treelines to shift northward, terrestrial and marine species to increase their range northward, and in the mountains, caused the above to shift to higher elevations.

Taxa noted within the project area is today, not much different from that which it would have been thousands of years ago. The project area lies within the Northern Hardwood Forest, which is within the Great Lakes-St. Lawrence Forest ecoregion. This is a transitional forest which illustrates an overlap of northern needle-leaved trees and southern broad-leaved deciduous trees and produces a mosaic of various vegetative communities controlled by local climate and soils.

Climatic upheavals wrought diverse changes amongst terrestrial and marine animal and bird migration patterns and habitats. It may be assumed that mammals typically found today in these environments, would have been present during the late Pleistocene and early Holocene Periods in the project area (i.e., caribou, bear, fox, hare, chipmunk, squirrel, mouse, weasel, lemming, vole, moose, porcupine and bat) (Remmel 2009:32). Today, mammals such as black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and wolf (*Canis lycaon*) are commonly seen throughout the region. Furthermore, marine fossils in the vicinity of the former Champlain Sea indicate large mammals such as whale, walrus and seal inhabited the area during the open-water season (Chapman and Putnam 1984; Cronin 1977; Loring 1980). As these mammals would have migrated into the region following their food sources, it is also safe to assume that smaller marine life, whose skeletal existence may not have survived to become part of the archaeological record, were present.

Moreover, as the prevailing climate of the time would likely have meant that the Champlain Sea would have frozen over during the winter season, marine mammals would have been forced to migrate into the Gulf of St. Lawrence, where the waters were open. However, as hypothesized by Loring (1980:35), “local populations of belugas or seals might have been trapped in areas of open water surrounded by ice and would have been easily killed by hunters...” This suggests that marine as well as terrestrial exploitation of food resources would have been an important aspect of subsistence practices of the local indigenous

populations. Therefore, the probability of at least a partial maritime- based economy in the region of the project area is high.

*Physiography and Geology.* The project area is located within the Mixed Wood Plains ecozone (Map 3). According to Natural Resources Canada (2011), the Mixed Wood Plains can be characterized by the following description:

> "... topography ranges from extremely flat areas in the southwest and southeast to rugged terrain of the Niagara Escarpment. Vegetation is diverse, characterized by mixed deciduous- evergreen forests and tolerant hardwood forests including those forests known as Carolinian forests. Alvars and tallgrass prairies also occur. Wetlands are numerous in certain areas, although many wetlands have been drained. Carolinian Canada (the most southerly portion of this ecozone) boasts the highest concentration of species in Canada. The number of species at risk is also high."

Bedrock geology within the project area is comprised of Ordovician rocks (Map 4). The Shield is broken into many sections, or "provinces." Almost 3 billion years ago, these provinces began to rub against each other, causing friction and a build up of pressure. Many fissures and faults were created in the area as the Earth's crust twisted, sheared, and folded. Molten material, specifically andesite, a dark grey coloured rock, was forced up through the fissures to the surface. As it reached the ground, the new rock, in some cases carrying precious metals such as gold and silver, cooled and became part of the landmass. These ancient folded rocks are known as Greenstone belts which eventually were overlain with more recent glacial sediments.

Sedimentary rocks of Paleozoic and Mesozoic age formed between approximately 570 to 66.4 million years ago, during a global warming period, when several periods of marine inundation of North America were responsible for the deposition of thick layers of sediments which eventually resulted in the formation of shale, limestone and sandstone (Eyles 2002:5).

The area surrounding the project area is composed of Upper Ordovician. Specifically, the project is located within a formation which includes such rocks as shale, limestone, dolostone and siltstone. These formations usually include chert formations. The project area is surrounded by rocks of this origin.

One of the most common characteristics of Palaeoamerican material assemblages is the prevalence of cherts and similarities of lithic tools across wide ranging regions (Mason 1981, 1986; Goodyear 1989). Chert is a fine-grained, siliceous material which is easy to knap and therefore commonly used in the production of stone tools. In addition to chert use, quartz materials were also widely utilized, particularly in more northern regions or within the Canadian Shield, where quartz and quartzite materials were more locally available.

The physiography of the study area encompasses one surficial geology type, till plains (drumlinized) (Map 5). However, it is surrounded by quite complex surficial deposits. These surficial types are the result of glacial recession and melting as well as inundation of the area by Lake Iroquois and include clay plains, kame moraines, sand plains, peat and muck and eskers.

*Soils*. Soil, in terms of its morphological characteristics, is defined as unconsolidated surface material forming "natural bodies" made up of mineral and organic materials as well as the living matter within them. It is a dynamic entity with materials continually and simultaneously absorbed, released and transformed.

The formation of soils is heavily influenced by its parent material, climate, topography, bio-activity and time, however, it is mainly the combined effects of climate and living matter that convert a material to soil. For example, in moisture-rich environs, the dampness and rich vegetation may lead to deep, richly organic soils, good for agricultural production. However, in desert areas, where precipitation is low, the lack of moisture and vegetation may lead to sparse soil development and where soils exist, they may be thin and highly mineral. Furthermore, human disturbances such as grave sites, dwellings, agricultural activities and garbage dumps may also affect soil development, giving it other unique characteristics.

The soils of the project area formed to their current composition over the past 10,000 years or so; since glacial melting at the end of the last ice age. Soils formed from glacial deposits vary in composition depending on the rock type over which the glacier travelled. Since glaciers advance and retreat with time, the composition and depositional environment of the parent material can be quite complex. Overall, the texture of soil produced in glacial deposits reflects the mode and distance of transport as well as the type of rock scoured. Shale and limestone scouring tends to produce a soil with relatively more clay and silt-size materials, whereas igneous and metamorphic rocks produce mostly sandy soils. Deposits beneath the ice usually result in finer textured, denser materials, whereas outwash and front and side deposits are generally coarser. Furthermore, glacial till, glaciofluvial and glaciolacustrine sediments often occur in close association. With time, soil horizons, or "zones within the soil that parallel the land surface and have distinctive physical, chemical and biological properties" develop (Holliday 2004:3). Soil horizons together, form a profile; a vertical arrangement of horizons seen in a two-dimensional arrangement (what we see during observations).

The soils of VC vary considerably across the County, with glacial surface deposits (i.e., drumlins, eskers, etc.) and deep, well-drained soils (Gillespie et al. 1981). The only limitations associated with the soils are depressional, wet and heavy areas and stoney areas of excessive drainage. The project area is comprised of a single soil type (Solmesville clay loam) but is closely situated to a number of others (Otonabee loam, Simcoe clay, Cramahe gravel, and muck) (Table 3; Map 6).

Table 3. Soil characteristics of the project and immediately surrounding area.

| Soil Type | Texture | Topography | Drainage | Great Group |
|---|---|---|---|---|
| Solmesville clay loam (Socl) | few stones | undulating | imperfect | Gray-Brown Podzolic |
| Otonabee loam (Ol) | moderately stoney | rolling to hilly | good | Brown Forest |
| Simcoe clay (Sic) | stonefree | level | poor | Dark Gray Gleisolic |
| Cramahe gravel (Cg) | very stoney | hilly | excessive | Brown Forest |
| Muck | stonefree | depressional | poor | Organic |

*Hydrology*. The modern watercourses we see today evolved as their ancestral waterways and their tributaries adjusted to the retreat of Lake Iroquois. During glacial melt and ice retreat at the end of the Pleistocene and beginning of the Holocene periods, there was a much larger flow of water through the project area than at present and on several occasions, rivers shifted into new channels. However, by approximately 8,000 years ago, modern drainage patterns were established (Kennedy 1970).

The project area is now located within the St. Lawrence watershed which is within the larger Atlantic Ocean drainage basin (Map 7), and is drained via a number of meandering waterways (Map 1; Image 1). Watersheds are typically defined by the topography of the surrounding landscape and includes such factors as shape, contours and elevations. They are comprised of streams, creeks, brooks, rivers, lakes, ponds, wetlands, estuaries, uplands, forests and meadows and also shorelines.

Present within, or within relative close vicinity to the project area today are lakes (i.e., Goose Lake, Balsam Lake, Pigeon Lake, etc.) rivers (i.e., Scugog River, Pigeon River, etc.), creeks and streams (i.e., McLaren Creek, Stony Creek, Emily Creek, Mariposa Brook, etc.) and a number of low-lying and wet areas identified as marsh or swamp. Although the geography of the area has been largely shaped by the geomorphology of the region, many of these watersheds have been altered by human intervention; a by-product of development.

Water routes played a very important role in the early development of Canada and served as a transportation route for pre-contact First Nations groups prior to European arrival. These water sources were used to traverse the interior of the province prior to the construction of railways and roads. The potential for the discovery of archaeological resources increases drastically in particularly difficult areas along these routes, such as at rapids or chutes, where a portage was necessary. In addition, the shores of rivers and creeks were particularly

attractive for temporary and semi-permanent settlement, especially in areas of the shore that were easily accessible by water. These areas were of particular interest, not only for their transportation value, but for access to potable water and foodstuffs, especially fish. The presence of secondary water sources, including permanently or seasonally inundated swamps, offered access to a variety of resources, including migratory birds, rice, and reeds for basket-making.

*Climate*. Modern climatic variation depends almost entirely upon location and human impacts on the environment. The project area, located in eastern Ontario, is influenced by the modifying factor of the Great Lakes. The Great Lakes tend to add moisture to the air in the autumn and winter in conjunction with protecting the region from the worst of the cold during the winter months, and during the spring and summer they act to moderate the temperature of the region. This produces an ideal environment for agricultural practices as the growing season tends to be longer and the cold months not as harsh as through the remainder of Canada.

### 1.4.3 Previous Archaeological Assessments

Archaeological research within Ontario is often limited to discoveries made during development activities. However, this does not necessarily reflect the known and unknown, yet unrecorded archaeological history of the area. Throughout the nineteenth and early twentieth century, as Euro- Canadian settlers and loggers penetrated the forests and lakes of the region, some would encounter and collect evidence of past First Nations activities, in the form of stone and copper tools, or organic paraphernalia. This practice continued well into the twentieth century and is still carried out to this day by cottagers, tourists, and local residents, some who have amassed significant collections. Furthermore, there are oral references to evidence of pre-contact First Nations occupation made by the first Euro-Canadian settlers to the region, which sometimes results in sites being “recreationally” excavated by non-professional archaeologists.

With increased sensitivity towards the need to preserve cultural heritage within the Province, hundreds of archaeological projects have been recently undertaken within Ontario. Often initiated by development projects, including infrastructure development and improvement, subdivision applications, and construction activity, First Nations and early Euro-Canadian history of the region is being revealed.

A search of the database of archaeological assessments found that no archaeological assessments have been conducted within 100 metres of the study area.

### 1.4.4 Registered Archaeological Sites

The Ontario Ministry of Tourism, Culture and Sport maintains a database (OASD) of all known registered archaeological sites in the Province. A search of the database (completed on August 27, 2018) within a one kilometre radius around the study area indicates the presence of three registered archaeological sites. These are the Kuypers site (BcGq-9), the Mason site (BcGq-11) and BcGq-12.

The Kuypers site (BcGq-9) was first recorded by Paul Racher in 1998. The site consisted of a number of nineteenth century, Euro-Canadian artifacts including ceramics, glass, metal, buttons, pipes, brick, bone, shell, slate and wood. No other information is provided for this site within the database.

The Mason site (BcGq-11) is an Archaic period campsite, first noted by David Robertson in 2005. The site is situated within a wetland which is only accessible during dry times of the year. Robertson identified the lithic artifact as being a Late Archaic Crawford Knoll type projectile point made of Onondaga chert. No other cultural materials were noted.

BcGq-12 is an Euro-Canadian farmstead site comprised of historic ceramics and glass artifacts. No further archaeological work was recommended

### 1.4.5 Historical Plaques

Aside from the presence of nearby registered archaeological sites, other indicators of the presence of extant archaeological remains are the proximity of historical plaques to the study area that commemorate important events in a region's past, whether it be the birth of an individual, the site a specific battle, or the construction of a unique building. Generally, historical plaques and markers point to a specific locale on the landscape that can be visited by the public. Although plaques and markers may not be placed in the exact location that the event has occurred, generally it is in close proximity, taking into consideration access to the public. In Ontario, historical plaques may be erected by the federal government through the Historic Sites and Monuments Board of Canada (HSMBC), the Ontario Heritage Trust (OHT), and local heritage agencies or historical societies. However, there are no historical plaques or markers within the study area.

### 1.4.6 Summary

Archaeological and cultural heritage work conducted in the immediately surrounding area has not provided any evidence of archaeological remains. However, the physical setting of the project area indicates that it may retain potential for extant cultural materials associated with pre-contact First Nations and Euro-Canadian settlement in the area.

Pre-contact First Nations groups migrated across Ontario, likely following the ice sheet as it receded northwards and adapting to the changing environment. The newly exposed landscape would have been a productive ecozone, with large numbers of terrestrial and marine mammals, birds, insects and vegetation populating the margins. This biomass would have been considerable and would have offered a readily available food source for migrating populations. Archaeological and cultural heritage work conducted in the surrounding area has provided evidence of archaeological remains, dating back to the Late Archaic period and extending into the Historic period.

## 2.0 FIELD METHODS

A Stage 1 property inspection of the Project Area was undertaken by Laura McRae and Derek Paauw on August 28, 2018 under the professional archaeological consulting license P248 (P248-0332-2018) in order to observe the current land conditions and evaluate the Project Area's archaeological potential. The inspection was undertaken to determine if there were any areas of disturbance which would affect archaeological potential and to determine appropriate survey strategies for the Stage 2 property survey.

The site inspection systematically covered the entire study area. As the study area was situated a road corridor within the City of Kawartha Lakes, it was easily accessible and the permission for conducting work within the project area was provided by Scott Reynolds, AG, following.

The weather on July 19, 2018 was hot, humid and overcast with a slight breeze and a temperature of approximately 35$^{O}$C. At no time during the archaeological assessment were weather or lighting conditions detrimental to the observation of features of archaeological potential.

There is are no registered heritage properties within 50 m of the Project Area.

Topographic maps and orthographic images were examined to confirm if features of archaeological potential were present and if there were any areas of extensive disturbance which would have removed archaeological potential.

The property inspection started at the northern limits of Angeline Street North and extended southwards to Roosevelt Street.

Field notes and photographs of the study areas were taken during the inspection by Laura McRae. Image locations and orientations were noted and are illustrated on the site conditions maps (Maps 8 and 9).

The archaeological assessment was carried out following approval of project proposal by the proponent. Therefore, AG was able to provide plans of the study areas in advance of the archaeological assessment. These plans and a .kmz file (google earth) were used for base mapping of conditions, potential and results.

Table 4. Photographs and description.

| Photo # | Description |
|---|---|
| 4 | Viewing south along Angeline Street North from its intersection with Colborne Street West. |
| 5 | Viewing south. |
| 6 | Viewing north. |
| 7 | Viewing north. |
| 8 | Viewing southeast at the Angeline Street North / Kent Street West intersection. |
| 9 | Viewing north from the south side of the Angeline Street North / Kent Street West intersection. |
| 10 | Viewing northwest from the Roosevelt Street / Angeline Street North intersection. |

# 3.0 ANALYSIS AND CONCLUSIONS

## 3.1 Archaeological Potential

Levels of potential archaeological significance are assigned by applying provincial environmental assessment guidelines (Weiler 1980). The information includes the identification and evaluation of any feature that has one or more of the following attributes:

* Potential can be determined via archaeological exploration, survey, or fieldwork. The information gleaned from these activities can provide answers to hypothesized questions (i.e., relate to particular times and places) regarding events and/or processes that occurred in the past, thereby adding to our knowledge and appreciation of history.

* Potential may be determined through archaeological exploration, survey, and fieldwork that may contribute to testing the validity of anthropological principles, cultural change and ecological adaptation, thereby contributing to the understanding and appreciation of our human-made heritage.

* The possibility that various technical, methodological, and theoretical advances might occur during archaeological investigation of a feature, alone or in association with other features exists. This therefore may contribute to the development of better scientific means of understanding and appreciating our human-made heritage.

Evaluating the archaeological potential of an area involves the assessment of various criteria. The most common criterion used to evaluate archaeological potential relates to its physical setting which may include potable water sources, elevated landforms, and well-drained areas to which First Nations settlement was often oriented, as well as the presence of fertile soils suitable for cultivation. Features and characteristics that indicate archaeological potential are defined within Section 1.3.1 of the S&Gs (MTCS 2011:17-18) and include:

* Previously identified archaeological sites;

* Water source:

    * Primary water sources (e.g. lakes, rivers, streams, creeks);

    * Secondary water sources (e.g. intermittent streams and creeks; springs; marshes; swamps);

    * Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels, shorelines of drained lakes or marshes and cobble beaches);

    * Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake, sandbars stretching into marsh);

* Elevated topography (eskers, drumlins, large knolls, plateaux);

* Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground;

* Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases;

* Resource areas including:

    * Food or medicinal plants;

    * Scarce raw minerals (e.g., quartz, copper, ochre or outcrops of chert);

    * Early Euro-Canadian industry (fur trade, logging, prospecting, mining);

* Areas of early Euro-Canadian settlement including:

    * Early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes);

    * Early wharf or dock complexes, pioneer churches and early cemeteries;

* Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes);

* Property listed on a municipal register or designated under the Ontario Heritage Act or that is a federal, provincial or municipal historic landmark or site;

* Property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the MTCS and specifically indicated in Section 1.4 of the S&Gs (MTCS 2011:20-21).

* 300 metre buffer: previously identified archaeological site; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants;

* 100 metre buffer: early historical transportation route;

* No buffer, potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

Features of archaeological potential found on or in the vicinity of the Project Area include: water sources (modern and ancient), areas of early Euro-Canadian settlement and early historical transportation routes.

## 3.2 Archaeological Integrity

A negative indicator of archaeological potential is extensive below grade land disturbance. This includes widespread earth movement activities that would have eradicated or relocated any archaeological resources to such a degree that their information potential and cultural heritage value or interest has been lost.

Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: quarrying, major landscaping involving grading below topsoil, building footprints and infrastructure development. Activities including agricultural cultivation, gardening, minor grading and landscaping do not necessarily remove archaeological potential (MTCS 2011:18).

> Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

Natural physical features can also indicate that all or portions of a Project Area have low or no archaeological potential including: permanently wet areas, exposed bedrock and slopes greater than 20 degrees (except in locations likely to contain pictographs or petroglyphs).

## 3.3 Conclusions

The Stage 1 archaeological assessment of the Project Area determined that it had general archaeological potential to contain both pre-contact and Euro-Canadian archaeological resources (Maps 9 and 10). Following the criteria outlined above in section 3.1, a number of specific factors can be highlighted which suggest potential for both Pre- and Post-contact First Nations archaeological resources. This is the proximity of a potable water source - Scugog River - and the presence of the Kirkfield Outlet (and associated palaeoshorelines).

When these potential criteria are applied to the Project Area, it exhibits archaeological potential for both pre-contact and post-contact First Nations sites. While areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low disturbance retain their potential.

Following the criteria above (Section 3.1), to determine historical Euro-Canadian archaeological potential, a number of characteristics are indicated: potable water (Scugog River) the presence of historic concession roads (Colborne Street West and Angeline Street) the presence of early Euro-Canadian settlement (Town of Lindsay) and three registered archaeological sites within 300 metres. When applying the potential criteria, the Project Area exhibits archaeological potential for historic Euro-Canadian sites. As with pre and post-contact First Nations sites, while areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low disturbance retain their potential.

However, some disturbance has occurred within the portions of the Project Area through construction and maintenance of various infrastructure (i.e., water main, sewer main, storm main, etc.) and road corridors (Maps 9 and 10). This conclusion is consistent with the definition of “complete and intensive disturbance” described in Section 1.3.2 of the S&Gs (MTCS 2011:18).

## 4.0 RECOMMENDATIONS

Based on the background research and the results of the property survey, the archaeological assessment has provided the basis for the following recommendations:

1) A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;

2) No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in orange on Maps 9 and 10);

3) The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

4) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

5) Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

## 5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act,* R.S.O. 1990, C. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Report referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act.* The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Cemeteries Act,* R.S.O. 1990 C. 4 and the *Funeral, Burial and Cremation services Act,* 2002, S.O. 2002, C. 33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

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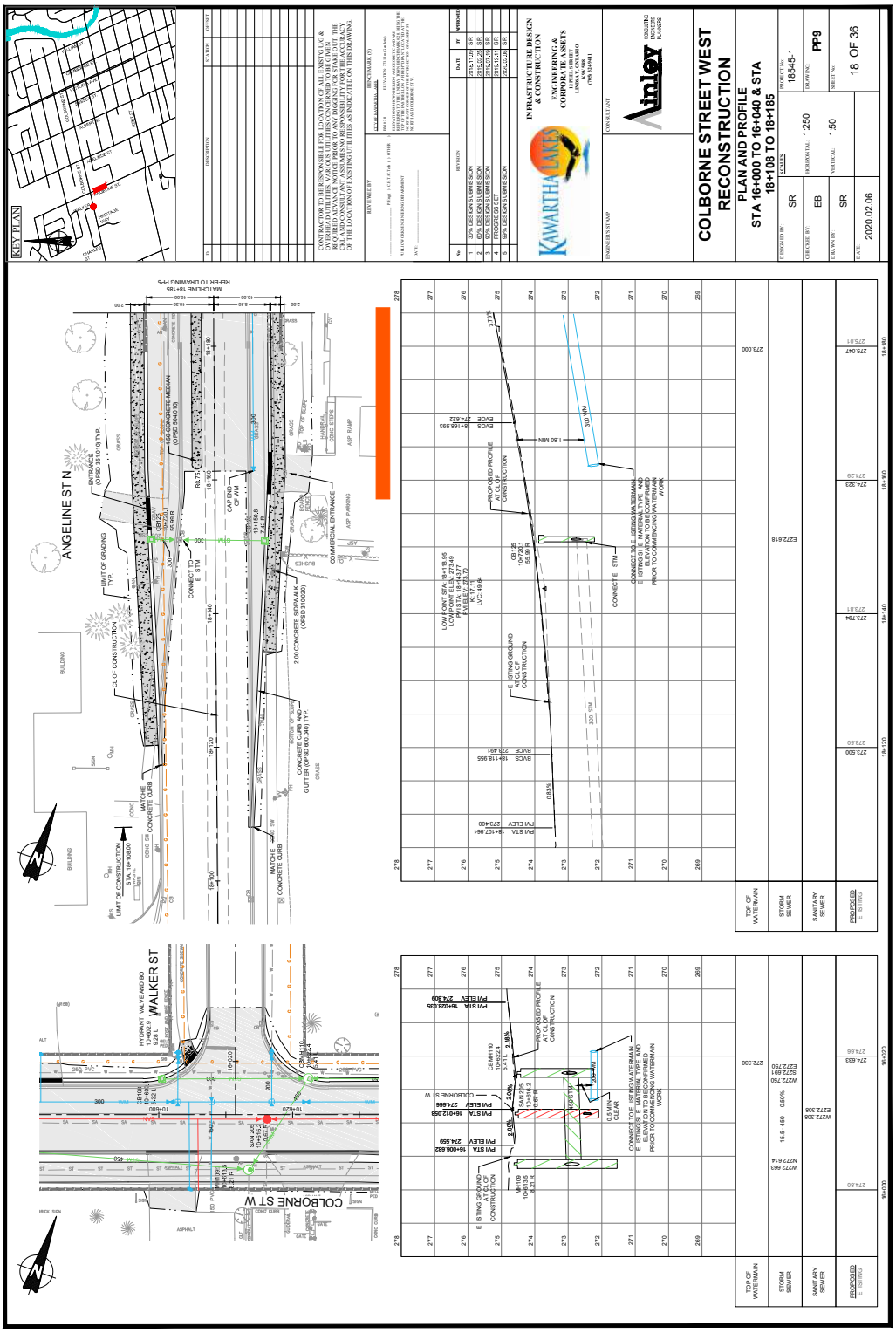
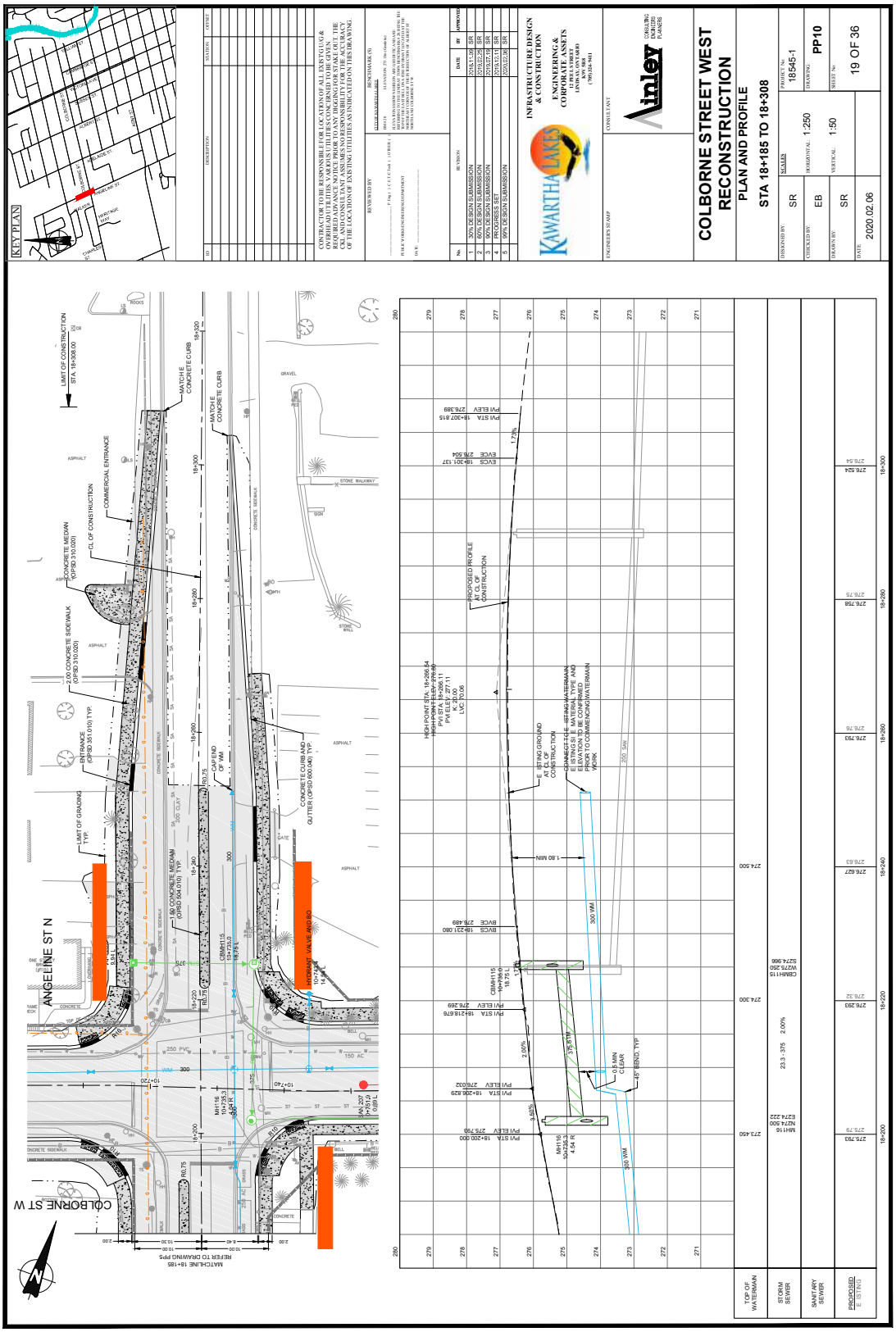
## 7.0 PLANS




Plan 1. Angeline Street, from STA 16+000 to 16+040 and STA 18+108 to 18+185.

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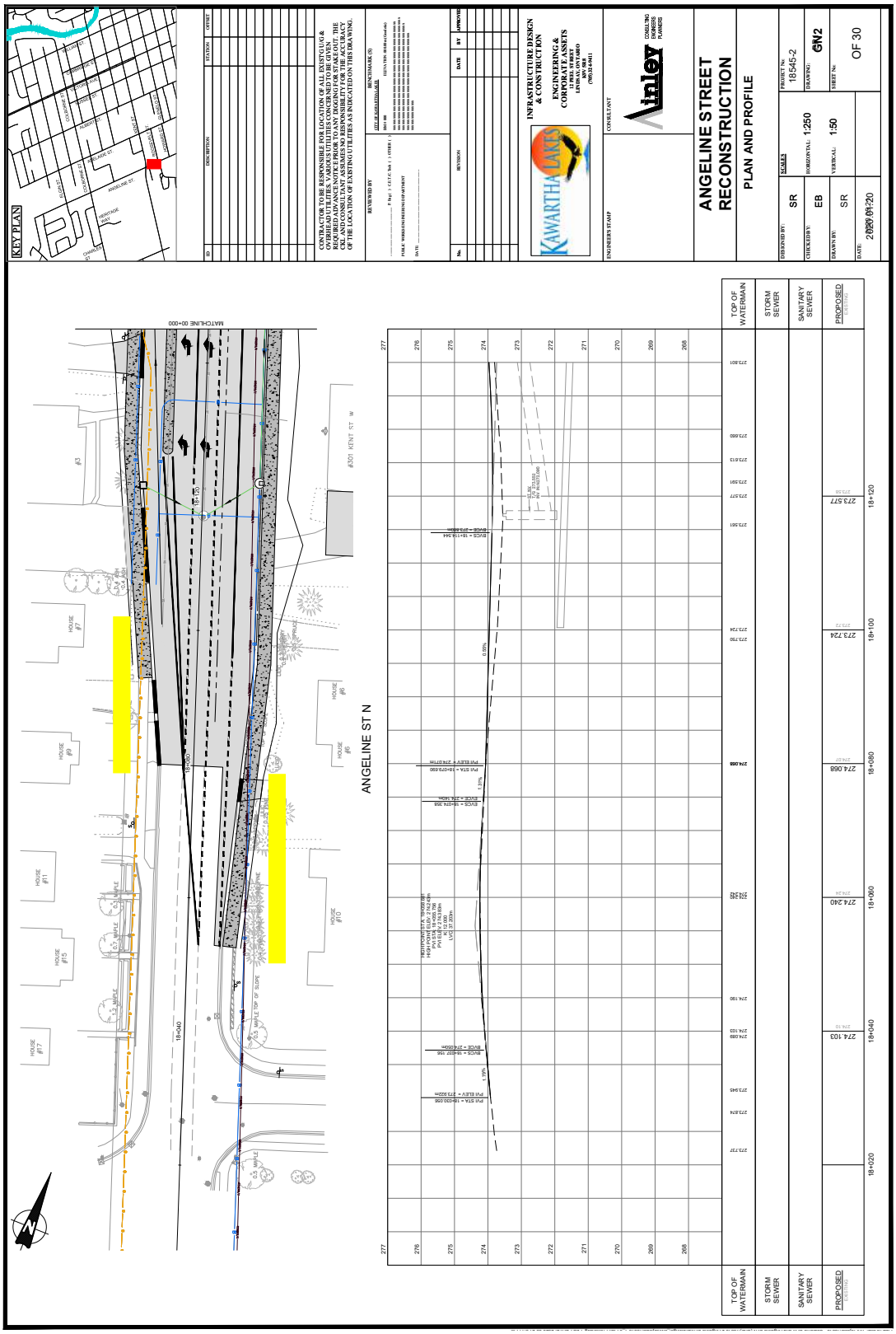


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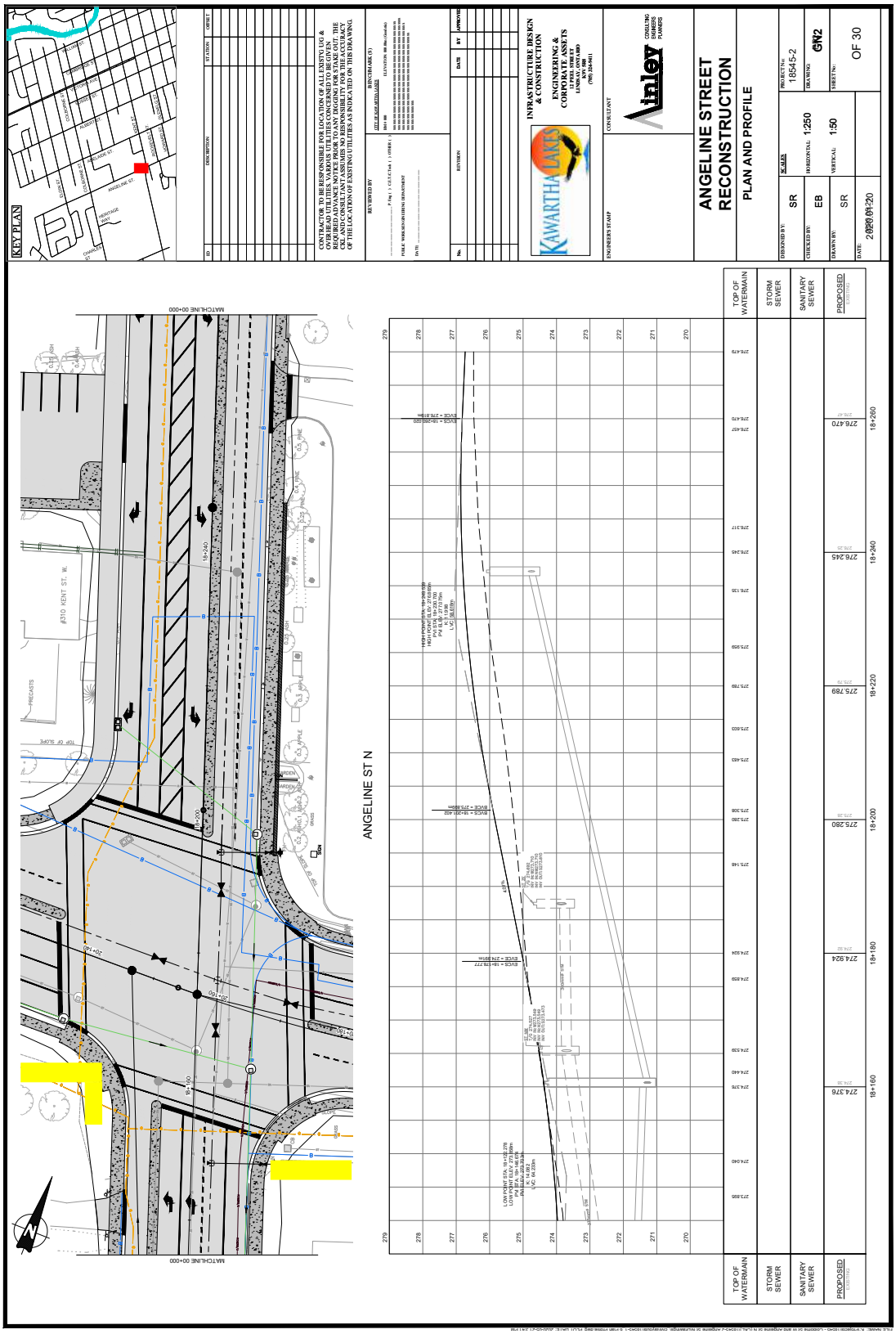


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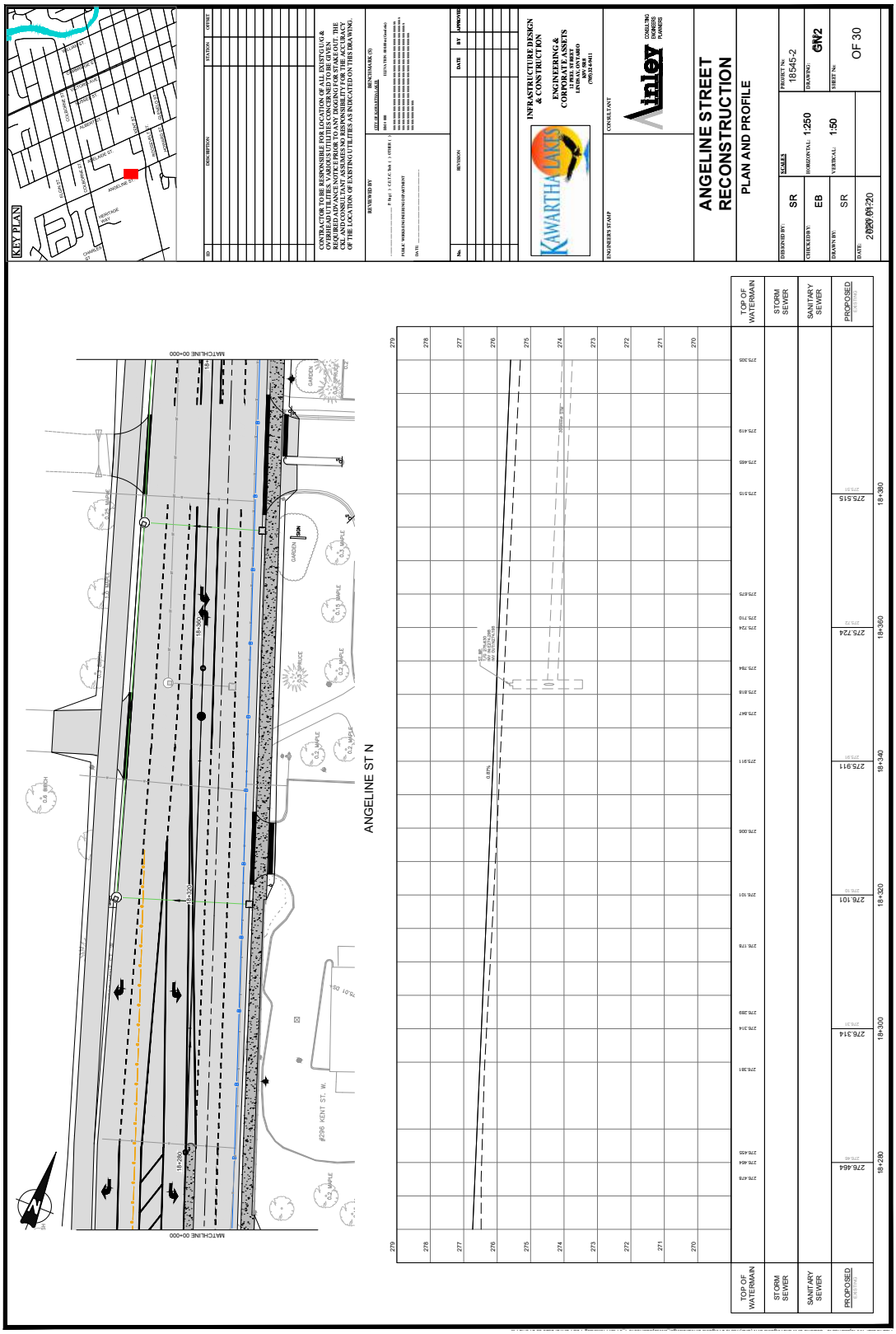


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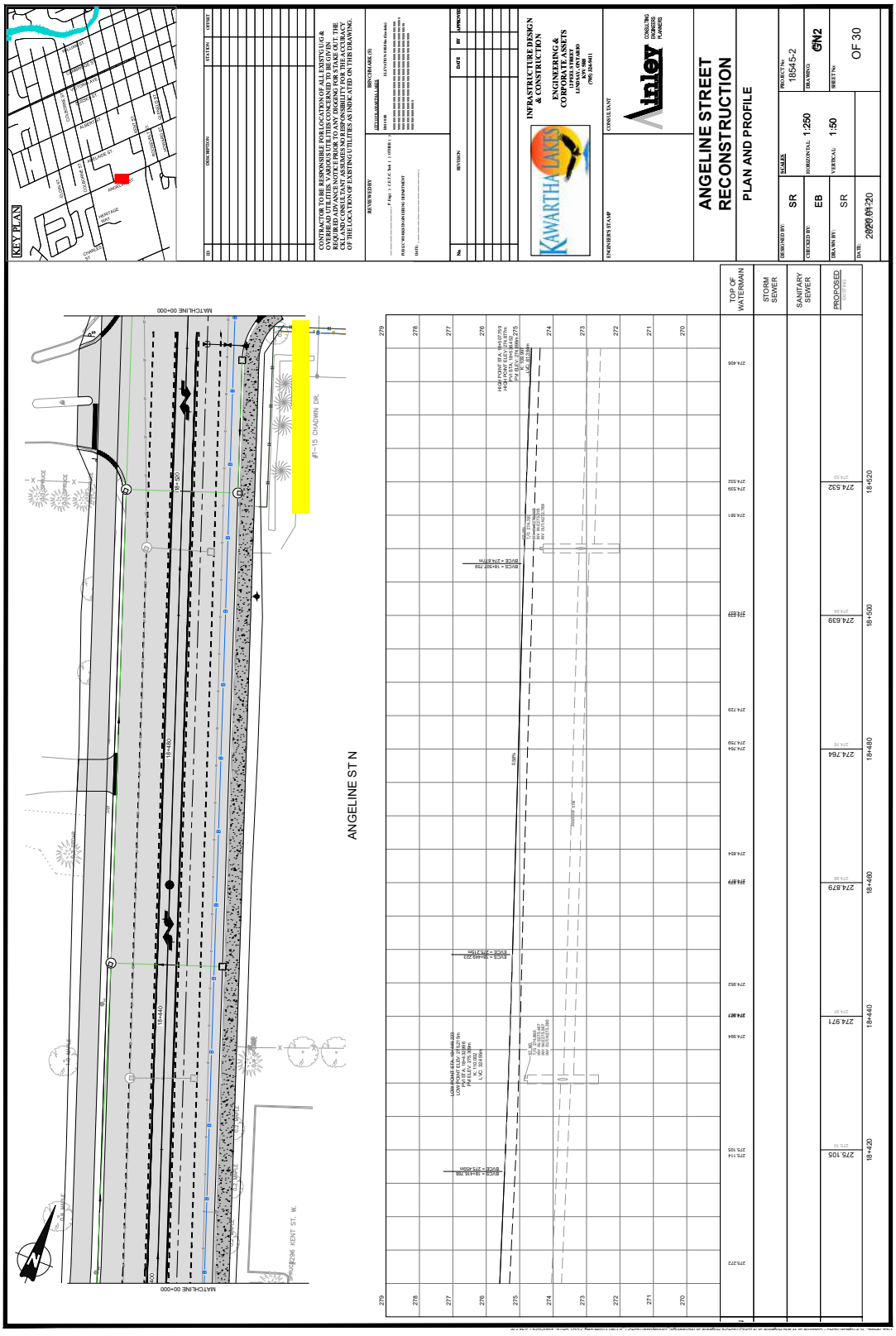


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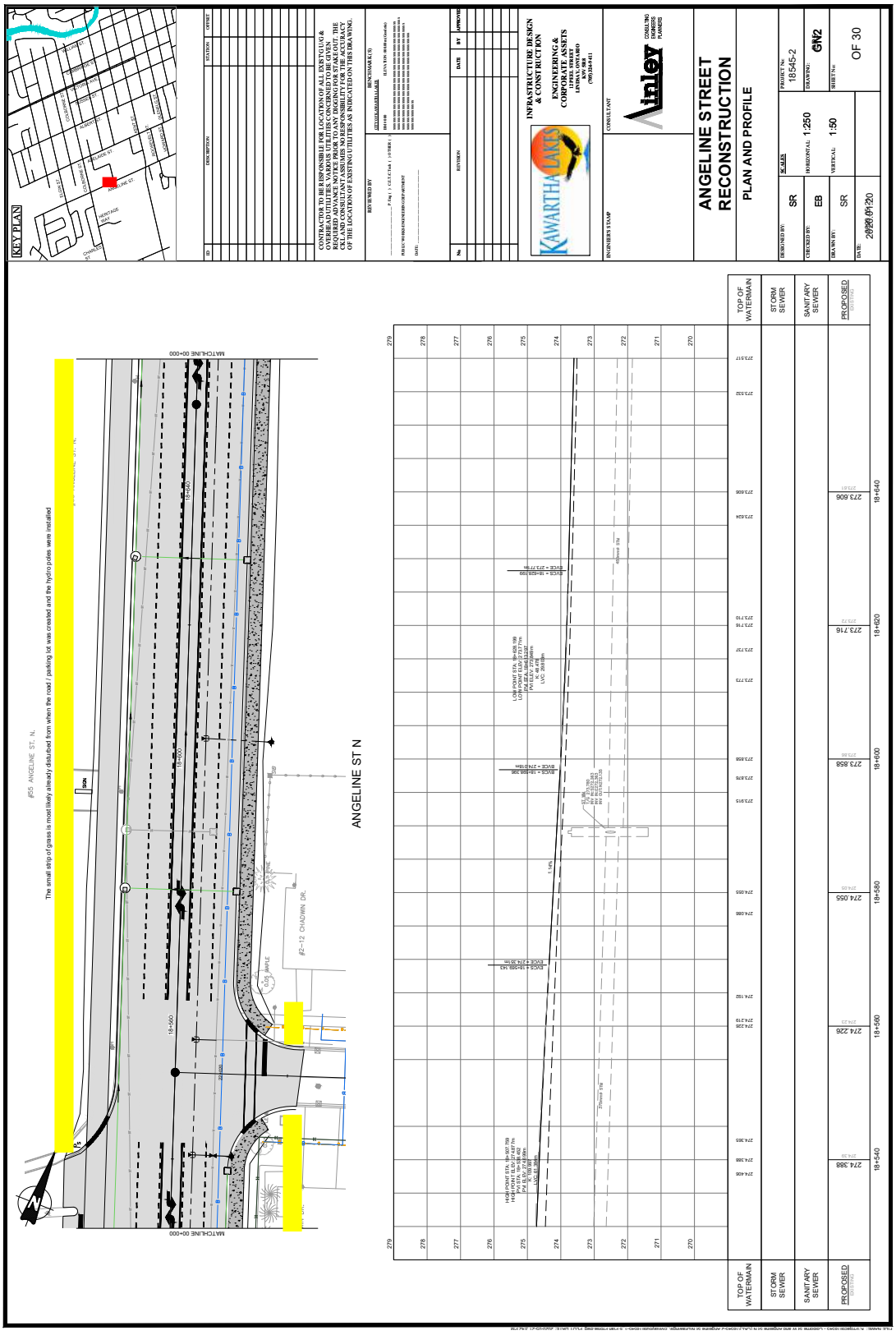


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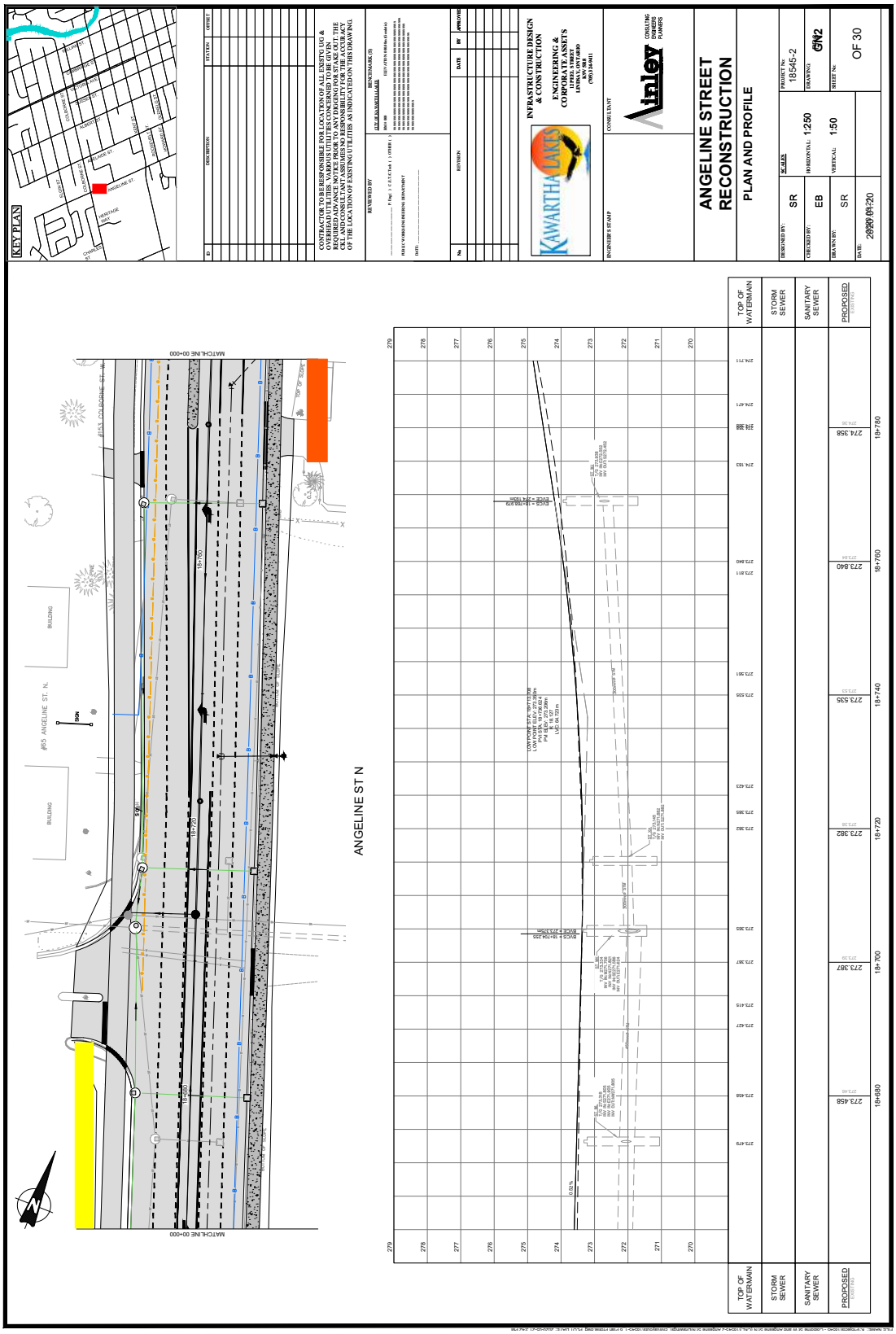
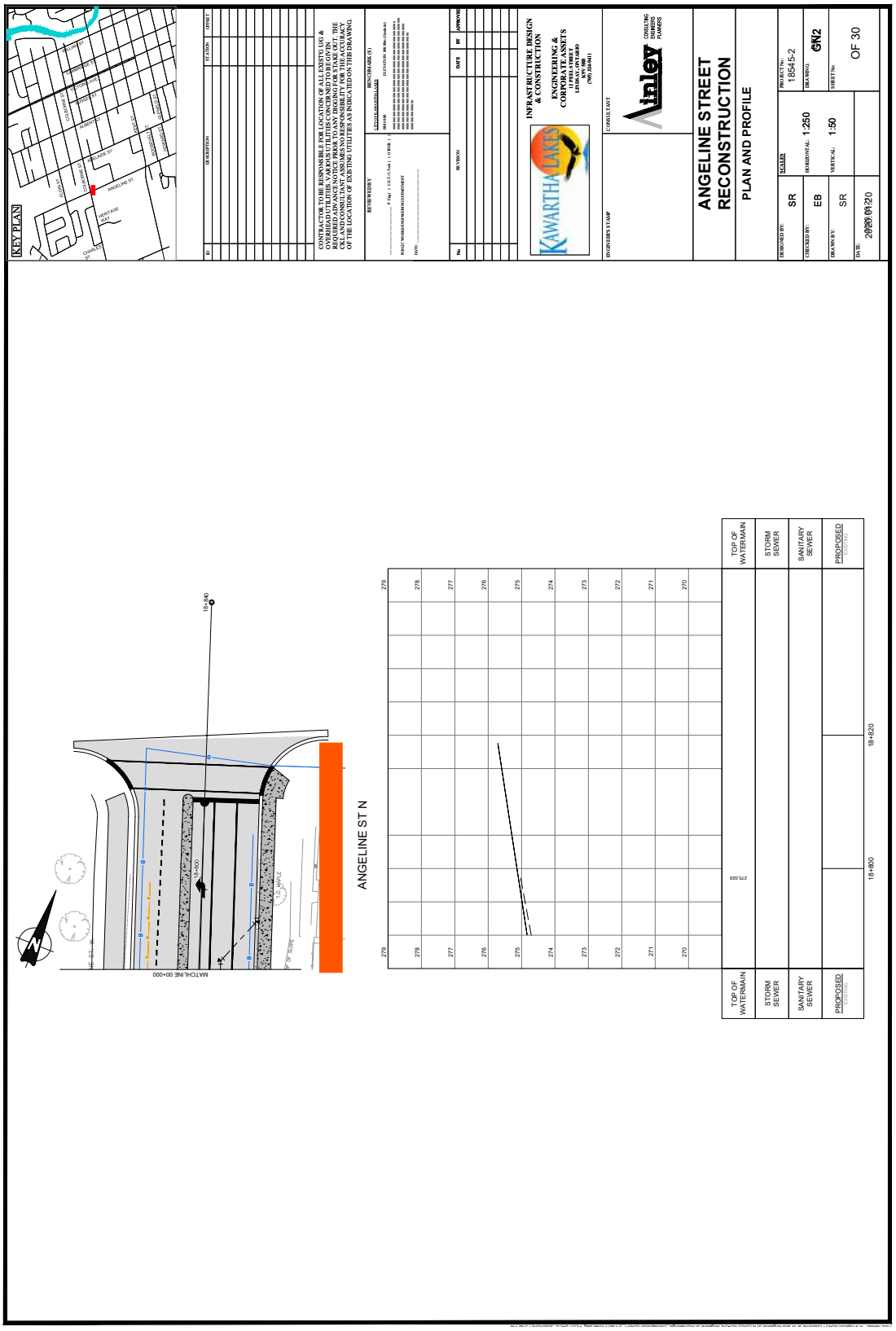



Plan 8. Angeline Street North.

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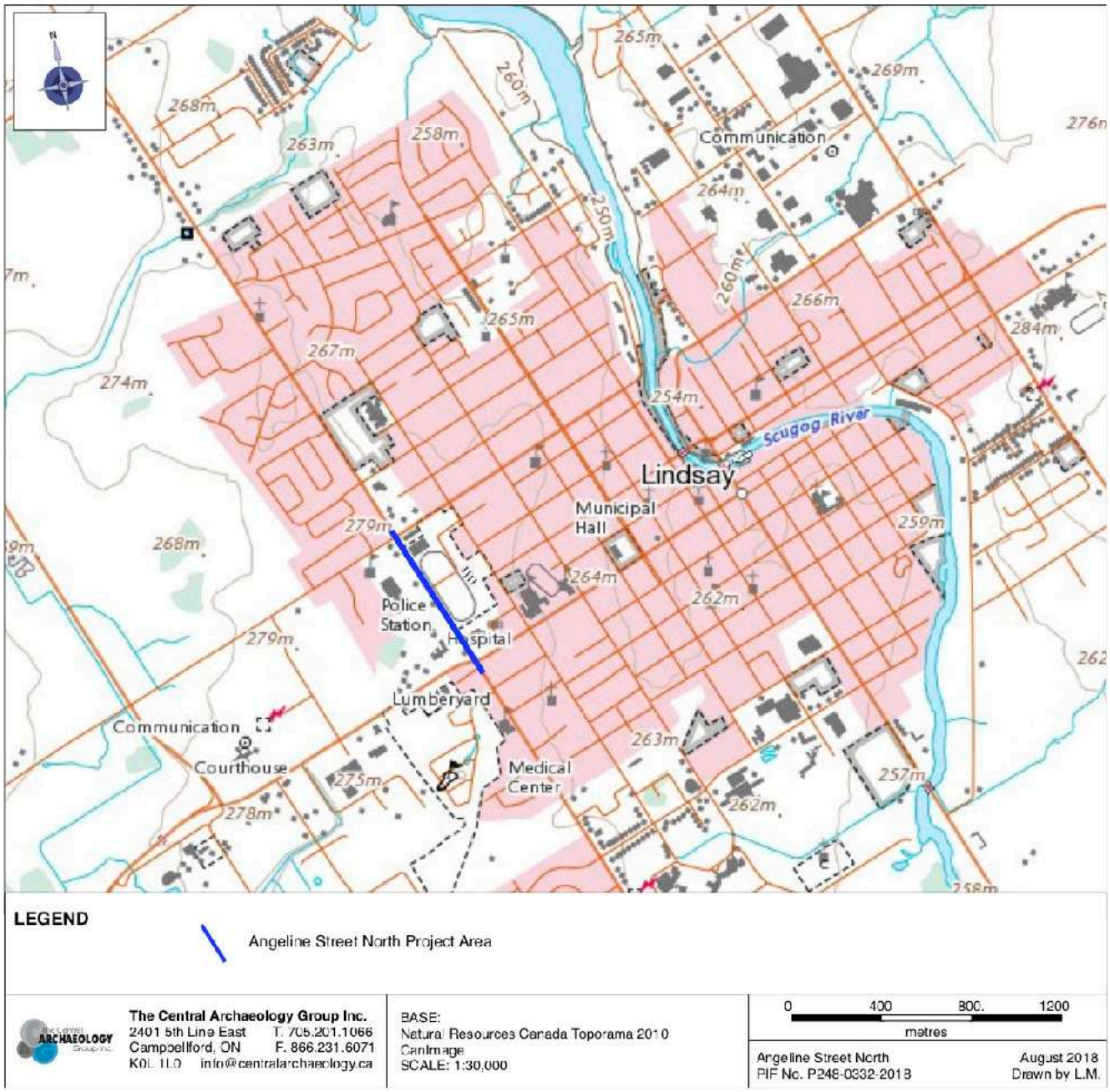


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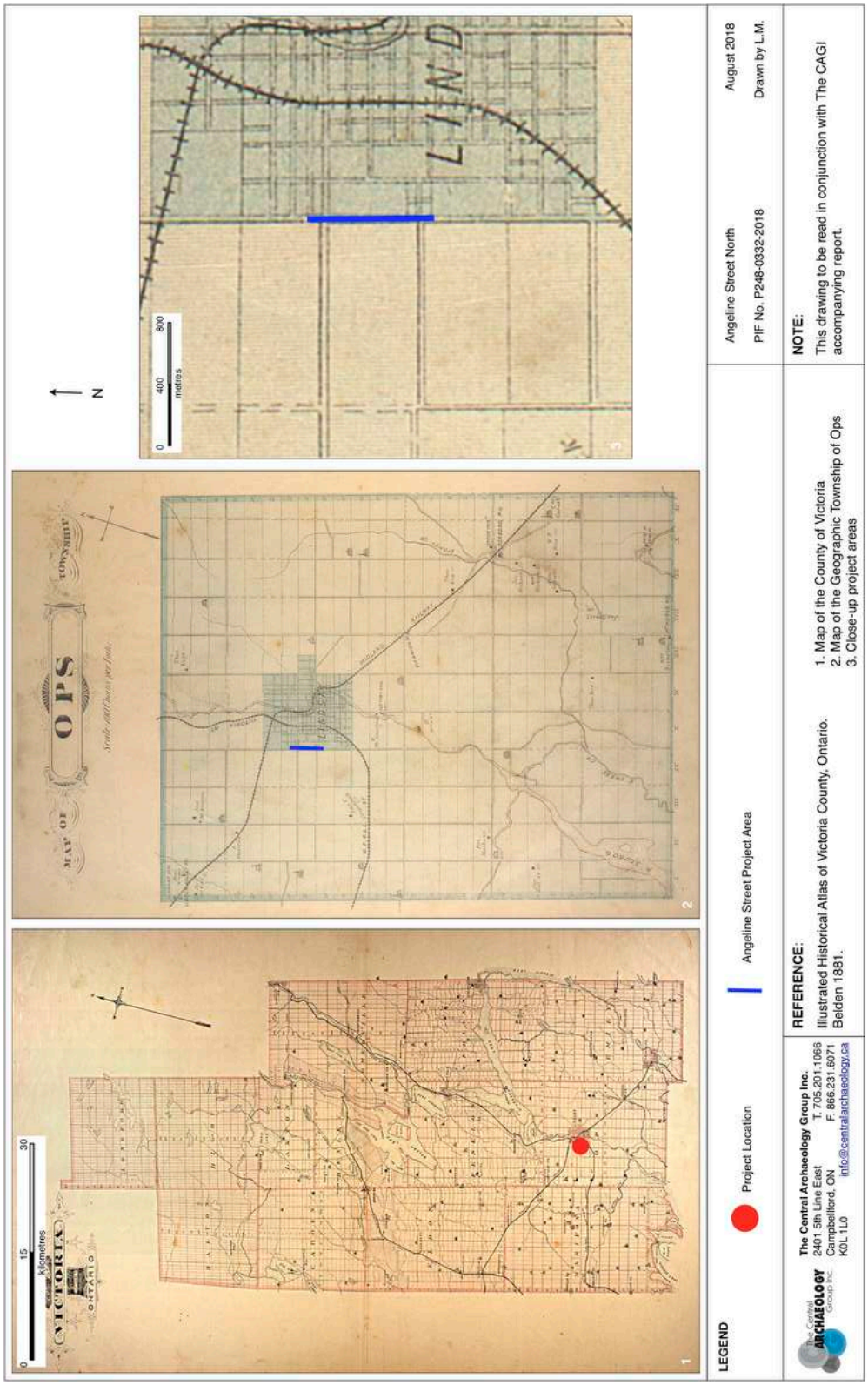


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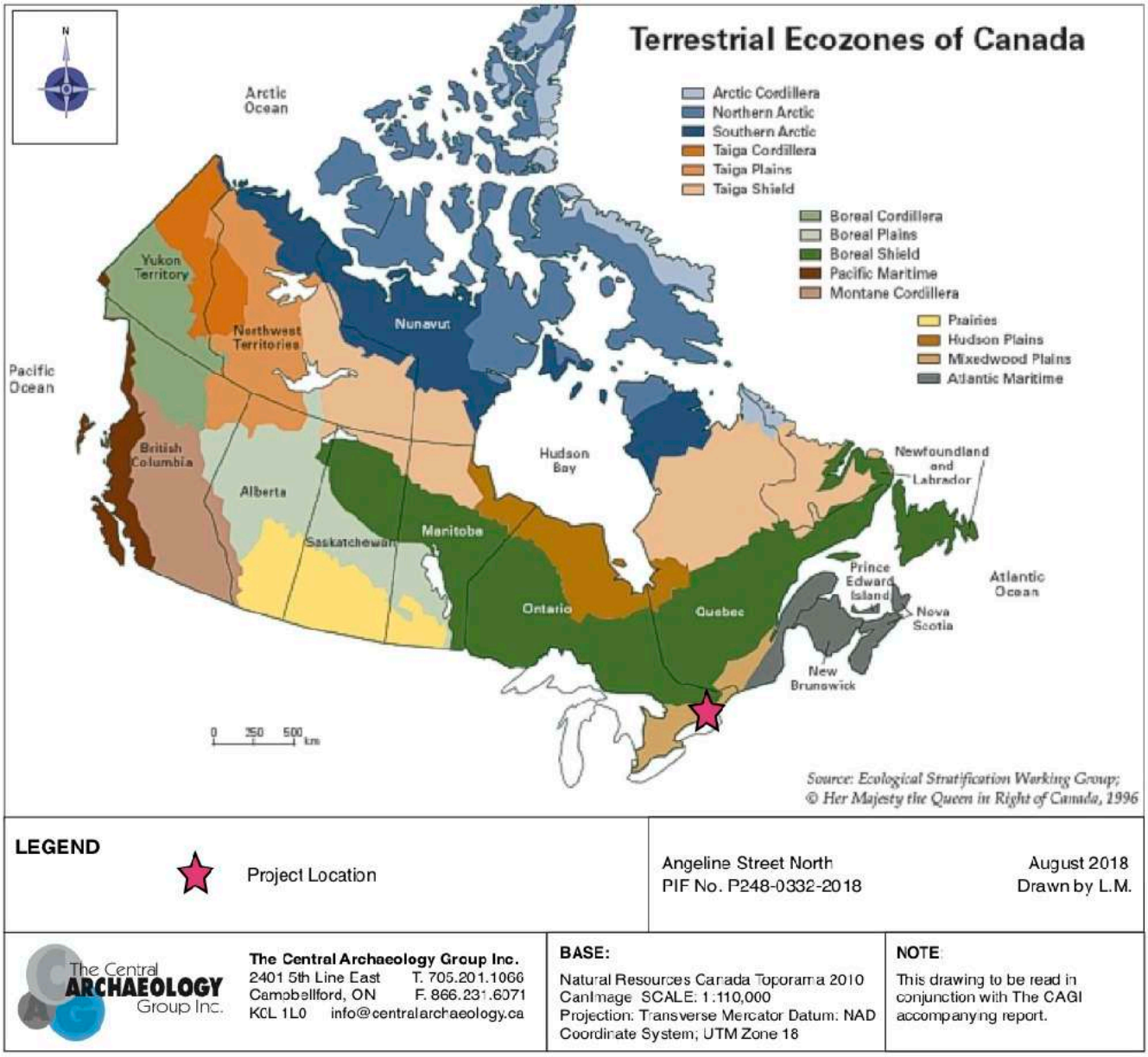


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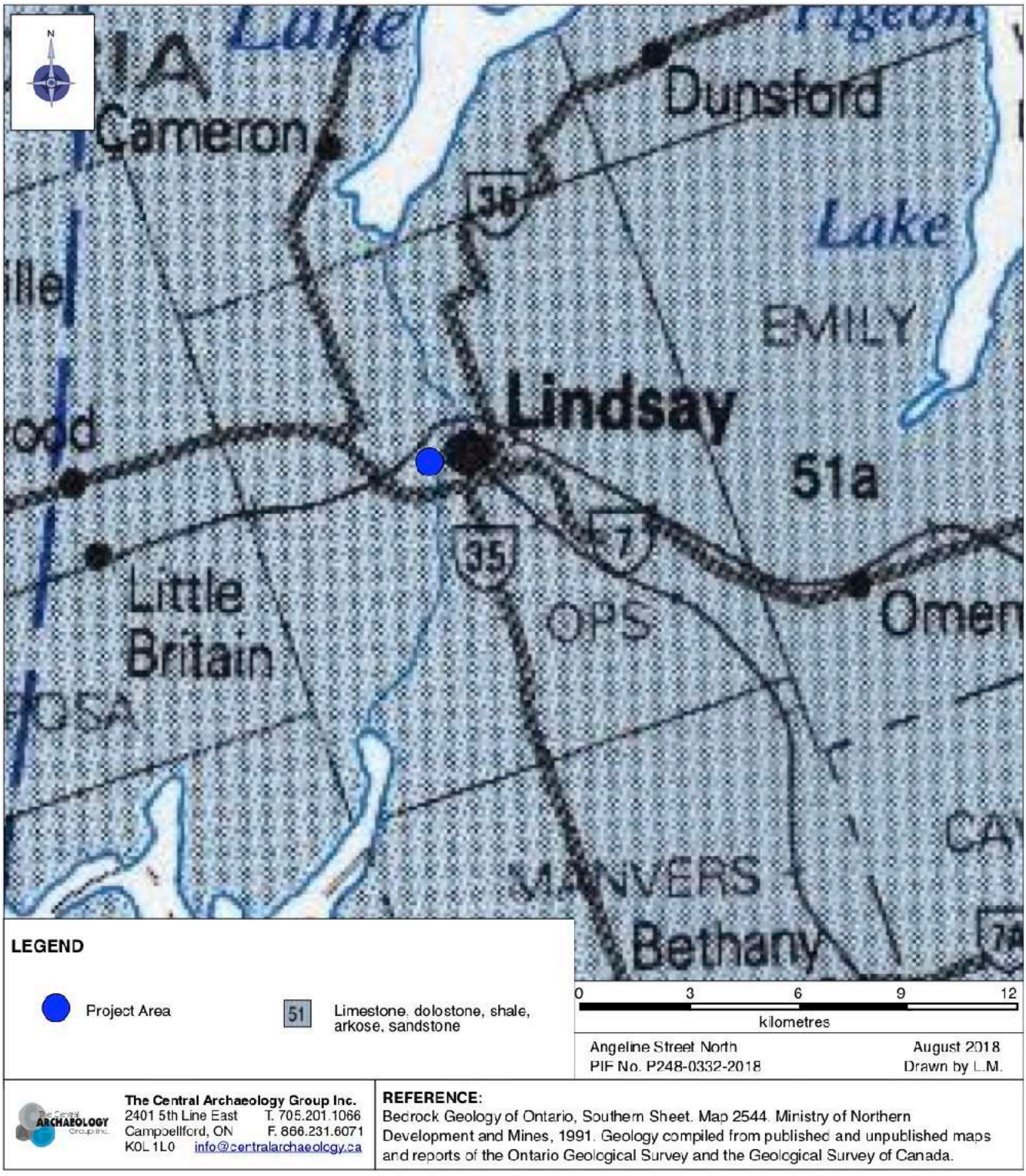


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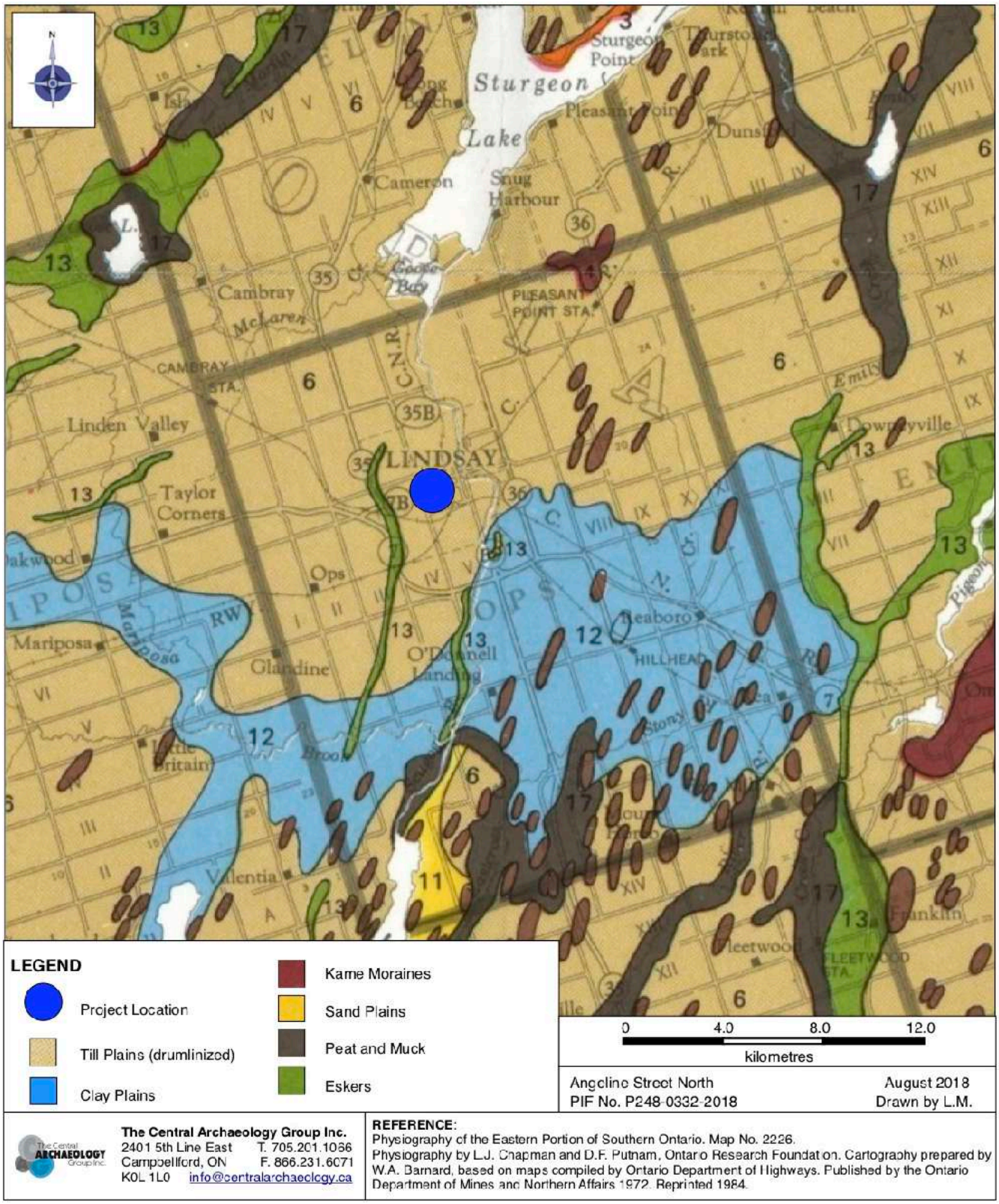


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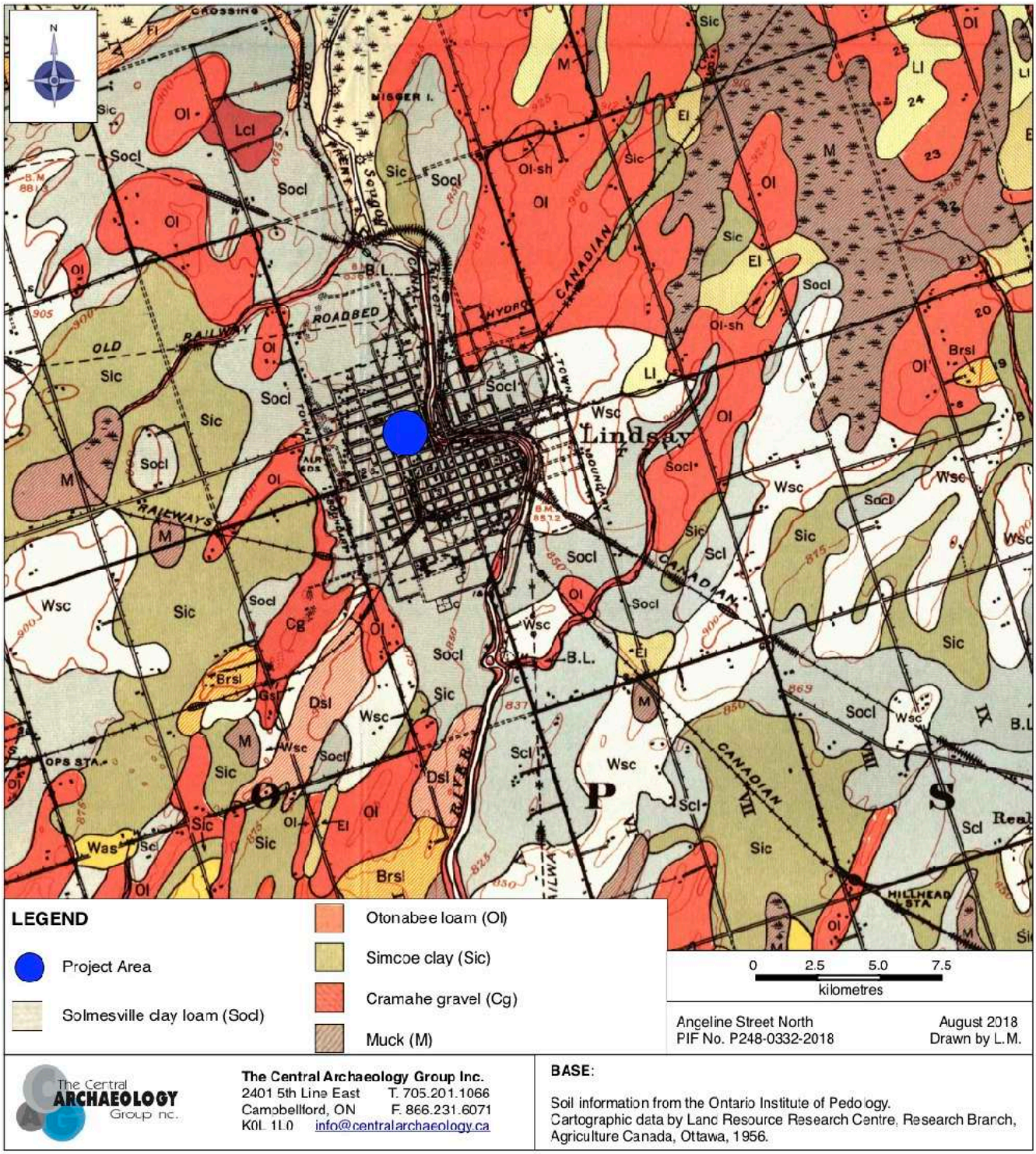


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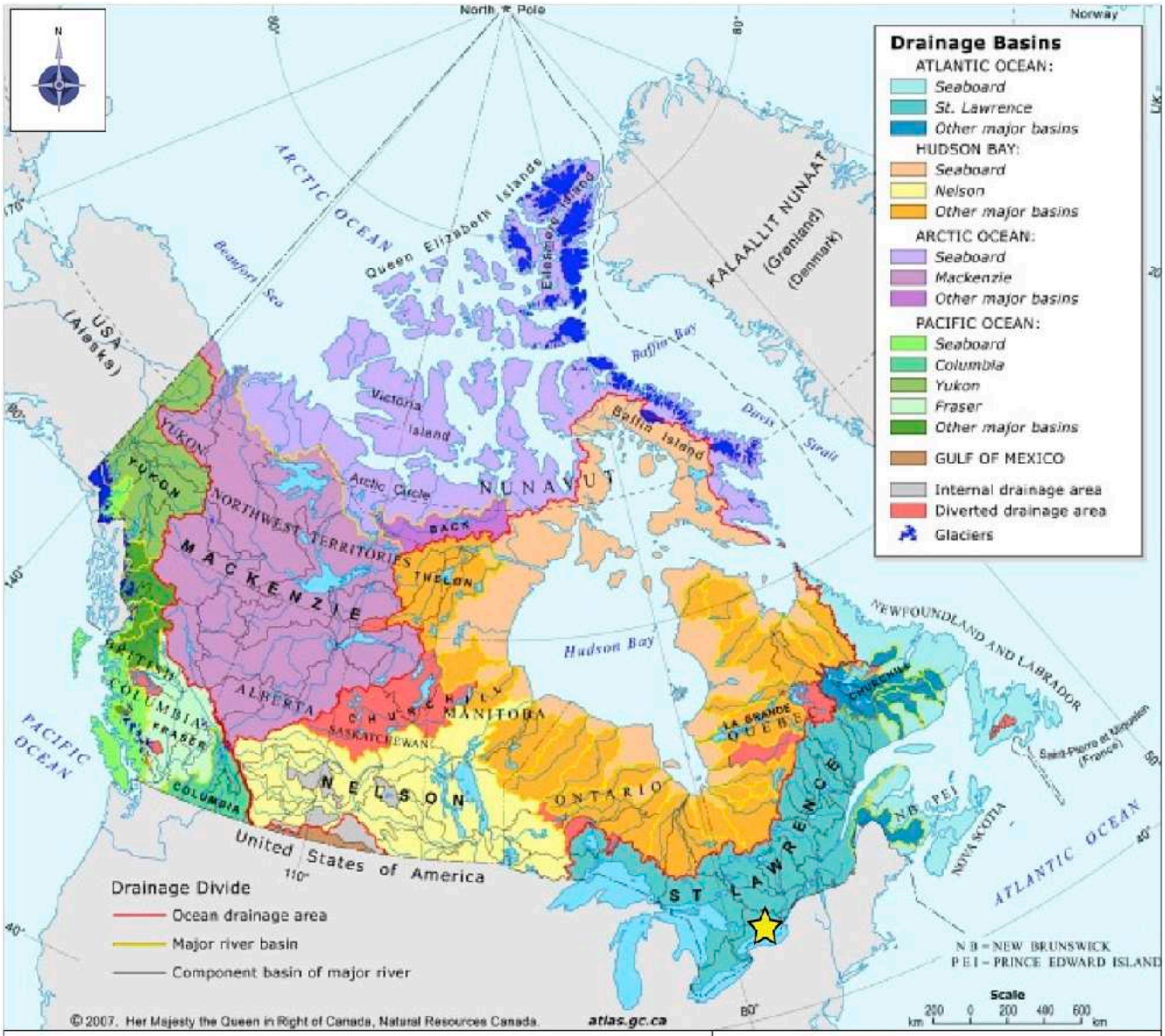


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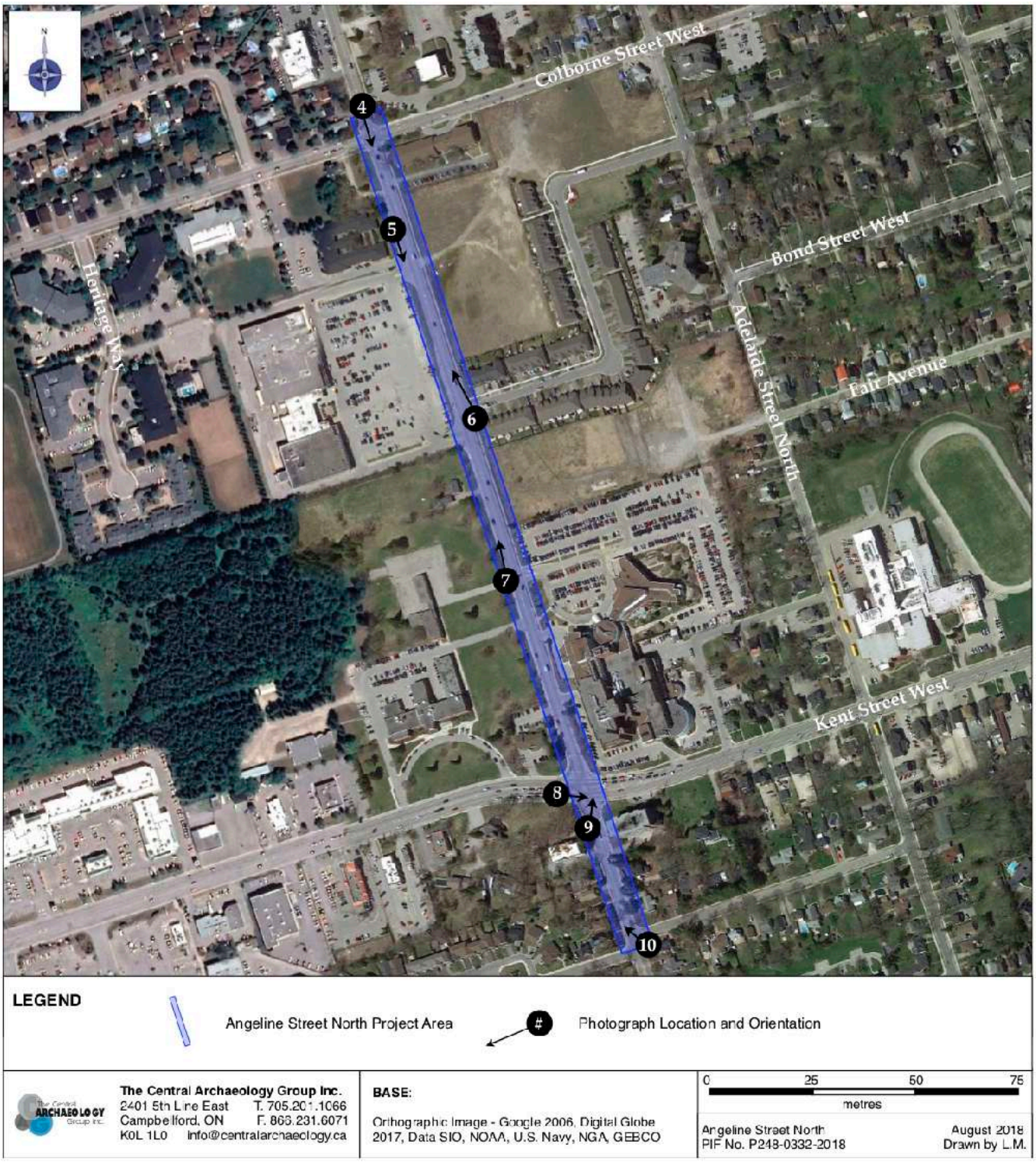


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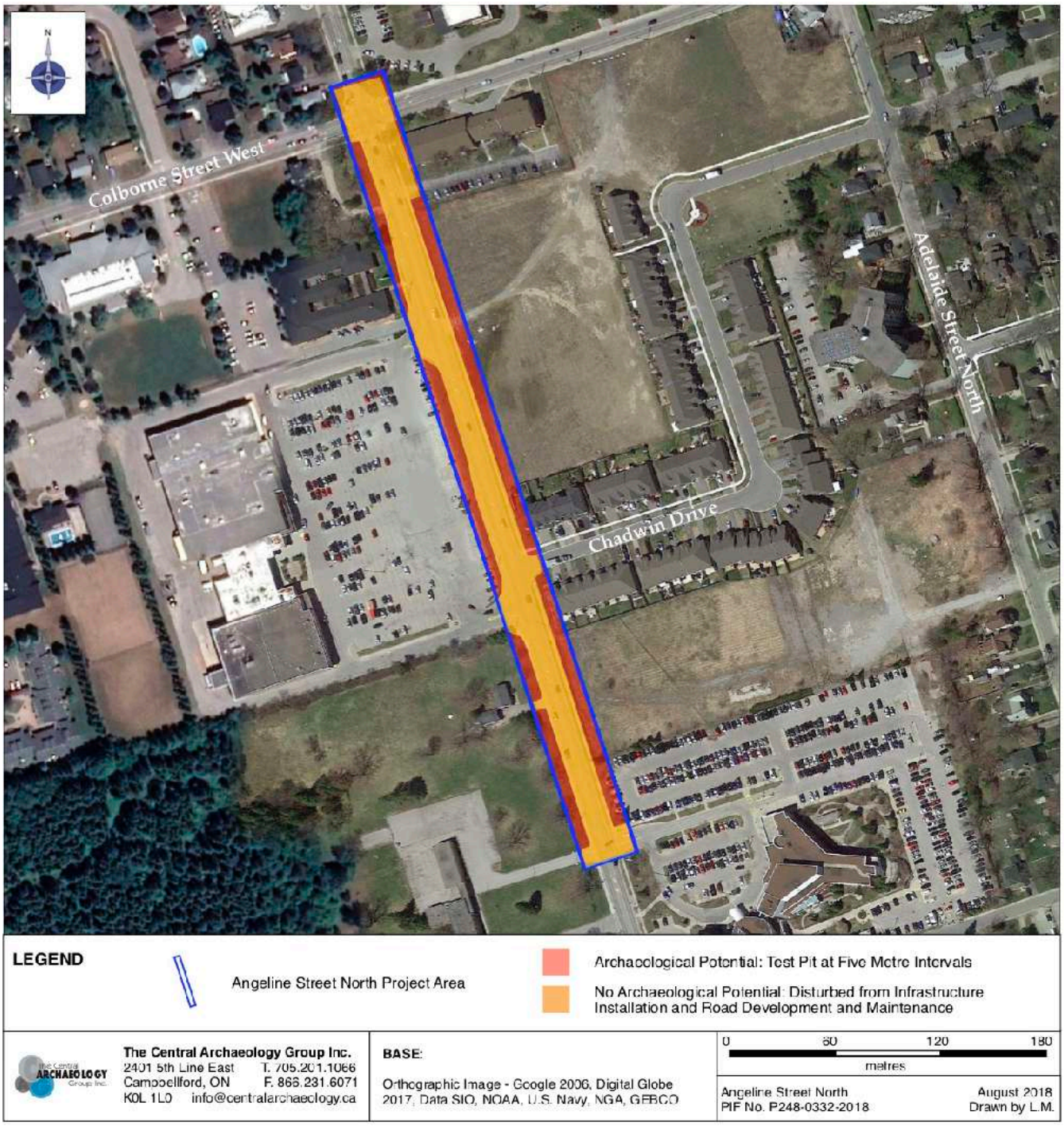
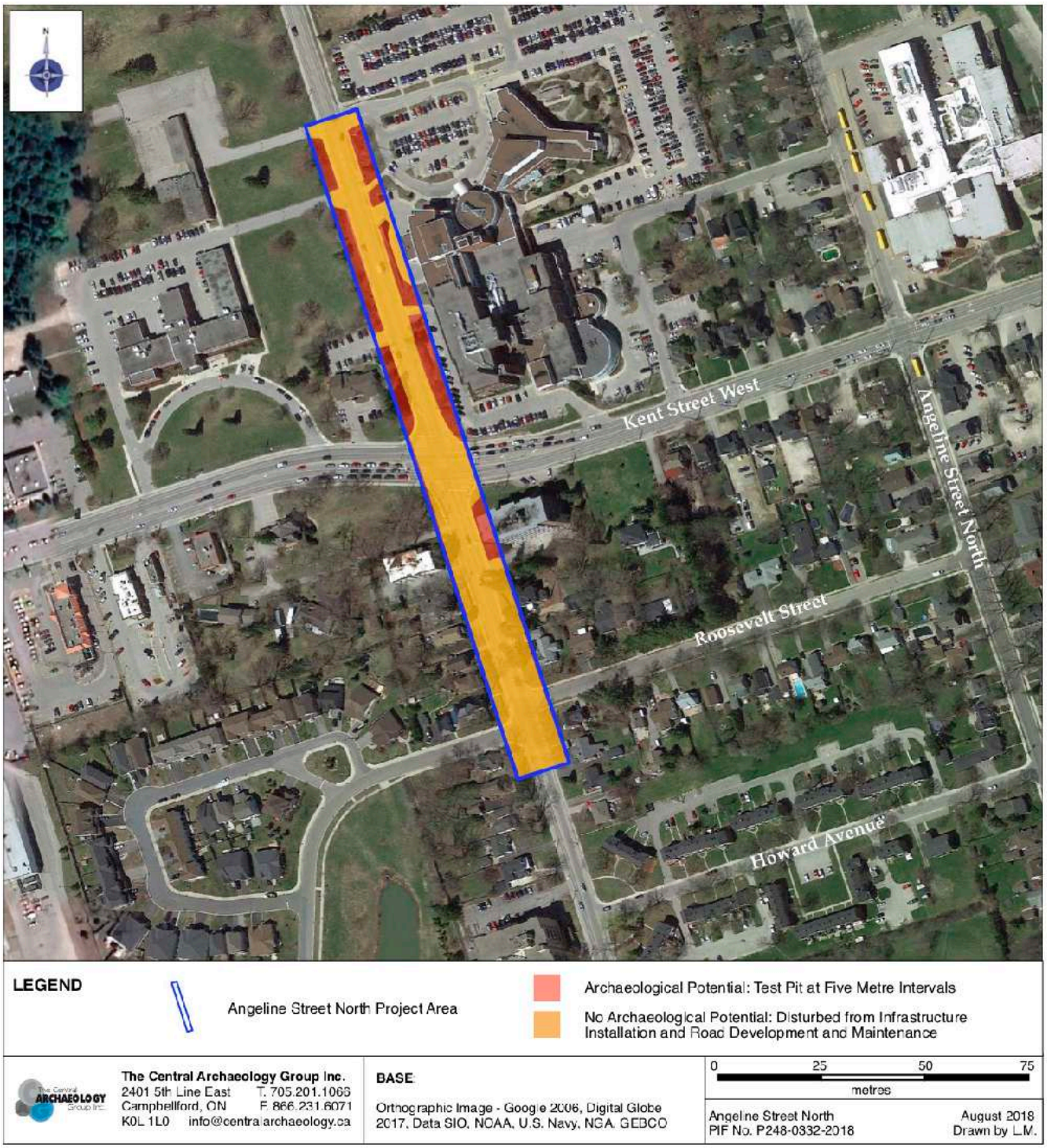



Map 9. Archaeological potential for Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.

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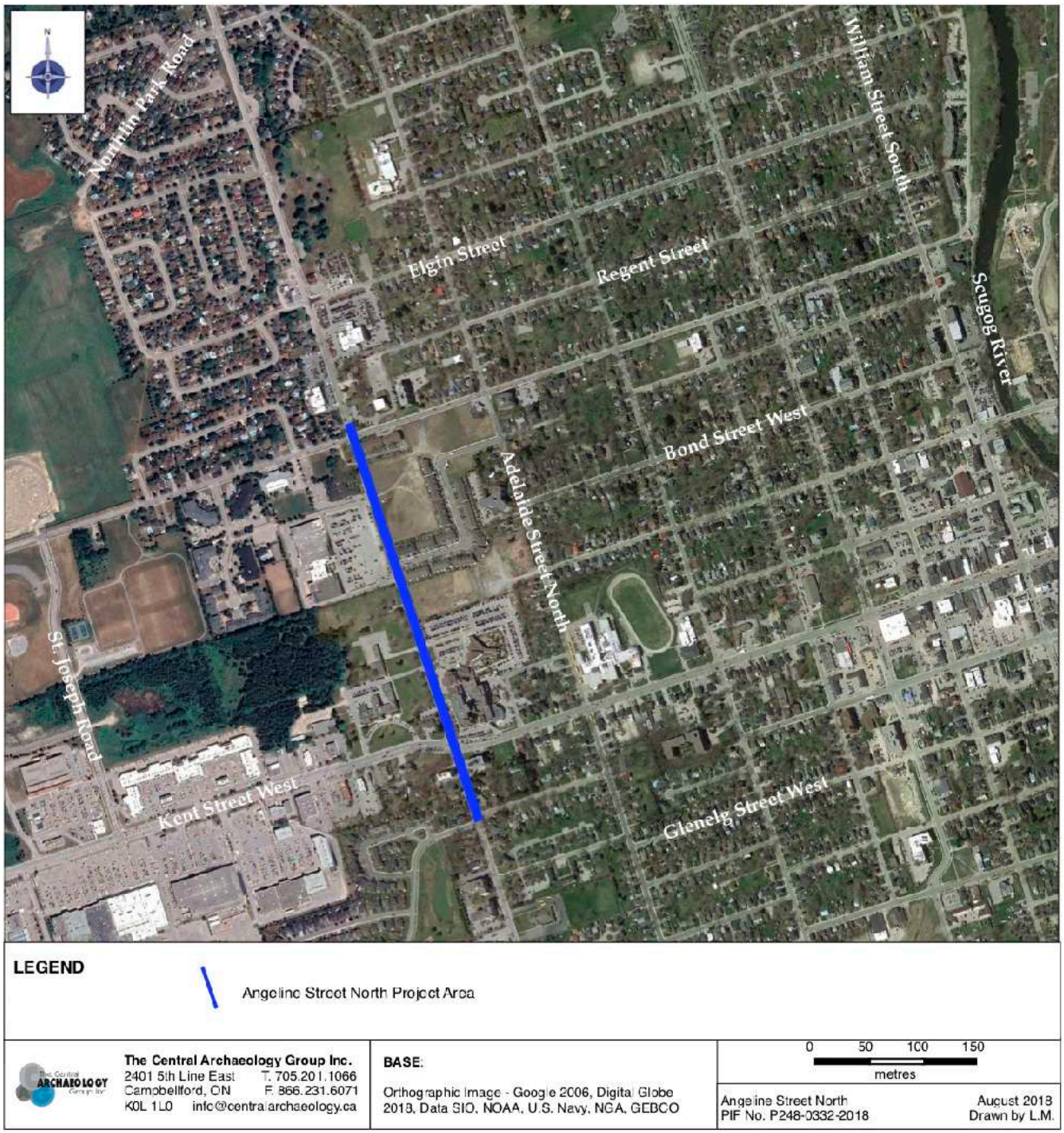


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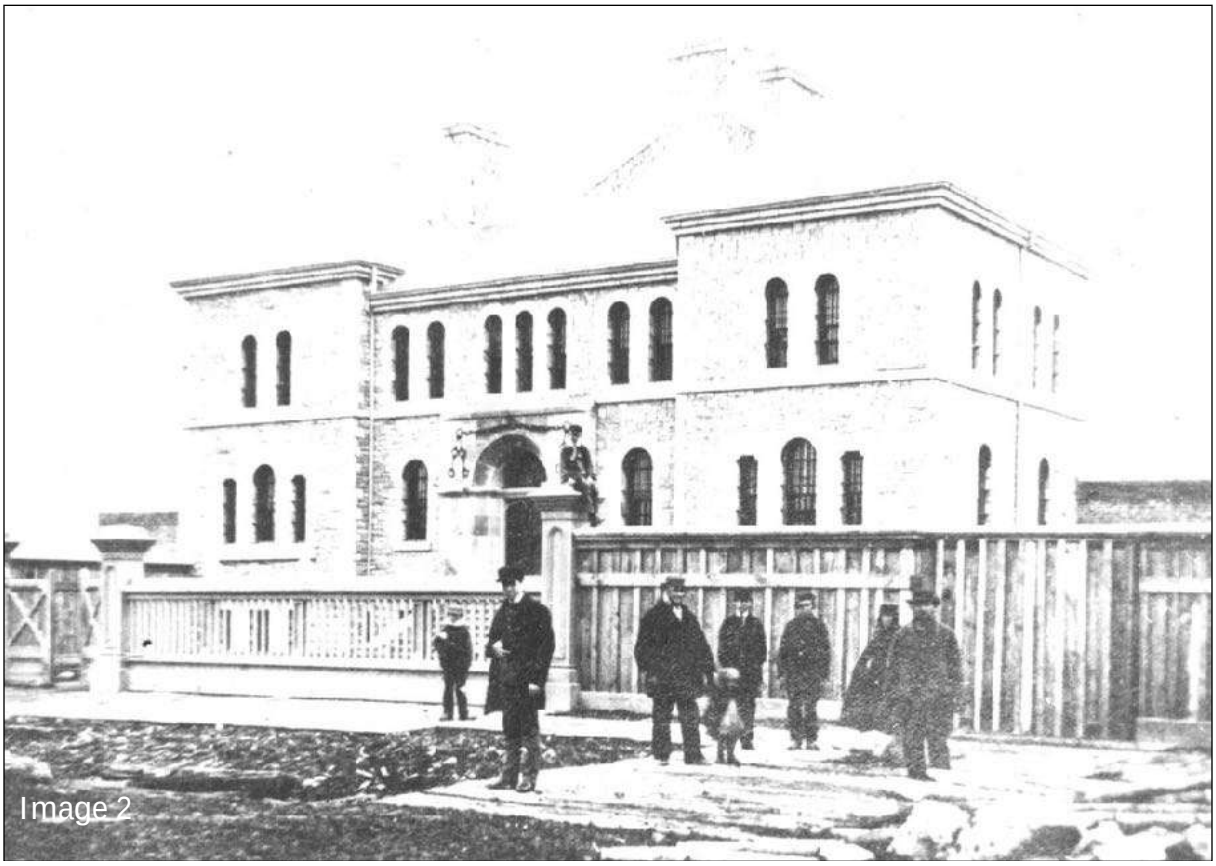

Image 2

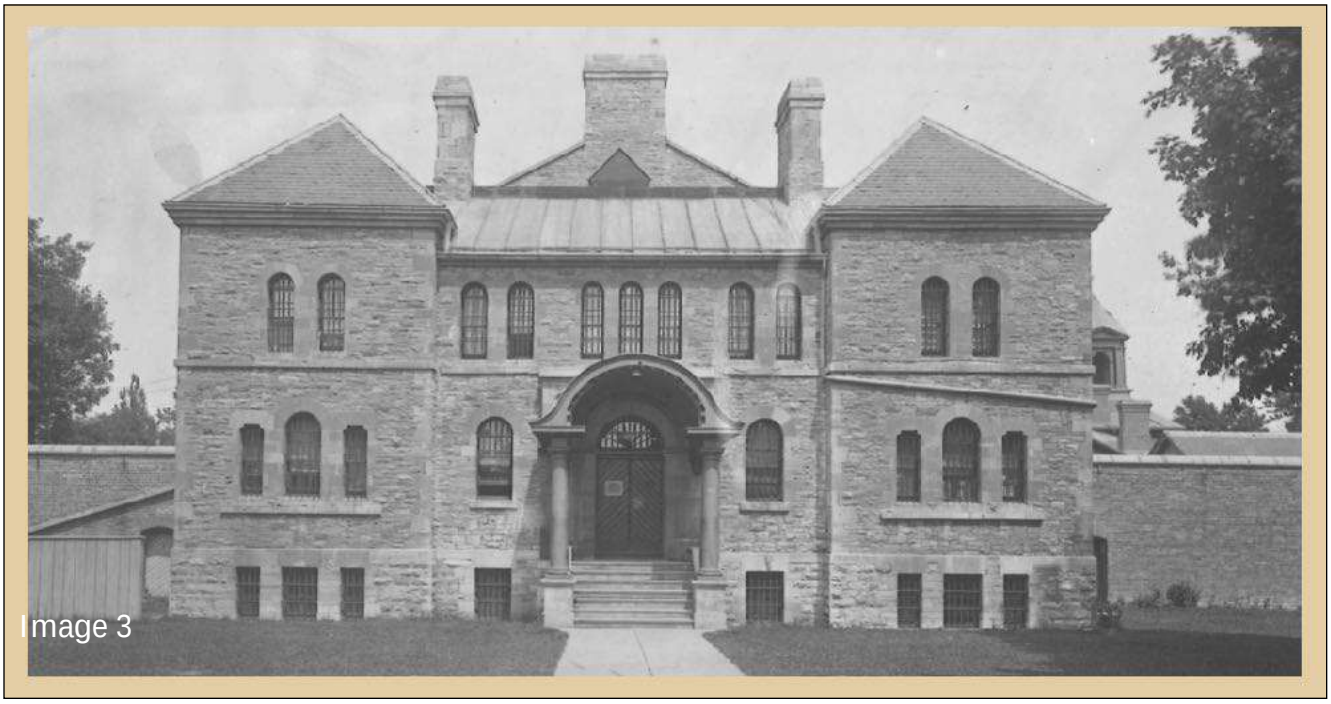

Image 3

Image 4

Image 5

Image 6

Image 7

Image 8

Image 9

Image 10

## 10.0 GLOSSARY OF TERMS

A Horizon - mineral horizon at or near the ground surface (topsoil). May be dark brown due to accumulated humus (Ah) or grey or lighter brown when clay, iron and humus have been leached out (Ae). It is most commonly disturbed by human activities.

Archaeology - is the scientific study of the physical evidence of past human societies recovered through excavation.

Archaeological Site - is a place in which physical evidence of past human activity is preserved and which has been, or may be, investigated using the discipline of archaeology.

Archaic Period - in Ontario is characterized by the appearance of ground stone tools, notched or stemmed projectile points, the predominance of less extensively flaked stone tools, increased reliance on local chert resources, a lack of pottery and smoking pipes, and an increase in the numbers and sizes of sites.

Atlatl - a tool used to throw spears faster and with more accuracy. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

B Horizon - below the A Horizon (subsoil). It could be enriched with iron (Bf), with iron and organic matter (Bhf), with organic matter (Bh) or with clay (Bt). If saturated for extended periods, B horizons show signs of gleying or mottling (Bfg, Btg, Bg).

Bioturbation - results in changes to the nature, form, and arrangement of archaeological deposits and sediments as a result of biological activity in the ground. This includes root action, animal activity, and the degeneration of organic matter.

BP - Before Present. Years before present (1950), used in dating sites and/or artifacts from an archaeological site.

Borden Number - a borden number is an identifier given to an archaeological site in Canada. It was created by Charles E. Borden and contains four letters and one to several numbers.

Burial Goods or Burial Paraphernalia - items interred with an individual (or group) burial that may give clues to their social and/or economic and/or political position within their culture.

Chert - is a fine-grained, sedimentary rock, similar to flint. In antiquity, chert was one of the universally preferred materials for making stone tools.

Contact Period - refers to the period when European and First Nations peoples were first exposed to one another. In Ontario from 450 BP to 200 BP.

Cultural Resources - are sites, structures, landscapes, and objects of particular importance to a culture or community.

Diagnostic - a distinguishing characteristic serving to identify or determine the artifact.

Disarticulated - this occurs when bones are found separated at the joints.
Disturbed - refers to a study area that has recently been excavated or altered from its original

characteristics.

Ecozone - classification system that defines different parts of the environment with similar geography, vegetation, animals, climate, topography and water sources.

Environmental Assessment Act - sets up a process for reviewing the environmental impact of proposed activities prior to the granting of government funds.

Erratic - large rock or boulder that differs from the surrounding rock and is believed to have been transported a long distance as a result of glacial action.

Excavation - is the systematic digging and recording of an archaeological site. Flake - is a fragment of stone removed from a core or from another flake.

Feature - is a collection of one or more contexts representing some human activity that has a vertical characteristic to it in relation to site stratigraphy.

Fluted - grooved or channeled. A fluted point is a projectile point which has had one or more long thinning flakes removed from the base along one or both faces.

Glaciofluvial - sediments laid down by glacial meltwater action (i.e., rivers or streams).
Ground Stone - is a stone artifact shaped by sawing, grinding, and/or polishing with abrasive

materials.
Historic Period - the period when written records become available.

Holocene - the most recent period. Began approximately 10,000 years ago following the end of the Pleistocene.

Knap - to shape a piece of stone material by striking it at specific angles. Term used by archaeologists to denote the manufacture of a lithic tool.

Lanceolate - lance-shaped, much longer that wide, widened at or above the base and opening to the apex.

Lithic - stone, or made of stone.

Maize - also known as corn, is a cereal grain that was first domesticated in Mesoamerica and then

spread throughout the American continents.

Mitigation - measures undertaken to limit the adverse impact of construction methods on archaeological sites or cultural resources.

Ochre - used as a natural pigment, colour is commonly reddish-brown to yellow.

Ontario Heritage Act - allows municipalities and the provincial government to designate individual properties and districts in Ontario as being of cultural heritage value or interest.

Palaeoamerican Period - first evidence of human occupation in Ontario. This period is characterized by groups hunting large game and seasonal occupation along shore environments.

Pleistocene - an epoch within the Quaternary Period which began approximately 2,000,000 millions years ago and ended approximately 10,000 years ago. Immediately preceded the Holocene Period.

Projectile Point - is an artifact used to tip an arrow, atlatl dart, spear, or harpoon. Usually made of chipped or ground stone, however, some are also made of copper.

Stage 1 Background Study - The purpose of a Stage 1 assessment is to investigate the cultural land use, archaeological history, and the present conditions of a property. The majority of the Stage 1 process is conducted in the office and involves the examination of records such as historic settlement maps, land titles, and documents, historical land use and ownership records, primary and secondary documentary sources, and the Ministry of Culture's archaeological site database. The study may also involve interviews with individuals who can provide information about the property and consultation with local First Nations communities. The background study is followed by a property inspection to examine geography, topography and current conditions, and to determine the potential for archaeological resources. Stage 1 background research is usually completed in conjunction with a Stage 2 property survey.

Stage 2 Property Survey - A Stage 2 property survey is undertaken if the Stage 1 background study finds that a property retains archaeological potential. It involves the documentation of archaeological resources by collecting artifacts and mapping cultural features. Depending on the nature of the property environment, two methods are employed in the survey: 1)

pedestrian survey on cultivable properties, and; 2) test-pit survey on properties not cultivable due to tree growth, rock content, etc.

Strata - are layers of rock, soil, cultural material, etc. with internally consistent characteristics that distinguish contiguous.

Stratigraphy - the layering of deposits on archaeological sites. Cultural remains and natural sediments become buried over time, forming strata.

Subsistence - obtaining food and shelter necessary to support life.

Survey - is used to accurately determine the terrestrial or three-dimensional space position of points and the distances and angles between them.

Woodland Period - is a period of time following the Archaic Period. Middle, and Late.

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# Stage 2 Property Survey
# Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

## ORIGINAL REPORT

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# Stage 2 Property Survey
# Proposed Reconstruction and Roadway Widening on Angeline Street from Colborne Street to Roosevelt Street, City of Kawartha Lakes, Formerly Township of Ops, Victoria County

Original Report - April 5, 2023

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CAGI Project No. CAGI-2021-LM23

Report in PDF format distribution:

Ainley Graham & Associates Ltd.
City of Kawartha Lakes
Ministry of Citizenship and Multiculturalism

The Central ARCHAEOLOGY Group Inc.

Bringing the past to the present for the future

## PROJECT PERSONNEL

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Derek Paauw

Mapping

Laura McRae

Report Preparation

Laura McRae

Report Reviewer

Derek Paauw

Administration

CAGI

## STATEMENT OF LIMITATIONS

The Central Archaeology Group Inc. (CAGI) has prepared this report in a manner consistent with the care and skill typically exercised by archaeology professionals currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this project. This report provides the property survey results and the professional opinion of the authors. No other warranty, expressed or implied, is made.

This report has been prepared for the specific site, design objective, developments, and purpose described to CAGI by Ainley Graham & Associates Ltd. (the Client). The factual data, interpretations, and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

Unless otherwise stated, the suggestions, recommendations, and opinions given in this report are intended for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries' Standards and Guidelines for Consultant Archaeologists (2011). CAGI accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

## ACKNOWLEDGEMENTS

The Central Archaeology Group Inc. would like to extend their gratitude to the following individuals and parties:

* Scott Reynolds, Ainley Graham & Associates Ltd.
* Rob von Bitter, Ministry of Citizenship and Multiculturalism.
* The staff at the Trent University Maps and Geospatial Resources section of the Bata Library, Peterborough.

## ACRONYMS

| | |
|---|---|
| a.s.l. | above sea level |
| AG | Ainley Graham & Associates |
| AP | Archaeological Potential |
| cm | centimeter (s) |
| CAGI | Central Archaeology Group Inc. |
| CoKL | City of Kawartha Lakes |
| MSIFN | Mississauga of Scugog Island First Nation |
| CR | County Road |
| GToO | Geographic Township of Ops |
| Hwy | Highway |
| km | kilometre (s) |
| m | metre (s) |
| MCM | Ministry of Citizenship and Multiculturalism |
| NAP | No Archaeological Potential |
| S&Gs | Standards and Guidelines |
| VC | Victoria County |

## EXECUTIVE SUMMARY

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 2 property survey in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC). The purpose of this study is to conduct a test pit survey within the subject property in order to determine the presence or absence of archaeological materials and to inform future planning decisions regarding the study area.

This Stage 2 property survey was undertaken as a result of the recommendations forwarded by The Central Archaeology Group Inc. in 2020 (P248-0332-2018):

> A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;
>
> No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in yellow on Map 9);
>
> and
>
> The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

Therefore, The Central Archaeology Group Inc. (CAGI) was retained by AG to undertake a Stage 2 property survey. This assessment was conducted on November 25 and 26, 2021. No artifacts or culturally significant features were identified during the Stage 2 investigation.

Archaeological recommendations have been made based on the results of the property survey. These recommendations include the following:

1) The Stage 2 archaeological assessment did not recover any material culture during survey activities. Consequently, significant pre-contact and historic First Nations or historic Euro-Canadian archaeological sites are unlikely to be found within the project area. It is therefore recommended that the project area be cleared of archaeological concerns.

Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Citizenship and Multiculturalism should be immediately notified.

The MCM is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

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# 1.0 PROJECT CONTEXT

## 1.1 Objectives

The objectives of a Stage 2 property survey, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (2011:27), are as follows:

- Document all archaeological resources on the property;
- Determine whether the property contains archaeological resources requiring further assessment; and,
- Recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

In accordance with Provincial Policy Statement 2.6, if significant sites are found, a strategy (usually avoidance, preservation or excavation) must be put forth for their mitigation.

To meet these objectives, in compliance with the Standards and Guidelines for Consultant Archaeologists (MTCS 2011), CAGI archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the Project Area and it's general vicinity; and,
- Test pit survey of the Project Area at 5 m intervals in areas of the Project Area where the ground cover was not suitable for pedestrian survey.
- Pedestrian survey of the Project Area at 5 m intervals in areas of the Project Area where the ground cover was suitable for pedestrian survey.

## 1.2. Development Context

The Central Archaeology Group Inc. (CAGI) was retained by Ainley Graham & Associates (AG) to conduct a Stage 2 property survey in anticipation of the reconstruction and roadway widening of Angeline Street North in the Geographic Township of Ops (GToO), Victoria County (VC) (Map 1; Image 1).

This archaeological assessment was triggered by the Environmental Assessment Act. Permission for access to conduct the archaeological assessment was granted by Scott Reynolds (AG); no limits were placed on this access.

The archaeological assessment was undertaken in accordance with the requirements of the Ontario Heritage Act (R.S.O. 1990), the Standards and Guidelines for Consultant Archaeologists (2011) and the Environmental Assessment Act (R.S.O. 1990). All archaeological consulting activities were performed under the Professional Archaeological License of Laura McRae (P248). The Ontario Ministry of Tourism, Culture and Sport has designated this assessment as PIF P248-0398-2021. This project is identified as CAGI-2021-LM23 under CAGI records.

## 1.3 Historical Context

### 1.3.1 Historic Documentation

There are several histories of Victoria County, from its use by the pre-contact First Nations peoples through to the English period, Loyalist migration and Euro-Canadian settlement. Some of the more useful documents include: *Victoria Supplement in Illustrated Atlas of the County of Victoria, Ontario* (Belden 1881), *Peterborough and the Kawarthas* (Brunger 1975), *Trent Waterway Archaeological Survey* (Hakas 1967), *Historic Lindsay* (Capon 1974), *Land of Plenty* (Carr 1968) and *County of Victoria Centennial History* (Kirkconnell 1967).

There are also a significant number of consultant reports (archaeological and built heritage) available for consultation from the City of Kawartha Lakes, the Ministry of Tourism, Culture and Sport and the local historical societies.

In addition to historical literature and consultant reports, historical maps and plans, fire insurance plans, orthographic images and photographs from the National Air Photo Library (NAPL).

The study area is situated within the Former Township of Ops, now referred to as the City of Kawartha Lakes, created in 2001 by the Provincial government by amalgamating Victoria County and its constituent municipalities. The history of the area will be discussed below.

### 1.3.2 Pre-Contact Period

Although eastern Ontario has a unique deglaciation history, which would have prohibited early occupation, some of the work done further to the west, in the Great Lakes region can be extrapolated. In the 1970s archaeologists in southern Ontario began looking at ancient glacial lake beaches for Palaeoamerican and Archaic archaeological sites with positive results (Jackson et al. 2000, Storck 2004). Traditionally, and which is still common practice to this date, archaeological investigations in eastern Ontario were being conducted at modern water levels and archaeologists were only testing easily accessible areas which yielded “likely” locations of past human occupation (Hurley 1971a; 1971b), overlooking the drastic environmental changes that occurred over the past 10,000 years. Some archaeologists are just

beginning to realize that sites can be found further inland on the former beaches of the Champlain Sea and the Fossmill outlet (Kennett and Branson 1999:97). Since very little investigation have been undertaken in these areas (Watson 1999:38), thus far, only a small number of Palaeoamerican sites and few Archaic and Woodland period sites have been found.

In the first half of the twentieth century, the focus of research in First Nations culture in Canada was primarily on linguistics and ethnology (Trigger 2006:312). As a result, it is not until the beginning of the latter half of the twentieth century did archaeological undertakings begin to focus on building cultural chronologies, primarily technological innovation (Mason 1981:161). In Ontario, three broad cultural periods have been identified based on the material culture that has been left behind by past individuals and cultural groups. These cultural periods are: the Palaeoamerican Period (ca. 11,000-8000 BCE), Archaic Period (ca. 8,000-800 BCE), and the Woodland Period (ca. 800 BCE– 1650 CE). Pollock (2005:9) has recently adjusted the dates for eastern Ontario, including the Ottawa Valley and they include: the Palaeoamerican Period (ca. 11,000-6,000 BCE), Archaic Period (ca. 6,000-500 BCE), and Woodland Period (ca. 500 BCE-1600 CE). A cultural summary of these periods, largely focusing on technology, is provided below.

*Palaeoamerican Period*. Only a handful of Palaeoamerican sites and suspected Palaeoamerican sites have been found in eastern Ontario (Gordon and McAndrews 1992:80; Pollock 2005:10). If 9,000 BP (approximately 8,000BC) is accepted by archaeologists as the end of the Palaeoamerican period in eastern Ontario, given the glacial history associated with the formation of the Champlain Sea and methods of field research traditionally used by archaeologists in Ontario, to date, there have only a handful of Palaeoamerican sites found in eastern Ontario (Watson 1999a:38). To find such sites, archaeologists must study local geological events that altered lake levels and shorelines (Storck 1997; 2004).

During the height of the Wisconsinian glacial period the Laurentian Ice sheet covered most of Canada and extended as far south as New York City (Watson 1999a:28). The retreat of the Laurentide glacier from the St. Lawrence River and the Ottawa Valley began approximately 11,000 BP. As the ice receded, the Atlantic Ocean flooded the St. Lawrence Valley and portions of the Ottawa Valley, creating the Champlain Sea. It is on these ancient shores of the Champlain Sea, where there will be significant potential for the discovery of Late Palaeoamerican people, who likely subsisted off of maritime resources for part of the year. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of the St. Lawrence River and Ottawa River. Therefore, given the deglaciation process as discussed in greater detail elsewhere in this report, palaeo shorelines, especially

those associated with Champlain Sea can today be found inland on elevated topography, upwards of several hundred kilometres east and west of the present course of these two rivers.

Given isostatic rebound, shoreline destruction, and inundation, little is known about the maritime adaption of Palaeoamerican people. For the most part, it can be posited from other places in North America (Faught 1996; 2004; Faught and Brinnen 1998; Faught and Donoghue 1997; Faught and Gusick 2011; Gusick and Faught 2011; Marks and Faught 2003). Nonetheless, in general, Palaeoamericans are distinguished by the distances they travelled over land and their lithic assemblage. Artifacts have been recovered from archaeological sites in Ontario that were made from high quality cherts found hundreds of kilometers from where they were finally deposited (Storck 2004:33).

Palaeoamericans produced lance-shaped points which lacked the notches and stemming crafted by later peoples for hafting purposes (Ellis and Deller 1990:38). Since Palaeoamerican groups traveled significant distances away from their chert sources, they produced heavily re-sharpened and retouched tools (Dickson 2011:52; Ellis and Deller 1990:45), such as end-scrapers, side-scrapers, knives, gravers, and drills (Ellis and Deller 1990:49, 59). Assemblages found on sites vary depending on the proximity to the chert source used for lithic manufacture (Dickson 2011:52). Archaeological sites that are a fair distance away from a chert source will have no evidence of core reduction or early stage preform reduction. This activity was usually undertaken at or near quarry sites (Dickson 2011:52; Ellis and Deller 1990:45).

Ultimately these tools assisted Palaeoamericans in day-to-day activities, in particular, food and resource extraction. A variety of subsistence options were available in eastern Ontario at the time. The land would have supplied large game like caribou and whales (white, humpback, and common finback), harbour porpoise, harp seal, and bladder-nose seal as well as shore birds, ducks, and several fish species (Watson 1999a:33). There is evidence from other Palaeoamerican sites in southern Ontario that fish was processed (Storck 1997:278). Most of these resources would have been found along the shore of the Champlain Sea. It is likely that the Palaeoamerican groups that inhabited eastern Ontario practiced a seasonal transhumance, relying on maritime resources during certain parts of the year and travelling inland, perhaps during the winter, to hunt migratory and herd- based species. This subsistence pattern is more inline with maritime-based Palaeoamerican groups found along the east coast of North American, rather than the traditional inland based subsistence economy subscribed to by many archaeologists for southwest Ontario.

To date, there have been three types of Palaeoamerican sites found in Ontario by archaeologists. These are dropped point sites, quarry sites, and short occupation camp sites. Palaeoamerican sites have been found near Perth (Pilon 2005:14, Watson 1999a:34) and in Lanark County (Branson and Kennett 1999:77).

*Early Archaic.* During the later Palaeoamerican Period, people began to settle and develop a pattern of movement within specific geographic ranges (Stock 2004:125). Eventually, it is believed, movements became seasonal in pursuit of food resources (Storck 2004:126). This seasonal resource economy continued and became commonplace during the Archaic Period. Lakes and river shores formed an important ecotone for human occupation (Ellis et al. 1990:68, 91; Gordon and McAndrews 1992:80; GRAO 2011:16; Wright 1972:33). These locations would have been easy to access by people travelling in watercraft (Wright1972:36). Travel between sites would have been quicker, improving communication and trade between people. In addition, more could be transported in a boat than carrying overland.

The Archaic period is characterized by the exploitation of a wide range of raw materials for tool manufacture (Clermont and Chapdelaine 1998; Ellis et al. 1990:65, 66). Unlike Palaeoamericans, who used high quality cherts for their lithic assemblage, during the Archaic Period localized materials and glacial till were also used for tool construction. Projectile points were being notched and stemmed and the larger flakes produced during the earliest stages of tool production were now being used as expedient tools (Dickson 2011:52; Ellis and Deller 1990:45; Ellis et al. 1990:66). A new technique in tool production, grinding and pecking, produced ground stone implements (Ellis et al. 1990:65).

Like the Palaeoamerican Period, the Early Archaic in eastern Ontario is not well known. It is believed that Early Archaic sites diminish in number north of Lake Ontario as these Early Archaic groups were contemporaneous with Late Palaeoamerican groups (Ellis et al. 1990:68). It is not until the Middle Archaic that there is evidence of Archaic people in eastern Ontario.

*Middle Archaic*. The Middle Archaic is characterized by a decrease in mobility across the landscape and a greater use of local stone for lithic production. Therefore, overall there is a decrease in the size of the territories being exploited. For example, groups resided for longer periods of time in one place, and multiple interments found on sites, have lead archeologists to believe that people were returning to the same locations for a number of years to exploit a single or multiple resources in the locale.

Eastern Ontario is further defined in the literature as being inhabited by the Laurentian Archaic groups. The Laurentian Archaic people made a number of distinct ground stone tools. These include: stemmed points, bayonets, and semi-lunar knives (Ellis et al. 1990:84; Wright 1995:224;). They also extensively produced tools made of bone and thus, little remains in the archaeological record, especially in areas were soil acidity is high. These tools include stemmed, socketed and barbed points, unilaterally barbed harpoons with holes, pointed awls, gouges, fish hooks, bipointed gorges, whistles, flutes, beaver incisors used as scrapers or knives, and large and small needles (Clermont 1999:49; Clermont and Chapdelaine 1998; Ellis et al. 1990:87; Mason 1981:166; Wright 1995:219). Due to the environment and the limited availability of plant food resources in the Canadian Biotic Province, Laurentian Archaic sites

yield less plant processing tools, and show a heavier reliance on hunting and fishing activities (Ellis et al. 1990:91).

Many of the bone tools listed above, have counterparts made from copper (Ellis et al. 1990:88). The appearance of copper artefacts represents far reaching trade networks. Copper artefacts found on Laurentian Archaic sites indicate trade with Shield Archaic peoples who exploited the copper resources around Lake Superior. The Shield Archaic, as the name implies, represents the cultural remains of a people living in the Canadian Shield. The Shield culture covers a large territory from the southwestern portion of the Northwest Territories, most of Manitoba, northern Ontario, northern Québec and Labrador (Wright 1972:1995). Given the location of the project area, the region likely witnessed influence by both Laurentian and Shield Archaic groups.

Unlike the archaeological assemblages found on the Laurentian Archaic sites of eastern Ontario, early Shield Archaic sites have an absence of ground stone tools (Wright 1995:262). Their settlement pattern and distant trade patterns suggest the use of watercraft. The people of the Shield Archaic made side-notched, stemmed and lancolate projectile points, end-scrapers, side-scrappers and flake scrapers, wedges, bifacial cores, preforms, bifacial and unifacial flakes, knives, drills, hammers, awls etc. These tools were commonly made out of quarts, some chert varieties, and copper. Throughout pre-European contact, settlement patterns and subsistence activities remain largely unchanged for the Shield Archaic (Wright 1999:705). Nonetheless, the extent of divergence between the Shield and Laurentian Archaic groups is limited to the tool assemblage. Laurentian Archaic tool artifacts have been found in territories often associated with the Shield Archaic and vice versa. In northeastern Ontario on the Abitibi Narrows, a ground slate point, a projectile point of the Laurentian Archaic, was found with stemmed and lanceolate point forms, which belong to be Shield Archaic. Therefore, clearly interaction between these two technologically distinct groups was taking place. A mixture of both Laurentian and Archaic tools can than be expected in the artifact assemblage in archaeological sites located along the perceived boundary between the two technological traditions.

*Late Archaic.* Late Archaic sites in southern Ontario are larger and more frequent in the archaeological record than the Early and Middle Archaic periods. Around 4500 BP water levels in the Great Lakes and the Ottawa River Valley began to assume modern day levels and it is at these levels on islands, near the mouths of rivers, rapids, and near marshlands that larger camp sites are found. Populations increased and people began to aggregate in much larger groups along bigger bodies of water. They stayed on these lakes and rivers during spring, summer and early fall, than broke into smaller familiar groups moved into the interior for the winter.

In Ontario, three Late Archaic cultural complexes are defined based on the style of projectile points: Narrow Point (ca. 4500-3800 BP), Broad Point (ca. 4500-3500 BP), and Small Point (ca. 3500-3000 BP). However, in eastern Ontario, there are no distinctive projectile points for this time period. Laurentian cultural material begins to appear with different styles of projectile points that have been expediently made and are difficult to assign to any particular time period or cultural group. The reduction in size of projectile points could indicate the beginning of bow and arrow use (Ellis et al. 1990:106).

During the Late Archaic period and carrying on into the Woodland period there is evidence of extensive trade networks operating in eastern Ontario. Copper tools were exchanged in the Early and Middle Archaic periods but by the Late Archaic there is evidence of non-utilitarian goods made out of material like copper and marine shell still be traded (Spence et al. 1990:166). Since populations are presumably getting larger, some raw materials that use to be exploited by a variety of groups are now found in a single group's territory (Spence et al. 1990:166). Therefore, trade becomes essential to obtain valued resources. With populations increasing, inter-band marriage was also likely and gifts between bands could have been made to establish and secure relationships. Near the end of the Middle Archaic, at the Leamy Park (BiFw-20) site in Gatineau, copper tools become rare and projectile points of the Lamoka (Narrow Point) and Susquehanna (Broad Point) types begin to appear beside Brewerton points and some ground slate points typical of the Laurentian Archaic (GRAO 2011:17).

*Early Woodland.* The Early Woodland Period in most of Ontario is marked by the appearance of fired clay ceramics. Southern Ontario is described as having two complexes, Meadowood (ca. 900-400 BCE) and Middlesex (ca. 450-0 BCE). Ceramic vessels made during the Early Woodland, called Vinette I, are thick, have conoidal bases, and are believed to have been used for cooking and food storage (GRAO 2011:18; Spence et al. 1990:128; Watson 1999b:56).

The Meadowood tradition, known throughout the St. Lawrence Valley and as far north as Abititbi, has produced a wide range of artifacts that are found in both cemeteries and habitation sites (Spence et al. 1990:128). The northern limits of the Meadowood tradition are believed to extend to Rosebary Lake in Algonquin Park and the Deep River site on the Ottawa River (Spence et al. 1990:131). A common artifact of this tradition is a biface blade, often referred to as a cache blade, which is posited to have been used as a preform for the manufacture of various types of tools (Spence et al. 1990:128; Watson 1999b:57). Early Woodland peoples created side-notched points which were frequently recycled into other tool forms, such as end scrapers and perforators.

During the Early Woodland Period, people began to bury their dead in cemeteries, places exclusively reserved for the disposal of the dead. Burials indicative of this funerary tradition, called Middlesex, have been located in the Ottawa Valley. These burials are characterized by an absence of cremation, the presence of polished slate gorgets, tubular pipes, adzes and

cylindrical copper pearl necklaces as burial goods,. Overall, the tradition has its origins in the states of Ohio and Michigan with the Adena complex. The Morrison Island site, found and excavated by Clyde Kennedy in 1958, had burials that dated to this period, and some of the burials contained cooper beads, and copper bracelets (Clermon and Chapdelaine 1998:21, 22, 25).

*Middle Woodland*. During the Middle Woodland Period, population sizes increase as does the duration of site occupation. This change is mirrored by a dramatic increase in the exploitation of wetland plants and animals (Lovis et al. 2001:628). Base camp sites, satellite sites, and gathering places are all represented in the archaeological record (Reid and Rajnovich 1991:221).The social patterning of the Middle Woodland Period is also beginning to resemble what is reported on ethnographically in early European documentation. In Ontario, there are four main cultural complexes associated with the Middle Woodland Period: Point Peninsula, Saugeen, Couture, and Laurel. However, only the Point Peninsula and Laurel complexes pertain to the study area.

The Point Peninsula complex extends throughout south central and eastern Ontario, western and northern New York, and northwestern Vermont (Spence et al. 1990:157). Common tools recovered during this period are barbed bone and antler harpoons, decorated antler combs, bone fish hooks, antler-hafted beaver incisors, and a wide variety of projectile points, celts and gorgets. However, none of the aforementioned tools are exclusive to the Point Peninsula complex (Spence et al. 1990:159). The dead are increasingly buried or relocated to burial mounds. Each mound, or addition to a mound, is considered to represent the accumulated dead of one generation. Bodies were thought to be placed in primary burials, than exhumed at a later date, and relocated to the mounds.

*Late Woodland Period.* The beginning of the Late Woodland Period in the St. Lawrence Valley and the Upper Great Lakes is marked by the emergence of sedentary settlements. The cultural manifestations during this time period are believed to have been very similar to the ones witnessed by the first Europeans who visited the region. The earliest evidence of agriculture begins to appear around 700 years ago with year round settlement in small villages (GRAO 2011:19). Since sedentary villages are seen as a Woodland Period transition into the Iroquois Period of history in southern Ontario, and that the project area and the surrounding region has traditionally been Algonquin territory, these larger sedentary village sites are not expected in the archaeological record. Instead, it is believed that the Algonquin largely maintained a pattern of seasonal transhumance as witnessed in the early periods of Ontario history. Nonetheless, the project area does lie near the boundary with Iroquoian-speaking groups to the south, and it is possible, with the fluidity of the frontier, that Iroquoian-speaking groups, generally associated the St. Lawrence River watershed, may have inhabited or obtained resources in the region surrounding the project area.

During the Late Woodland period ceramics manufactured in the St. Lawrence River Valley begin to show a distinct regional style characterized by more complex decoration. The vessels have globular bodies and have a narrow neck with a flared rim decorated with castellations using the paddle and anvil technique. Pipes, beads and tokens are also made from ceramics. Stone tools are rare, bone and animal teeth (particularly beaver incisors) are more common materials used in the manufacture of tools (GRAO 2011:19). With trade routes extending north of the Great Lakes, this material culture can be expected in archaeological contexts in the Ottawa River watershed.

By the transition of the Terminal Woodland Period to the Early Iroquois Period (ca. 1500 CE), the Algonquin-speaking groups in eastern Ontario continue to practice a hunting and gathering subsistence economy that has not changed much since the Archaic. However, it is likely that some horticultural activities were undertaken. Although referred to as the Early Iroquois Period in Iroquois- speaking territory to the west, in eastern Ontario, this period is referred to in the literature as the Pickering Complex.

The Pickering Complex in eastern Ontario is defined by a distinct ceramic tradition, which shifts from cord impressions to linear and dentate stamps and exterior bossing along the neck and rim and ribbed paddle or checked stamps on the body of the vessel. Other distinctive technology during this period includes triangular shaped projectile points, bone awls and beads, and ceramic pipes. In addition, Iroquoian-like ceramic vessels appear in small numbers in northeastern Ontario and northwestern Québec (Guindon 2009:68). The presence of these ceramics suggests a change in the interaction network that had been in place between the residence of the Ottawa River watershed and the Canadian Shield since the Archaic period. In Québec archaeologists have defined a period, Mamiwinnik (1350 to 1650 CE), which is characterized by the rapid increase in the number of Iroquoian pots found on Algonquin sites in northwestern Québec (Guindon 2009:85). This is important to note since people would have travelled up and down the Ottawa River and may have stopped at the mouths of any of the major tributaries in eastern Ontario to camp, trade or perform subsistence activities.

*Historic Period.* With the arrival of Europeans, distinguishing specific cultural groups inhabiting the region becomes less arduous, since it is now possible to draw upon ethnohistoric accounts, which could include the journals of early explorers and visitors to the more in-depth accounts of missionaries, who were charged by the European authorities and the Church with converting the Aboriginal population, often to the detriment of the First Nations, and thus obligated to provide details to their progress. However, piecing together the post contact First Nations history for the project area still remains challenging simply because little effort has been made to date to consolidate the known resources into a logical and comprehensive history.

The predominate First Nations group inhabiting the region at the time of contact are the Michi Saagiig (Mississauga Anishinaabeg). The following write-up was provided to CAGI from Curve Lake First Nation. It was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation. It has been been copied verbatim into this report so as to limit potential errors.

*The Michi Saagiig Nation*. The traditional homelands of the Michi Saagiig encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as "the people of the big river mouths" and were also known as the "Salmon People" who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the "Peacekeepers" among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the "Old Ones" who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5$^{th}$ transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi

Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun / Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

> *"We weren't affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.*

*There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.*

*We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.*

*Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis."*

Often times, southern Ontario is described as being "vacant" after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

Table 1. Summary of the First Nations archaeological sequence in southern Ontario.

| Date | Periods and Cultural Tradition |
|---|---|
| 11,000 BCE - 6,000 BCE | Palaeoamerican |
| 11,000 BCE - 8,000 BCE | Early Palaeoamerican |
| 8,000 BCE - 6,000 BCE | Late Palaeoamerican |
| 6,000 BCE - 800 BCE | Archaic |
| 6,000 BCE - 5,000 BCE | Early Archaic |

| | |
|---|---|
| 5,000 BCE - 2,500 BCE | Middle Archaic |
| 2,500 BCE - 800 BCE | Late Archaic |
| 1,000 BCE - 1,500 CE | Woodland |
| 1,000 BCE - 50 BCE | Early Woodland |
| 50 BCE - 950 CE | Middle Woodland |
| 950 CE - 1,500 CE | Late Woodland |
| 1,500 CE - Present | Historic |

### 1.3.3 Post-Contact Period

The first recorded European visitor to the Trent Valley region was Samuel de Champlain in 1615, who travelled from Lake Simcoe to New York State with a party of Hurons on a military campaign against the Oneida Iroquois (Trigger 1985:157, 180). Champlain's exact route is a matter of contention, but he probably portaged from the Otonabee River to Chemong Lake (Brunger 1972:44). There are indications in the historical and archaeological records that the Trent Valley was used only as an occasional transportation corridor and hunting-fishing territory by the Hurons in the seventeenth century (Sutton 1990:3). At that time, the main transportation corridor was the Ottawa River drainage to the north, while the main focus of Huron occupation was west and north of Lake Simcoe (Huronia). These were the areas of concentration for the French fur trade, and eventually mission colonies. In 1649-50, the Huron's settlements were destroyed by the Iroquois, and the people dispersed.

For the remainder of the seventeenth century, the upper and middle Trent Valley remained as a buffer zone between Algonkians on the south edge of the Canadian Shield, and the New York Iroquois on Lake Ontario and the lower Trent, including reportedly Rice Lake, where they are rumoured to have had a fortified village (Brunger 1985:99; MCR 1981:58). By the 1690s, French supported Algonkian bands forced a southward retreat of the Iroquois (MCR 1981:58). Algonquian-speaking Mississauga Ojibway bands then migrated south from Georgian Bay and established a permanent presence in the Trent Valley (MCR 1981:61-65), which by this time, was of little interest to the French (Brunger 1985:99).

The construction of the French outpost of Fort Frontenac near the mouth of the Cataraqui River in 1673, resulted in a sporadic European presence at the eastern end of Lake Ontario during the late seventeenth and eighteenth centuries. The main function of the fort was to store supplies intended for the military and trading posts. It was often abandoned when circumstances forced the retreat of the French military garrison. Fort Frontenac was surrendered to a British force in 1758 during the Seven Years' War, and all of New France surrendered by 1760.

The end of the French regime of Canada in 1760, brought little change to the region and British settlement along the north bank of the upper St. Lawrence River and the eastern end of Lake Ontario did not begin in earnest until 1784 when the counties opposite the New York border were settled by refugees of the American Revolution (Moore 1984:236). The Trent Valley became incorporated within the Newcastle District in 1798 (Brunger 1985:99), and township land surveys were begun. The Trent Valley was an unexploited frontier during the early stages of British colonization and attention did not turn to the northern regions of the district until the Lake Ontario fringe began to fill with settlers.

*Victoria County (Map 2).* Permanent European settlement of Victoria County proceeded roughly from south to north – according to the relative productivity of soils for agriculture – and saw several waves of immigrants from the British Isles. Ops Township was surveyed for settlement in 1828, and the first recorded homestead was that of Patrick O'Connell who settled on Lot 7, Concession 2 (Belden 1881:8). The rich farmland of the interlake area was in great demand and by the mid-1830s, most land suitable for agriculture was settled mainly by recent Irish immigrants (Capon 1974:9). Communities with services to support the new agriculturalists were generally oriented toward water bodies, with rapids being particularly important for the establishment of grist and sawmills, and eventually other services and industries. In this way, the village that would become Lindsay grew up above the rapids near the outlet of the Scugog River. The founders of the settlement were William Purdy and sons who had received a charter in 1829 to build mills on the future townsite (Belden 1881:8). The Purdy's mill dam raised the water level on the Scugog River by as much as three metres causing severe flooding on the low-lying land as far as the southern shore of Lake Scugog. A second mill dam built at Bobcaygeon soon after raised water levels of Sturgeon Lake and the widespread flooding sparked fever epidemics that plagued the area for decades. In the spring of 1838, flooded out farmers coming from as far south as Port Perry destroyed the Purdy dam by force with no opposition from the local authorities (Capon 1974:10). A new government dam was later built below the rapids of the river and the Purdy's were given special water privileges (Capon 1974:10). Somehow Lindsay survived in the early troubles and by 1852, the general census records 450 residents in the village.

Throughout the nineteenth and twentieth centuries, First Nation people maintain a presence in the middle Trent Valley. Treaty 20 gave title of the Newcastle District to the Crown in 1818, and reserves were established in 1829 for the Mississauga Ojibway at Scugog Lake, Curve Lake (the junction of Chemong and Buckhorn Lakes), Hiawatha on Rice Lake, and several on Lake Simcoe (Williams and McCue 1981:25). The total First Nation population of Mississauga in the region was thought to be about 1250 persons, with the residential affiliation remaining fluid throughout the reserves of the Kawartha Lakes (Hall 1990:155). These formerly northerly Algonkian peoples did not establish long term, continuously inhabited settlements at specific reserve locations until forced to do so by Indian agents following increasing immigration pressure and Canadian Confederation in the 1850s and 1860s (Hall 1990:152).

*City of Kawartha Lakes*. The City of Kawartha Lakes is the product of an amalgamation of the communities of Bobcaygeon, Fenelon Falls, Linsday, Omemee and Woodville and the former Victoria County. The amalgamation came into effect in 2001 during the reign of Mike Harris, former Premier of the Province of Ontario. The name "Kawartha" is derived from the Anishinaabe *Kawatha* which means "land of reflections." This perfectly suits the area as it is comprised of a multitude of lakes, rivers, creeks and low-lying areas.

### 1.3.4 Study Area History

*Town of Lindsay*. Lindsay straddles the Scugog River and is the seat for the City of Kawartha Lakes (formerly Victoria County). It is situated within the Geographic Township of Ops which was surveyed in 1825 by Colonel Duncan McDonell. The area witnessed immediate movement into the area and settlement of the Village began shortly after the town site was surveyed. The village flourished around Purdy's mills (sawmill and grist mill) and grew into a lumbering and farming centre of the region.

The Port Hope, Lindsay and Beaverton Railway (PHL&B) reached the town in 1857 and provided an impetus for additional growth and development. The town was incorporated in the same year. A second railway made its ways to the town in 1871. Known originally as the Fenelon Falls Railway, then as the Fenelon Falls & Ottawa River Valley Railway and then as the Victoria Railway, it connected with the Midland Railway at Victoria Junction on William Street North. The third railway was the Port Whitby & Port Perry Railway, which extended from Port Perry to Lindsay in 1876. By 1877, the railway was known as the Whitby, Port Perry & Lindsay Railway (WPP&L). By 1887, the Midland Railway made Lindsay its headquarters.

### 1.3.5 Summary

The land registries, census records and historic maps show that this area was mainly rural and had a low level of occupancy in the eighteenth and nineteenth centuries (and even the twentieth and twenty-first) centuries. Through historical background research, there is no evidence to suggest that the any of the project area was occupied during the Euro-Canadian settlement of the the township.

## 1.4 Archaeological Context

### 1.4.1 Current Conditions

The entire Project Area was comprised of road right-of-ways with residences, commercial and industrial buildings on either side of the corridors. Natural vegetation was not present and there were manicured lawns, ornamental trees and shrubs, asphalt pavement and concrete walkways present within the PA.

### 1.4.2 Physiography

The assessment of physical and environmental conditions of a region is important to the analysis of past human settlement behaviour as well as for the interpretation of features and site patterns on the landscape. The cultural development of every society is strongly influenced by the surrounding natural environment which provides a finite set of resources that humans use to fulfill a variety of needs. Geomorphology, soils, water sources, climate, and vegetation are all significant factors in understanding patterns on the landscape. Changes in the landscape over time influences the types of cultural materials found during an archaeological assessment as well as their visibility.

*Location.* The project area is located within the City of Kawartha Lakes in the Geographic Township of Ops, Victoria County. The project area is flat but is surrounded by elevated areas (drumlins). Although drained by the Scugog River, which flows to the east, the PA are surrounded mostly by residence and commercial areas (Image 1).

Victoria County is located in central Ontario, north and east of Ontario County, north of the Geographic Township of Carden, northwest of the Geographic Township of Laxton, west of the Geographic Township of Digby and southwest of the Geographic Township of Longford. The Town of Lindsay is the closest urban centre, although there are a number of smaller towns and villages in the surrounding area such as Little Britain, Reaboro, Cunningham's Corners, Elm Tree Corners, O'Donnell Landing, Linden Valley and Cambray. The Geographic Township of Ops is situated within the southcentral portion of the county.

*Glacial History and Geomorphology.* Landscape features seen today are the result of the most recent period of glaciation. Beginning with the Illinoian glacier and ending with the Wisconsinan, the ice masses advanced as far south as Ohio and as far east as the continental shelf edges. The first interstadial period, the Sangamonian, witnessed ice retreat of the Illinoian glacier as far north as Hudson Bay. At this time, Easton (1992) posits that global temperatures were warmer or similar to that which we experience today. This period extended until approximately 75,000 years BP with the onset of the Wisconsinan glaciation.

The Wisconsinan glaciation is characterized by a series of advances (stadials) and retreats (interstadials), scouring, transporting and depositing surface materials across Ontario. Seven major stadials and six interstadials, along with several minor phases, have been recorded (Table 2).

Table 2. Major stadial and interstadial periods, including timelines and features, of the Wisconsinan glaciation (taken from Remmel 2009:20-23).

| Period | Stadial / Interstadial | Years BP | Feature /s |
|---|---|---|---|
| Nicolet | Stadial | 70,000 | -blocked the St. Lawrence River<br>-caused water to dam into Lake Scarborough<br>-created the Scarborough Bluffs |
| St. Pierre | Interstadial | 67,000 | -St. Lawrence is free of ice<br>-Great Lakes waters drain towards the Atlantic Ocean |
| Guildwood | Stadial | 55,000 | -ice covers all of Ontario and extends into northern US |
| Port Talbot | Interstadial | 48,000 - 36,000 | -two warm intervals separated by a cold phase<br>-palynological studies indicate boreal tree taxa<br>-meltwaters drain through present-day New York |
| Cherrytree | Stadial | 35,000 - 28,000 | -ice sheet covers most of Southern Ontario<br>-formation of Glacial Lake Thorncliffe |
| Plum Point | Interstadial | 27,000 | -ice retreats across Ontario |
| Nissouri | Stadial | 20,000 | -ice sheet reaches maximum extent |
| Erie | Interstadial | 15,000 | -ice retreats<br>-Lake Erie drains eastward through the St. Lawrence River |
| Port Bruce | Stadial | 14,000 | -ice advances across Ontario and into US |
| Mackinaw | Interstadial | 13,000 | -ice retreat causes splitting of ice lobes<br>-split exposes a dome of higher land called Ontario Island<br>-Proglacial Lakes Arkona I, II and III form at southern ice margins |

| | | | |
|---|---|---|---|
| Port Huron | Stadial | 12,900 | -short-lived advance<br>-Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form |
| North Bary | Interstadial | 11,840 - 8,100 | -warmer climate<br>-ice retreats across Canadian Shield<br>-drainage flows east<br>-formation of Glacial Lake Grassmere |
| Driftwood | Stadial | 8,200 - 8,100 | -deposition of clay tills in the Lake Barlow-Ojibway region<br>-about 8,000 Glacial Lakes Ojibway and Agassiz catastrophically drain into Hudson Bay |

The North Bay Interstadial, as it retreated across the landscape, exposed our project area.

Retreat during this phase was quite rapid and a number of post glacial lakes developed as a result of meltwater flow and drainage, ice dams and glacial deposits (i.e., Lake Algonquin, Lake Iroquois, Lake Erie and the Champlain Sea). Consequently, substantial areas would have been inundated by the copious flow of meltwaters at elevations well above modern sea levels before the formation of drainage outlets. Three major drainage outlets formed during this period: the Kirkfield Outlet (~11,500 BP) which drained Lake Algonquin into Lake Iroquois across the Kawarthas (south of the project area); the Fossmill Outlet (~10,800) which drained Lake Algonquin into the Champlain Sea to the Atlantic Ocean through Algonquin Park by way of the Petawawa and Barron Rivers; and, the Mattawa Outlet was exposed as the glacier receded northward and exposed lower outlets (~10,000) which continued to drain Lake Algonquin into the Champlain Sea via the Mattawa River (north of the project area) (Chapman and Putnam 1984:25-39; Larsen 1987:19; and Kaszycki 1985).

In existence from ~12,800 BP - 10,000 BP (Chapman and Putnam 1984:39; Gadd 1980), the Champlain Sea was a temporary inlet of the Atlantic Ocean. Although the maximum extent of this marine transgression is not yet known in specific terms, it has been posited that its eastern limits extended to the clay beds found within Leeds County and the Frontenac Axis, an eastern extension of the Canadian Shield which reaches into the Appalachian region of the United States. We also know that the northwestern arm of the Champlain Sea extended just north of Deep River (Barnett 1988). Unfortunately, because of the rocky nature of the region, the shoreline features of the western extension of the Champlain Sea remain unknown (Chapman and Putnam 1973:117).

As these glacial water sources drained, the zones created could have supported an extensive variety of animal, insect, bird, and vegetation species. Resource exploitation of these zones by early peoples is supported by the discovery of archaeological sites along the edges of ancient shorelines (palaeoshorelines) across North America.

*Palaeoecology*. The last ice age completely disturbed vegetational patterns throughout the Eastern Ontario. Climatic warming marked an official end to the Pleistocene Period and caused an abrupt change in the composition of forests, woodlands and parklands south of the ice sheets.

With deglaciation, vegetation migrated northwards and different species populated the ice free margins. Palynological analysis of pollen grains (Pielou 1991; Remmel 2009:30; Wright 1966) illustrates that more diversified vegetation developed with slight differences noted between the west side of the continent and the lowlands and east side of the continent. Furthermore, the process of recolonization depended on the production rates of different species and their ability to grow on freshly exposed terrain which may have reduced pH levels (Matthews 1992:122). Initially, species more common to herbaceous tundra environs grew (i.e., herbs, mosses and lichens) followed by shrub tundra communities (i.e., sedges and small shrubs) and then to spruce (Picea ssp.) and poplar (Populus ssp.) woodlands. Warming temperatures also encouraged deciduous growth like hemlock and beech and also caused treelines to shift northward, terrestrial and marine species to increase their range northward, and in the mountains, caused the above to shift to higher elevations.

Taxa noted within the project area is today, not much different from that which it would have been thousands of years ago. The project area lies within the Northern Hardwood Forest, which is within the Great Lakes-St. Lawrence Forest ecoregion. This is a transitional forest which illustrates an overlap of northern needle-leaved trees and southern broad-leaved deciduous trees and produces a mosaic of various vegetative communities controlled by local climate and soils.

Climatic upheavals wrought diverse changes amongst terrestrial and marine animal and bird migration patterns and habitats. It may be assumed that mammals typically found today in these environments, would have been present during the late Pleistocene and early Holocene Periods in the project area (i.e., caribou, bear, fox, hare, chipmunk, squirrel, mouse, weasel, lemming, vole, moose, porcupine and bat) (Remmel 2009:32). Today, mammals such as black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*) and wolf (*Canis lycaon*) are commonly seen throughout the region. Furthermore, marine fossils in the vicinity of the former Champlain Sea indicate large mammals such as whale, walrus and seal inhabited the area during the open-water season (Chapman and Putnam 1984; Cronin 1977; Loring 1980). As these mammals would have migrated into the region following their

food sources, it is also safe to assume that smaller marine life, whose skeletal existence may not have survived to become part of the archaeological record, were present.

Moreover, as the prevailing climate of the time would likely have meant that the Champlain Sea would have frozen over during the winter season, marine mammals would have been forced to migrate into the Gulf of St. Lawrence, where the waters were open. However, as hypothesized by Loring (1980:35), "local populations of belugas or seals might have been trapped in areas of open water surrounded by ice and would have been easily killed by hunters..." This suggests that marine as well as terrestrial exploitation of food resources would have been an important aspect of subsistence practices of the local indigenous populations. Therefore, the probability of at least a partial maritime-based economy in the region of the project area is high.

*Physiography and Geology.* The project area is located within the Mixed Wood Plains ecozone. According to Natural Resources Canada (2011), the Mixed Wood Plains can be characterized by the following description:

> "... topography ranges from extremely flat areas in the southwest and southeast to rugged terrain of the Niagara Escarpment. Vegetation is diverse, characterized by mixed deciduous-evergreen forests and tolerant hardwood forests including those forests known as Carolinian forests. Alvars and tallgrass prairies also occur. Wetlands are numerous in certain areas, although many wetlands have been drained. Carolinian Canada (the most southerly portion of this ecozone) boasts the highest concentration of species in Canada. The number of species at risk is also high."

Bedrock geology within the project area is comprised of Ordovician rocks. The Shield is broken into many sections, or "provinces." Almost 3 billion years ago, these provinces began to rub against each other, causing friction and a build up of pressure. Many fissures and faults were created in the area as the Earth's crust twisted, sheared, and folded. Molten material, specifically andesite, a dark grey coloured rock, was forced up through the fissures to the surface. As it reached the ground, the new rock, in some cases carrying precious metals such as gold and silver, cooled and became part of the landmass. These ancient folded rocks are known as Greenstone belts which eventually were overlain with more recent glacial sediments.

Sedimentary rocks of Paleozoic and Mesozoic age formed between approximately 570 to 66.4 million years ago, during a global warming period, when several periods of marine inundation of North America were responsible for the deposition of thick layers of sediments which eventually resulted in the formation of shale, limestone and sandstone (Eyles 2002:5).

The area surrounding the project area is composed of Upper Ordovician. Specifically, the project is located within a formation which includes such rocks as shale, limestone, dolostone and siltstone. These formations usually include chert formations. The project area is surrounded by rocks of this origin.

One of the most common characteristics of Palaeoamerican material assemblages is the prevalence of cherts and similarities of lithic tools across wide ranging regions (Mason 1981, 1986; Goodyear 1989). Chert is a fine-grained, siliceous material which is easy to knap and therefore commonly used in the production of stone tools. In addition to chert use, quartz materials were also widely utilized, particularly in more northern regions or within the Canadian Shield, where quartz and quartzite materials were more locally available.

The physiography of the study area encompasses one surficial geology type, till plains (drumlinized). However, it is surrounded by quite complex surficial deposits. These surficial types are the result of glacial recession and melting as well as inundation of the area by Lake Iroquois and include clay plains, kame moraines, sand plains, peat and muck and eskers.

*Soils*. Soil, in terms of its morphological characteristics, is defined as unconsolidated surface material forming “natural bodies” made up of mineral and organic materials as well as the living matter within them. It is a dynamic entity with materials continually and simultaneously absorbed, released and transformed.

The formation of soils is heavily influenced by its parent material, climate, topography, bio-activity and time, however, it is mainly the combined effects of climate and living matter that convert a material to soil. For example, in moisture-rich environs, the dampness and rich vegetation may lead to deep, richly organic soils, good for agricultural production. However, in desert areas, where precipitation is low, the lack of moisture and vegetation may lead to sparse soil development and where soils exist, they may be thin and highly mineral. Furthermore, human disturbances such as grave sites, dwellings, agricultural activities and garbage dumps may also affect soil development, giving it other unique characteristics.

The soils of the project area formed to their current composition over the past 10,000 years or so; since glacial melting at the end of the last ice age. Soils formed from glacial deposits vary in composition depending on the rock type over which the glacier travelled. Since glaciers advance and retreat with time, the composition and depositional environment of the parent material can be quite complex. Overall, the texture of soil produced in glacial deposits reflects the mode and distance of transport as well as the type of rock scoured. Shale and limestone scouring tends to produce a soil with relatively more clay and silt-size materials, whereas igneous and metamorphic rocks produce mostly sandy soils. Deposits beneath the ice usually result in finer textured, denser materials, whereas outwash and front and side deposits are generally coarser. Furthermore, glacial till, glaciofluvial and glaciolacustrine sediments often

occur in close association. With time, soil horizons, or “zones within the soil that parallel the land surface and have distinctive physical, chemical and biological properties” develop (Holliday 2004:3). Soil horizons together, form a profile; a vertical arrangement of horizons seen in a two-dimensional arrangement (what we see during observations).

The soils of VC vary considerably across the County, with glacial surface deposits (i.e., drumlins, eskers, etc.) and deep, well-drained soils (Gillespie et al. 1981). The only limitations associated with the soils are depressional, wet and heavy areas and stoney areas of excessive drainage. The project area is comprised of a single soil type (Solmesville clay loam) but is closely situated to a number of others (Otonabee loam, Simcoe clay, Cramahe gravel, and muck) (Table 3).

Table 3. Soil characteristics of the project and immediately surrounding area.

| Soil Type | Texture | Topography | Drainage | Great Group |
|---|---|---|---|---|
| Solmesville clay loam (Socl) | few stones | undulating | imperfect | Gray-Brown Podzolic |
| Otonabee loam (Ol) | moderately stoney | rolling to hilly | good | Brown Forest |
| Simcoe clay (Sic) | stonefree | level | poor | Dark Gray Gleisolic |
| Cramahe gravel (Cg) | very stoney | hilly | excessive | Brown Forest |
| Muck | stonefree | depressional | poor | Organic |

*Hydrology*. The modern water courses we see today evolved as their ancestral waterways and their tributaries adjusted to the retreat of the Champlain Sea, and to a lesser degree, Lake Iroquois. During glacial melt and ice retreat at the end of the Pleistocene and beginning of the Holocene periods, there was a much larger flow of water through the project area than at present and on several occasions, rivers shifted into new channels. However, by approximately 8,000 years ago, modern drainage patterns were established (Kennedy 1970).

The project areas are all located within the larger St. Lawrence watershed, and is drained via a number of meandering waterways (Map 1). Watersheds are typically defined by the topography of the surrounding landscape and includes such factors as shape, contours and elevations. They are comprised of streams, creeks, brooks, rivers, lakes, ponds, wetlands, estuaries, uplands, forests and meadows and also shorelines.

Present within, or within relative close vicinity to the project area today are lakes (i.e., Goose Lake, Balsam Lake, Pigeon Lake, etc.) rivers (i.e., Scugog River, Pigeon River, etc.), creeks and

streams (i.e., McLaren Creek, Stony Creek, Emily Creek, Mariposa Brook, etc.) and a number of low-lying and wet areas identified as marsh or swamp. Although the geography of the area has been largely shaped by the geomorphology of the region, many of these watersheds have been altered by human intervention; a by-product of development.

Water routes played a very important role in the early development of Canada and served as a transportation route for pre-contact First Nations groups prior to European arrival. These water sources were used to traverse the interior of the province prior to the construction of railways and roads. The potential for the discovery of archaeological resources increases drastically in particularly difficult areas along these routes, such as at rapids or chutes, where a portage was necessary. In addition, the shores of rivers and creeks were particularly attractive for temporary and semi-permanent settlement, especially in areas of the shore that were easily accessible by water. These areas were of particular interest, not only for their transportation value, but for access to potable water and foodstuffs, especially fish. The presence of secondary water sources, including permanently or seasonally inundated swamps, offered access to a variety of resources, including migratory birds, rice, and reeds for basket-making.

*Climate*. Modern climatic variation depends almost entirely upon location and human impacts on the environment. The PA, located in southern Ontario, is heavily influenced by the modifying factor of the Great Lakes; particularly Lake Ontario. The Great Lakes tend to add moisture to the air in the autumn and winter while at the same time protecting the region from the worst of the cold during the winter months, and during the spring and summer they act to moderate the temperature of the region. This produces an ideal environment for agricultural practices as the growing season tends to be longer and the cold months not as harsh as throughout the remainder of Canada.

### 1.4.3 Previous Archaeological Assessments

Archaeological research within Ontario is often limited to discoveries made during development activities. However, this does not necessarily reflect the known and unknown, yet unrecorded archaeological history of the area. Throughout the nineteenth and early twentieth century, as Euro-Canadian settlers and loggers penetrated the forests and lakes of the region, some would encounter and collect evidence of past First Nations activities, in the form of stone and copper tools, or organic paraphernalia. This practice continued well into the twentieth century and is still carried out to this day by cottagers, tourists, and local residents, some who have amassed significant collections. Furthermore, there are oral references to evidence of pre-contact First Nations occupation made by the first Euro-Canadian settlers to the region, which sometimes results in sites being “recreationally” excavated by non-professional archaeologists.

With increased sensitivity towards the need to preserve cultural heritage within the Province, hundreds of archaeological projects have been recently undertaken within Ontario. Often initiated by development projects, including infrastructure development and improvement, subdivision applications, and construction activity, First Nations and early Euro-Canadian history of the region is being revealed.

A search of the database of archaeological assessments found that one archaeological assessment had been conducted within the PA. This was the Stage 1 background study undertaken for this project. It found that the property retained archaeological potential for both pre- and post-contact First Nations as well as historic Euro-Canadian cultural materials (P248-0332-2018).

### 1.4.4 Registered Archaeological Sites

The Ontario Ministry of Citizenship and Multiculturalism maintains a database (OASD) of all known registered archaeological sites in the Province. A search of the database within a one kilometre radius around the study area indicates the presence of three (3) registered archaeological sites (Table 4).

Table 4. Registered archaeological sites within a one kilometre radius.

| Borden # | Site Name | Time Period | Affinity | Site Type | Development Status |
|---|---|---|---|---|---|
| BcGq-9 | Kuypers | Post-Contact | Euro-Canadian | midden | |
| BcGq-11 | Mason | Archaic, Late | Aboriginal | findspot | |
| BcGq-12 | | Post-Contact | Euro-Canadian | farmstead | No Further CHVI |
| BcGq-15 | Carew | Post-Contact | Euro-Canadian | midden | No Further CHVI |

The Kuypers site (BcGq-9) was first recorded by Paul Racher in 1998. The site consisted of a number of nineteenth century, Euro-Canadian artifacts including ceramics, glass, metal, buttons, pipes, brick, bone, shell, slate and wood. No other information is provided for this site within the database.

The Mason site (BcGq-11) is an Archaic period campsite, first noted by David Robertson in 2005. The site is situated within a wetland which is only accessible during dry times of the year. Robertson identified the lithic artifact as being a Late Archaic Crawford Knoll type projectile point made of Onondaga chert. No other cultural materials were noted.

BcGq-12 is an Euro-Canadian farmstead site comprised of historic ceramics and glass artifacts. No further archaeological work was recommended

BcGq-15 is an Euro-Canadian midden recorded by Shane McCartney in 2020. It consisted of ceramics, metal and glass. No further archaeological work was recommended.

### 1.4.5 Historical Plaques

Aside from the presence of nearby registered archaeological sites, other indicators of the presence of extant archaeological remains are the proximity of historical plaques to the study area that commemorate important events in a region's past, whether it be the birth of an individual, the site a specific battle, or the construction of a unique building. Generally, historical plaques and markers point to a specific locale on the landscape that can be visited by the public. Although plaques and markers may not be placed in the exact location that the event has occurred, generally it is in close proximity, taking into consideration access to the public. In Ontario, historical plaques may be erected by the federal government through the Historic Sites and Monuments Board of Canada (HSMBC), the Ontario Heritage Trust (OHT), and local heritage agencies or historical societies. There are no historical plaques or markers within the study area.

### 1.4.6 Summary

Archaeological and cultural heritage work conducted in the immediately surrounding area has not provided any evidence of archaeological remains. However, the physical setting of the project area indicates that it may retain potential for extant cultural materials associated with pre-contact First Nations and Euro-Canadian settlement in the area.

Pre-contact First Nations groups migrated across Ontario, likely following the ice sheet as it receded northwards and adapting to the changing environment. The newly exposed landscape would have been a productive ecozone, with large numbers of terrestrial and marine mammals, birds, insects and vegetation populating the margins. This biomass would have been considerable and would have offered a readily available food source for migrating populations. Archaeological and cultural heritage work conducted in the surrounding area has provided evidence of archaeological remains, dating back to the Late Archaic period and extending into the Historic period.

## 2.0 FIELD METHODS

A Stage 2 property assessment was undertaken on the proposed project area in accordance with the recommendations forwarded in the *Stage 1 Archaeological Assessment, Proposed Reconstruction and Roadway Widening on Angeline Street from Colorne Street to Roosevelt Street City of Kawartha Lakes, Formerly Township of Ops, Victoria County*. This study stated:

> A Stage 2 archaeological assessment will be conducted by a licensed consultant archaeologist using the test pit survey method at 5 m intervals in all areas along the corridor which have not been recently ploughed or do not have appropriate conditions for pedestrian survey at the time of the Stage 2 assessment (as illustrated by the areas marked in red on Maps 9 and 10). Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts be recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 metres within 5 metres of the positive test pit, as well as a one-metre test unit if necessary;
>
> No further archaeological assessments are recommended for areas which have been determined to be disturbed (as illustrated by the areas marked in yellow on Map 9);
>
> and,
>
> The Stage 2 archaeological assessment will follow the requirements set out in the 2011 Standards and Guidelines for Consultant Archaeologists (MTC 2011).

As a result of the above recommendations, the Stage 2 property survey was undertaken by The Central Archaeology Group Inc. on November 25 and 26, 2021.

This report was submitted to the MTCS on April 21, 2021. It has not yet been reviewed by the MTCS as of May 31, 2022.

Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (2011:28-30), states that the entire property, including lands immediately adjacent to built structures (both intact and ruins), must be surveyed. However, it is further stated that survey is not required where:

1) lands are evaluated as having no or low potential based on the Stage 2 identification of physical features of no or low archaeological potential, including but not limited to: permanently wet areas; exposed bedrock; and, steep slopes (>20$^{O}$) except in locations likely to contain pictographs or petroglyphs;

2) lands are evaluated as having no or low potential based on the Stage 2 identification of extensive and deep land alteration that has severely damaged the integrity of archaeological resources;

3) lands have been recommended to not require Stage 2 assessment by a Stage 1 report, where the Ministry has accepted the Stage 1 report into the Ontario Public Register of Archaeological Reports;

4) lands are designated for forest management activity without potential for impacts to archaeological sites, as determined through the Stage 1 forest management plans process (see section 1.4.3);

5) lands are formally prohibited from alteration such as areas in an environment easement, restrictive setback, or prohibitive zoning, where the constraint prohibits any form of soil disturbance. (Open space and other designations where allowable uses include land alterations must be surveyed.); and,

6) it has been confirmed that the lands are being transferred to a public land-holding body, e.g., municipality, conservation authority, provincial agency. (This does not apply to lands which a future transfer is contemplated but not yet confirmed.)

Furthermore, if the project area has been identified as needing a property survey, the survey should be undertaken when the weather and lighting conditions permit good visibility of land features. Survey should *not* take place when weather and lighting conditions (e.g., snow cover, frozen ground, heavy fog) reduce the chance of finding evidence of archaeological resources. During survey a Global Positioning System (GPS) should be used to record the locations of all diagnostic artifacts; sufficient artifacts to provide an estimate of the limits of the archaeological site; and all fixed reference landmarks. All field activities must be mapped in reference to fixed landmarks, survey stakes and development markers and all mapping must be accurate to five metres or to the best scale available. Photo-document examples of all field conditions encountered. Do not use heavy machinery to remove soil, except when removing sterile or recent fill covering areas where it has been determined that there is the potential for deeply buried or sealed archaeological sites (e.g., in urban areas, floodplains).

In addition to the above, Section 7.8.1.2 further posits that detailed and explicit descriptions be provided for:

a. How each standard was addressed for property survey generally (Section 2.1, MTCS 2011:28-30).

Areas identified as retaining archaeological potential (Maps 2 and 3) were subject to a test-pit survey at five metre intervals (Maps 4 and 5).

Survey took place under suitable lighting conditions and there was no heavy fog or excessive precipitation. GPS co-ordinates taken on a Trimble GeoXH handheld GPS unit with Hurricane Antenna (using datum NAD 1983).

Field activities were mapped with the Trimble GeoXH handheld GPS unit, which after post-processing, provided accuracy of co-ordinates of less than 100 cm deviation. Photographs were taken of field conditions (Maps 4 and 5; Images 2 to 9) and a discussion of these can be found within the *Results* sub-section of this section of the report (Table 7). Heavy machinery was not utilized by The Central Archaeology Group Inc. for this project.

b. How each standard was addressed for pedestrian survey and test pit survey (Section 2.1.1, MTCS 2011:30-31).

All of the land recommended for a Stage 2 property survey was situated along Angeline Street North and ploughing could not be undertaken. Section 2.1.2 of the Standards and Guidelines for Consultant Archaeologists stipulates that lands within 300 m of any feature of archaeological potential be examined at a maximum interval of 5 m, and any lands more than 300 m from such features be examined at a maximum interval of 10 metres (MTCS 2011:31–32). Given the presence of multiple indicators of archaeological potential in the vicinity of the study area (e.g. water source), a five metre interval was adopted for the property assessment.

In accordance with Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists*, each test pit was excavated into the first five cm of subsoil or to bedrock (MTCS 2011:32). The resultant pits were then examined for stratigraphy, cultural features and/or evidence of fill. The soil from each test pit was screened through 6 mm mesh and examined for archaeological materials. If archaeological materials were encountered over the course of the test pitting survey, each Positive Test Pit would be documented and all artifacts would be collected according to their associated test pit. All test pits were backfilled upon completion (MTCS 2011:32).

No cultural materials were encountered.

c. Address any differences in approach for areas possessing different conditions.

Not applicable.

d. How each standard was addressed where alternative methods acceptable through guidelines of special conditions were used.

No alternative methods were applied during the Stage 2 property assessment.

Finally, Section 7.8.1.3 (MTCS 2011:137) requests estimates of the percentage of each of the following be provided:

a. The property surveyed, by coverage and survey interval.

Area of Stage 2 Assessment : 100%
Property assessed by test pit survey at five metre intervals: 20%
Property assessed by pedestrian survey at five metre intervals: 0%
Property not assessed because of areas of no archaeological potential: 80%

b. The property not surveyed because there were areas of no or low archaeological potential.

The only areas not surveyed were the roadway and intersections.

c. The property where standard survey intervals could not be maintained due to pockets of exposed bedrock or other physical constraints.

Not applicable.

## 2.1 Results

The Stage 2 archaeological assessment of the Project Area was conducted on November 25 and 26, 2021 under the field direction of Laura McRae, MA (P248). At no time were the weather or lighting conditions detrimental to the observation or recovery of archaeological resources.

The project area was accessed via Angeline Street North.

Soil colours were identified using *Munsell Soil-Color Charts* (2009) to ensure uniformity in recording. Colours were noted when soils were freshly excavated and slightly damp. Although compaction was based on a slightly modified version of the clay and sand density tests provided on the Geotechnical Gauge by W. F. McCollough. Where the clay density test by W. F. McCollough identified six clay consistencies, only three consistency classifications for clay were used during the course of investigations, which included: loosely compacted, moderately compacted, and densely compacted. A comparison of the two methods is provided in Table 5. With sand, the Geotechnical Gauge by W. F. McCollough provided five soil types and the associated field test, whereas this was reduced to three categories for the purposes of this study as well, which included loosely compacted, moderately compacted, and densely compacted. A comparison of the two methods is provided in Table 6.

Table 5. Comparison of W. F. McCollough and CAGI clay compaction classification.

| | W.F. McCollough | CAGI |
|---|---|---|
| Clay Consistency | Thumb Penetration | CAGI Classification |
| Very Soft | Easily penetrated several inches by thumb. Exudes between thumb and fingers when squeezed in hand. | LOOSELY COMPACTED |
| Soft | Easily penetrated one inch by thumb. Molded by light finger pressure. | LOOSELY COMPACTED |
| Medium Stiff | Can be penetrated over 1/4" by thumb with moderate effort. Molded by strong fingers pressure. | MODERATELY COMPACTED |
| Stiff | Indented about 1/4" by thumb but penetrated only with great effort. | MODERATELY COMPACTED |
| Very Stiff | Readily indented by thumbnail. | DENSELY COMPACTED |
| Hard | Indented with difficulty by thumbnail. | DENSELY COMPACTED |

Table 6. Comparison of W. F. McCollough and CAGI sand compaction classification.

| | W.F. McCollough | CAGI |
|---|---|---|
| Sand Consistency | Thumb Penetration | CAGI Classification |
| Very Loose Sand | Easily penetrated with 1/2" reinforcing rod pushed by hand. | LOOSELY COMPACTED |
| Loose Sand | Easily penetrated with 1/2" reinforcing rod pushed by hand. | LOOSELY COMPACTED |
| Medium Dense Sand | Penetrated a foot with 1/2" reinforcing rod driven with a 5lb hammer. | MODERATELY COMPACTED |
| Dense Sand | Penetrated a foot with 1/2" reinforcing rod driven with a 5 lb hammer. | MODERATELY COMPACTED |
| Very Dense Sand | Penetrated only a few inches with 1/2" reinforcing rod driven with a 5 lb hammer. | DENSELY COMPACTED |

The frequency of roots and stones within a soil horizon was divided into: a) small or low percentage; b) medium or moderate percentage, and; C) high or heavy percentage. This system of classification is based on the inclusions frequency chart within the Geotechnical

Gauge by W. F. McCollough, where a 3% to 15% frequency of roots and stones within the soil horizon was determined to be small or low; 15% to 40% was determined to be medium or moderate, and; 40% and above was considered high or heavy.

Within the areas of test-pitting, stratigraphy was typically comprised of three levels: O horizon, A horizon and B horizon. Disturbance, in the form of aggregate materials and fill, was also noted along the corridor.

The humus level was between 4 and 9 cm thick and moderately compacted with a medium percentage of small- to medium-sized pebbles and a high percentage of rootlets. It had a sandy clay texture and was typically dark gray (7.5YR 4/1) to dark brown (7.5YR 3/3).

The A horizon (topsoil level) was gray (7.5YR 5/1) to brown (7.5YR 4/3) ranged in thickness between 14 and 36 cm. The level was also moderately compacted and there were a medium percentage of pebbles and rootlets. Its texture was comprised of sandy clay.

Subsoil was more densely compacted and sandy clay to clay. It was gray (7.5YR 6/1) to light brown (7.5YR 6/4). The soils had a low percentage of small-sized pebbles. No rootlets were noted within this level.

Maps 4 and 5 shows the location of the points from which the photographs were taken. A description of each photograph is provided in the table below (Table 7).

Table 7. Photograph and description.

| Photo # | Description |
|---|---|
| 2 | Viewing north along Angeline Street North from approximately 180 metres north of Kent Street West. |
| 3 | Viewing south along Angeline Street North towards Kent Street West. |
| 4 | Viewing north along Angeline Street North towards a parking lot. |
| 5 | Viewing north from the parking lot towards the school grounds. |
| 6 | Viewing northeast across Kent Street West. |
| 7 | Viewing south along Angeline Street North from north of Colborne Street West. |
| 8 | Test pit from the east side of Angeline Street north, close to the hospital.This test pit was 32 cm deep. The soils were all sandy clay and moderately to densely compacted. Aggregate materials were noted throughout. No cultural materials were recovered. |

| | |
|---|---|
| 9 | Test pit from the east side of Angeline Street North, north of Chadwin Drive. The humus level was moderately compacted with a sandy clay texture. It was 6 cm thick. Topsoil was 21 cm thick with a medium percentage of small pebbles. It was a moderately compacted sandy clay. Subsoil was very clayey and densely compacted. No cultural materials were recovered. |

## 3.0 ANALYSIS AND CONCLUSIONS

Section 7.8.2, *Record of Finds,* of the *Standards and Guidelines for Consultant Archaeologists* (2011:137-138), formulated by the Ontario Ministry of Citizenship and Multiculturalism requires that this section contain all finds but for non-archaeological cultural heritage features (i.e., built heritage, cultural heritage landscapes) unless those features are part of or relevant to the archaeological record (MTCS 2011:137).

The Stage 2 archaeological assessment for Oshawa Windfields Connection Project did not recover any archaeological or cultural materials.

Further to the above, the standard that is articulated in Section 7.8.3.2b of the standards and guidelines (MTCS 2011:139) requires that this section of the report include a comparison against the criteria in Stage 2 Property Assessment to determine whether further assessment is required. Those elements of the standard are addressed below.

The standard that is specified in Section 7.8.1.2a of the standards and guidelines (MTCS 2011:137) requires that this section of the Stage 2 report provide detailed and explicit descriptions of how each standard was address for property survey. The standard that is articulated in Section 2.1.1 of the standards and guidelines (MTCS 2011:28) requires that the entire property be included in the survey.

Area of Stage 2 Assessment : 100%
Property assessed by test pit survey at five metre intervals: 20%
Property assessed by pedestrian survey at five metre intervals: 0%
Property not assessed because of areas of no archaeological potential: 80%

Accordingly, the survey satisfies this standard.

The standard that is articulated in Section 2.1.3 of the standards and guidelines (MTCS 2011:29) requires that the property be surveyed when weather and lighting conditions permit good visibility of land features. The weather and lighting conditions that pertained during the assessment that is described within this report satisfies this standard. The standard that is articulated in Section 2.1.5 of the standards and guidelines (MTCS 2011:29) requires that assessment reports map all field activities (e.g., extent and location of field methods, survey intervals) in reference to fixed landmarks, survey stakes and development markers. The standard also requires that mapping must be accurate to a five metre scale or to the best scale available. The mapping in this report satisfies this standard.

As no archaeological resources were encountered, the assessment process as outlined by the Ministry of Citizenship and Multiculturalism may be considered complete. It is therefore recommended that the project area be cleared of archaeological concerns.

## 4.0 RECOMMENDATIONS

Based on the background research and the results of the property survey, the archaeological assessment has provided the basis for the following recommendations:

1) The Stage 2 archaeological assessment did not recover any material culture during survey activities. Consequently, significant pre-contact and historic First Nations or historic Euro-Canadian archaeological sites are unlikely to be found within the project area. It is therefore recommended that the project area be cleared of archaeological concerns.

Notwithstanding the results and recommendations presented in this study, The Central Archaeology Group Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. Therefore, in the event that archaeological remains are found during subsequent construction and development activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Citizenship and Multiculturalism should be immediately notified.

The MCM is requested to review, and provide a letter indicating their satisfaction with, the results and recommendations presented herein, with regard to the 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

## 5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act,* R.S.O. 1990, C. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Report referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act.* The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Cemeteries Act,* R.S.O. 1990 C. 4 and the *Funeral, Burial and Cremation services Act,* 2002, S.O. 2002, C. 33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

The licensee shall hold the archaeological collections, including copies of the study material and original notes generated during the course of research, in trust, unless it is transferred to an appropriate public institution as per the terms and conditions of holding a professional license.

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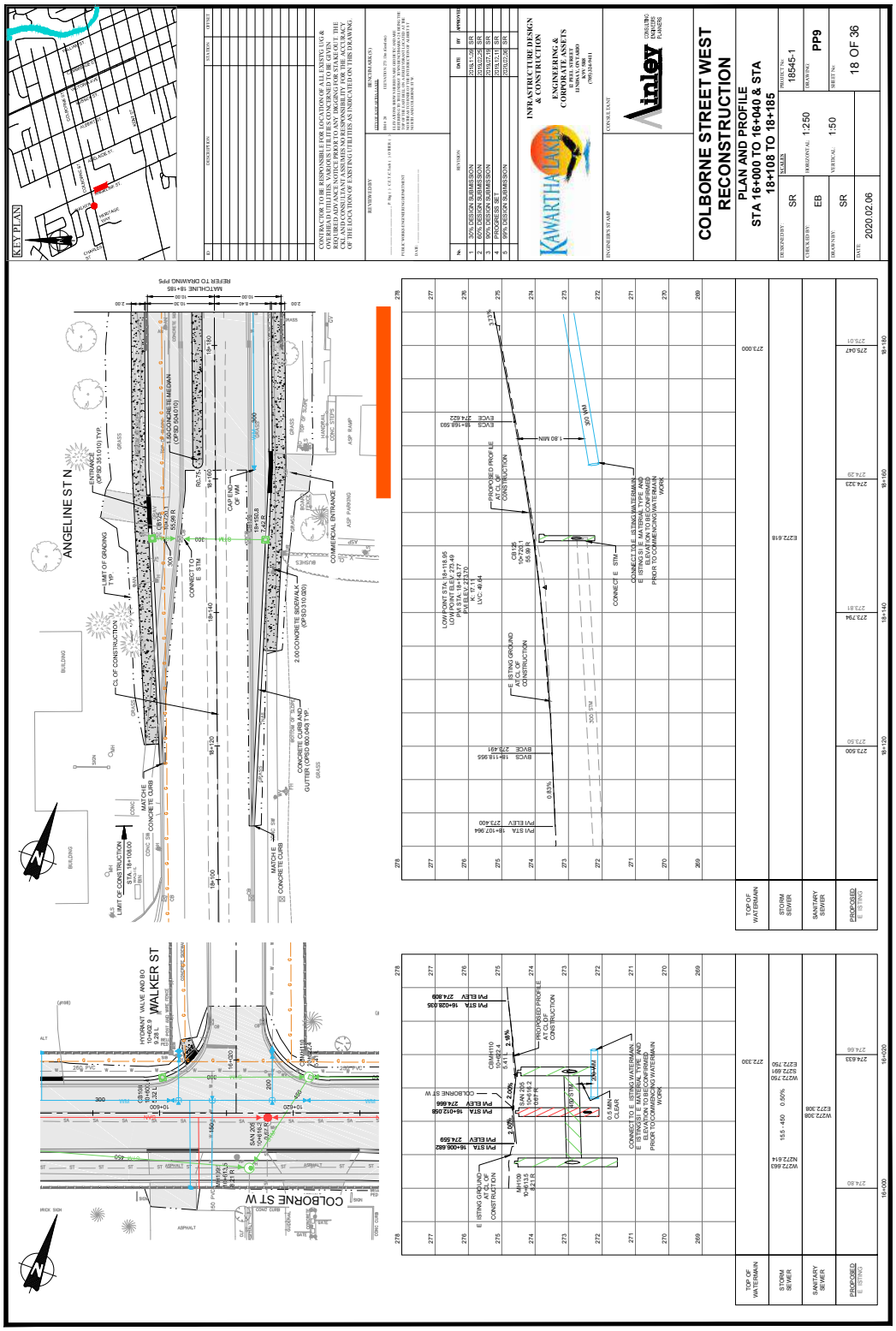
## 7.0 PLANS

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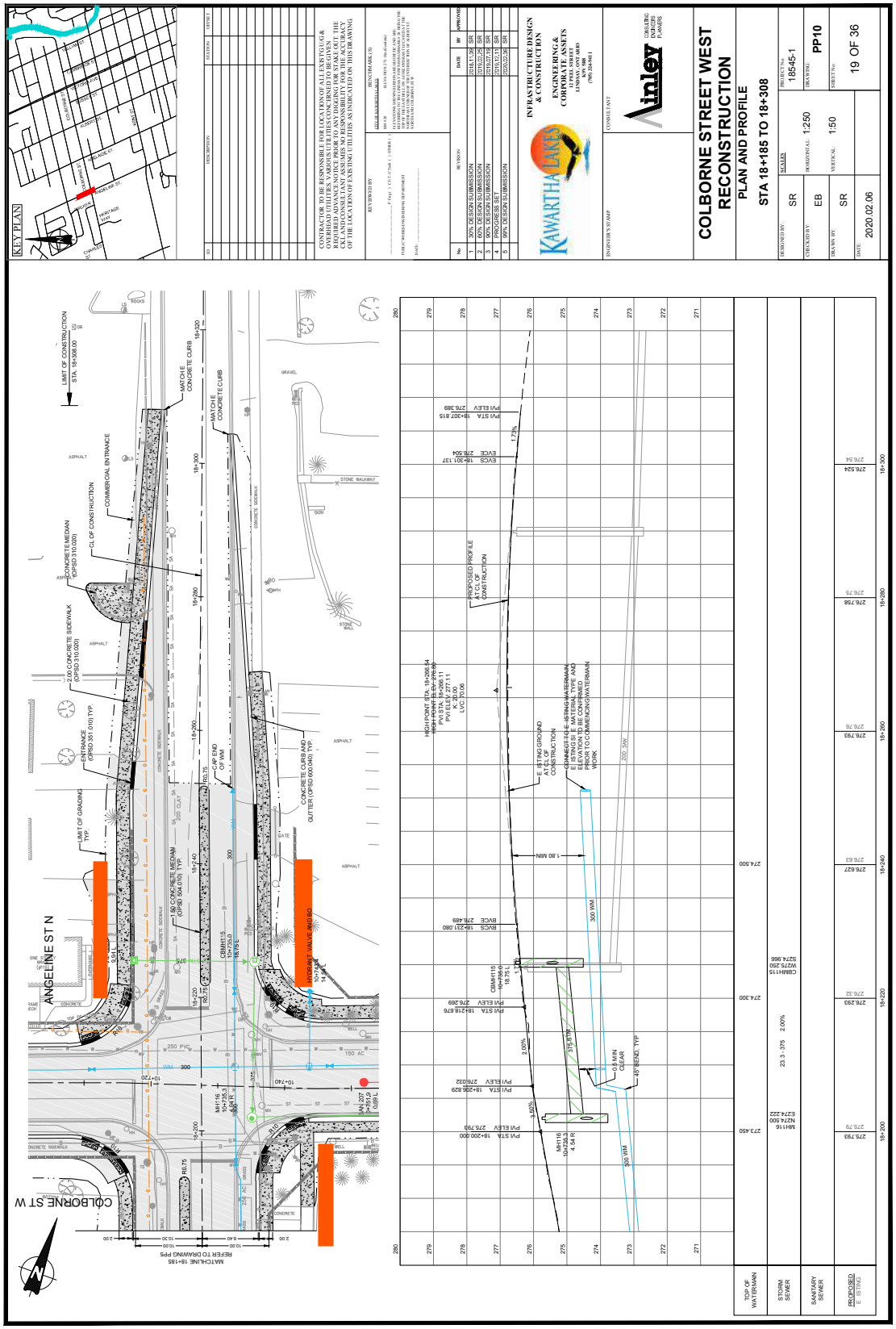


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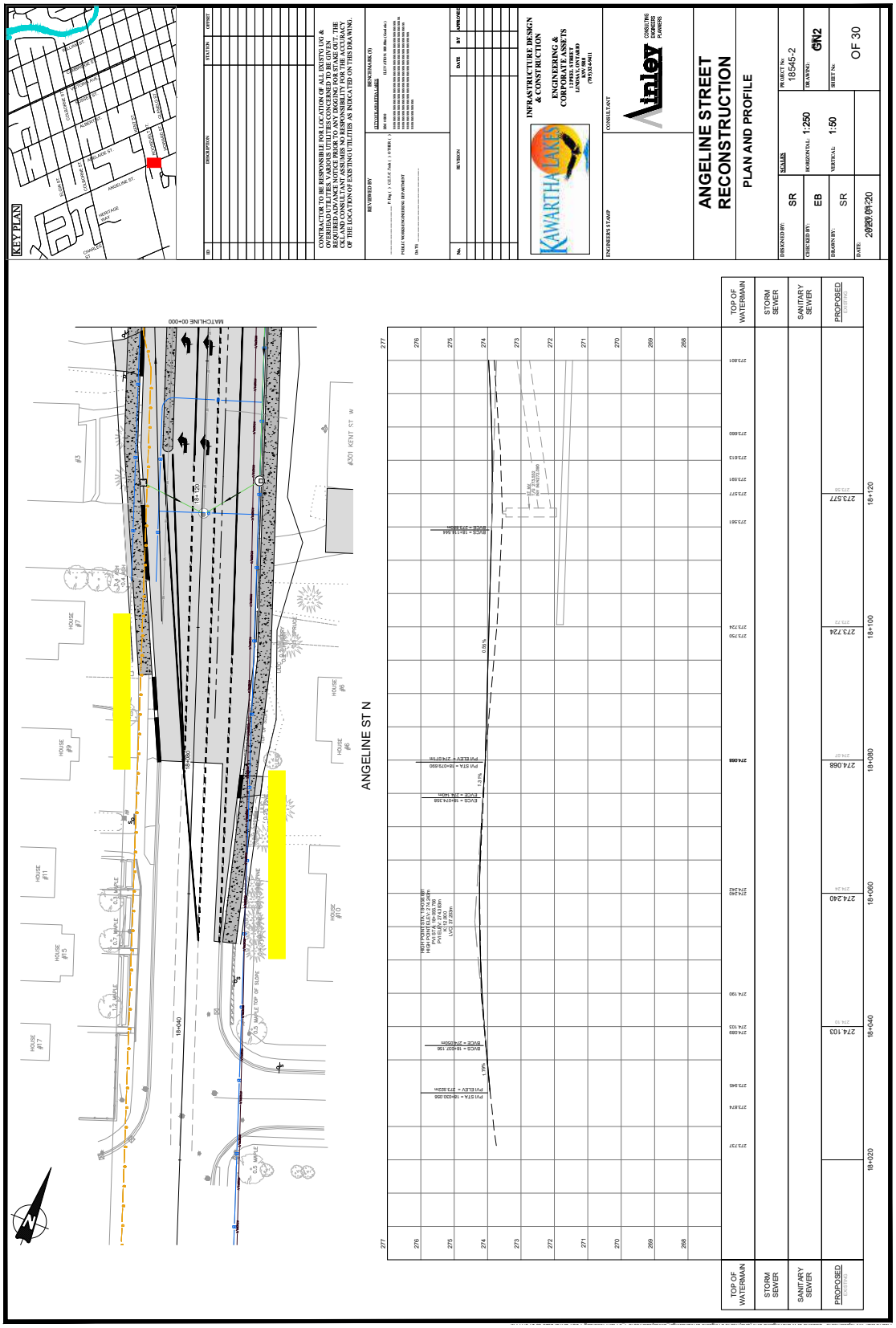


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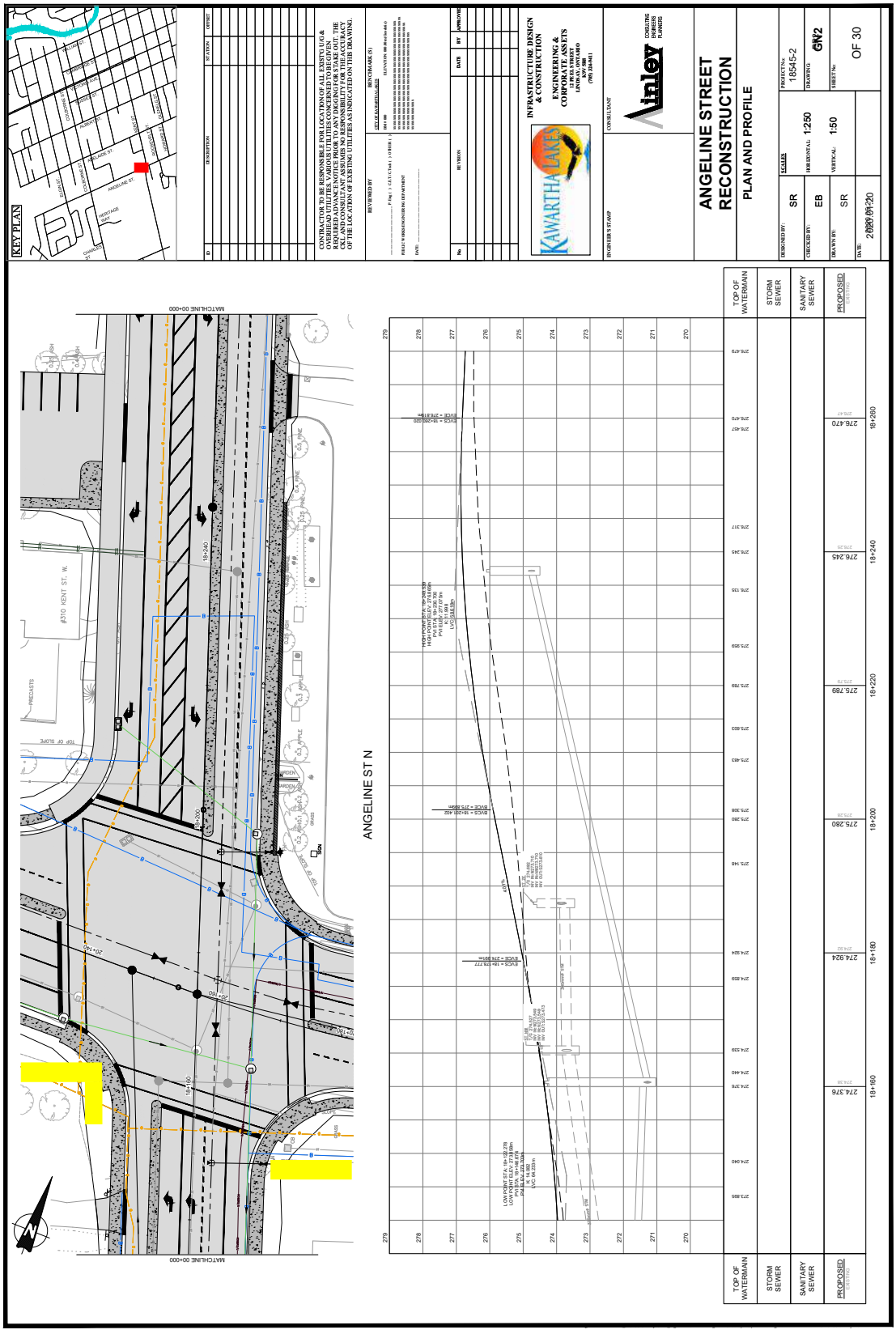


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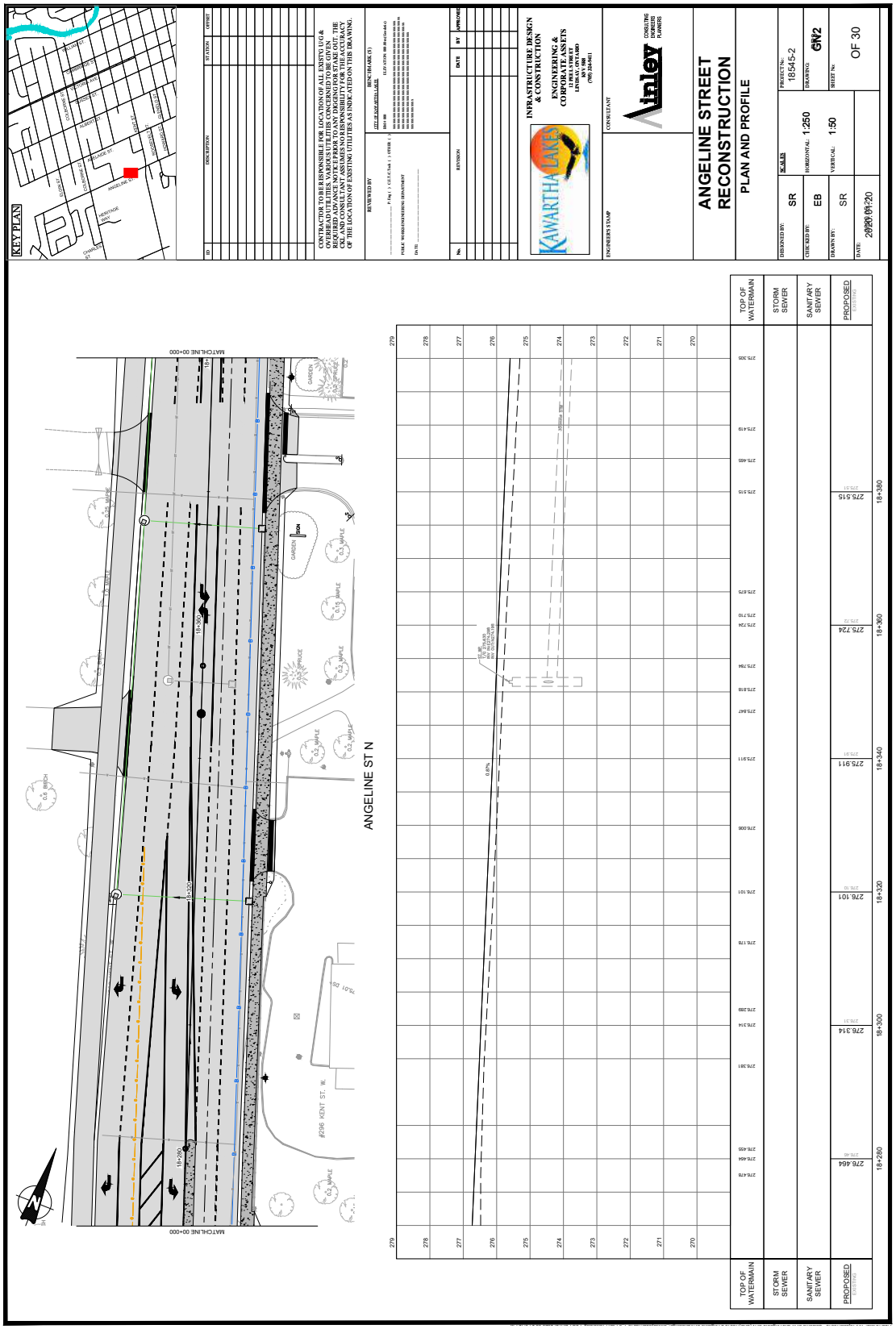


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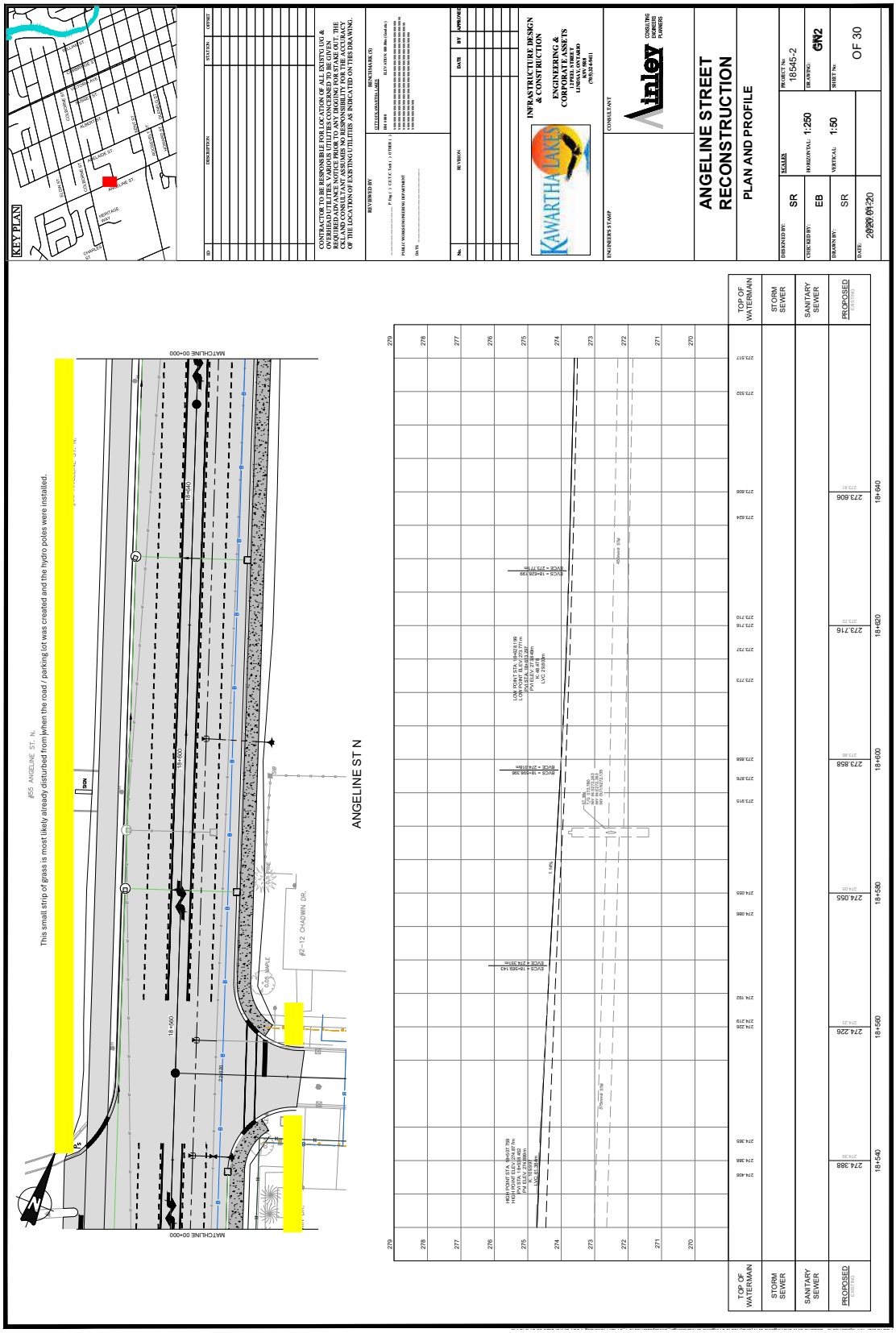


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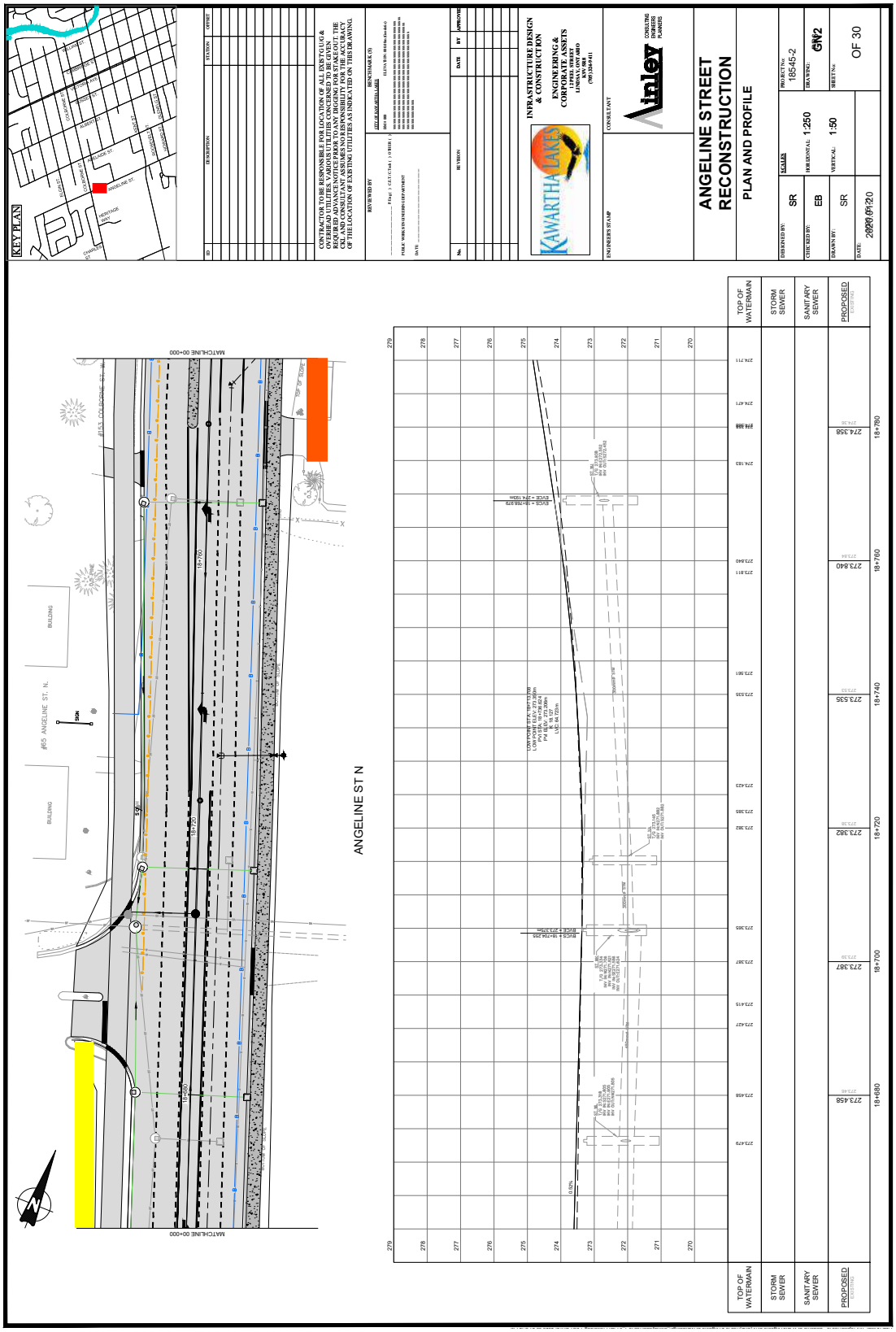


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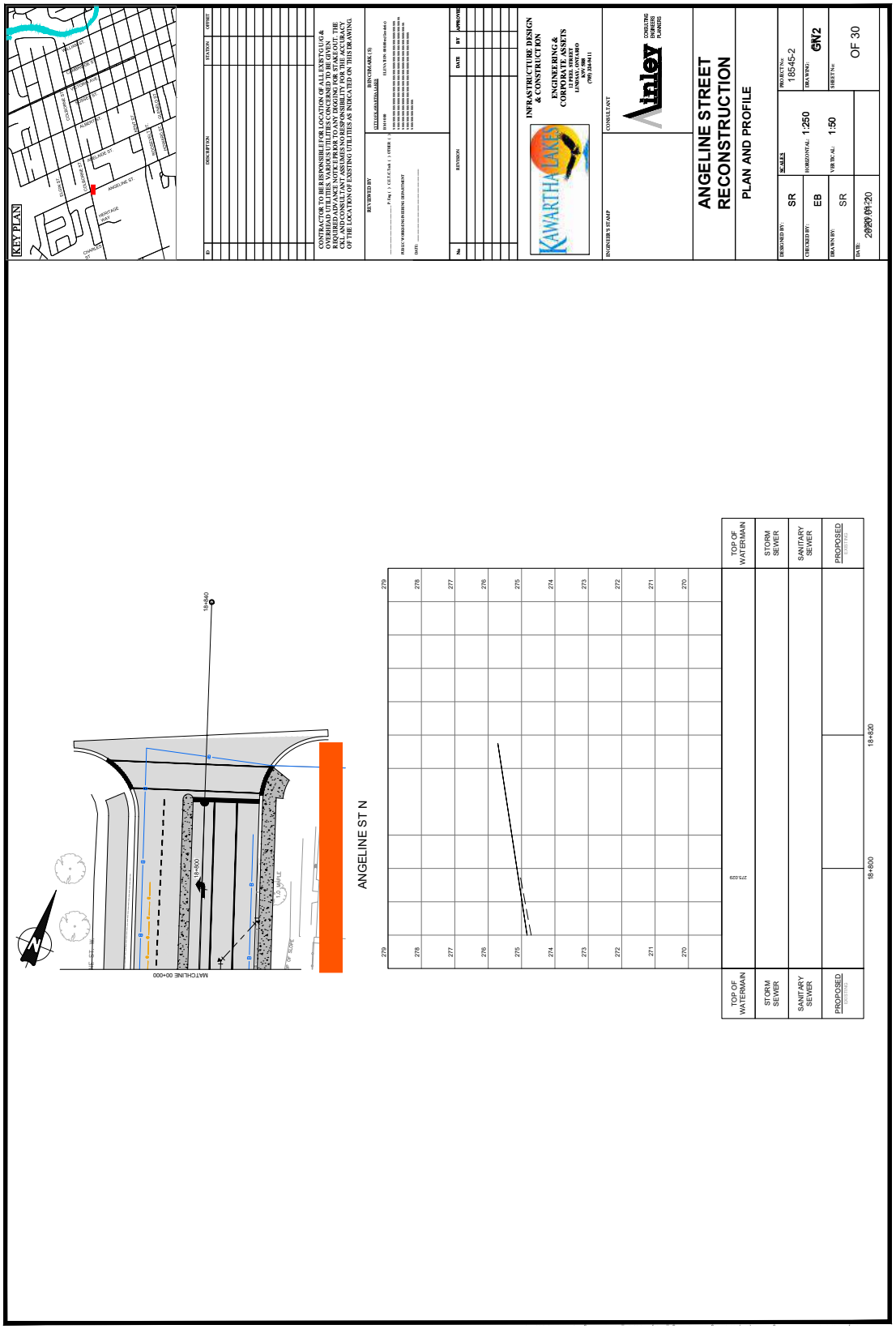
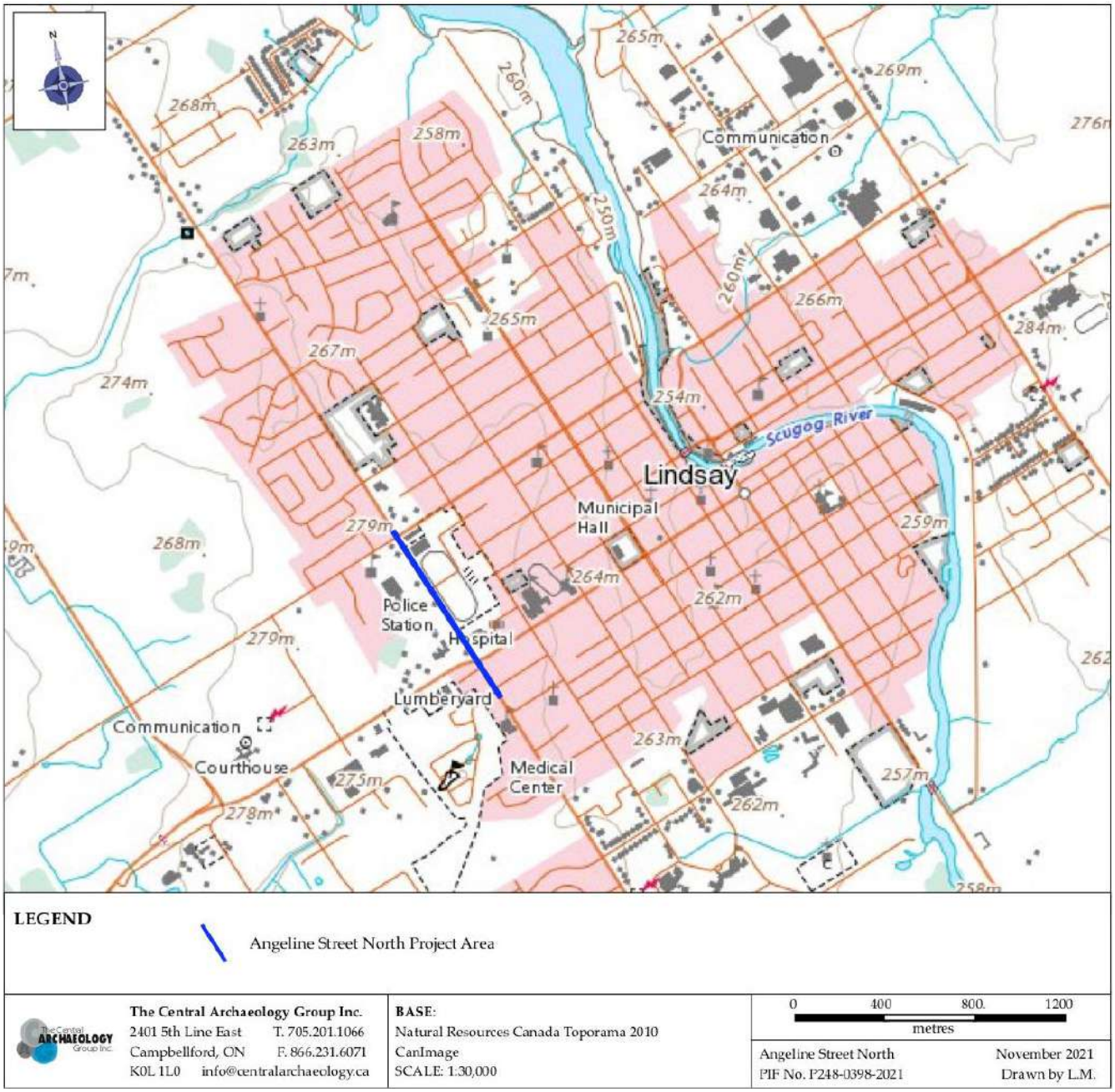
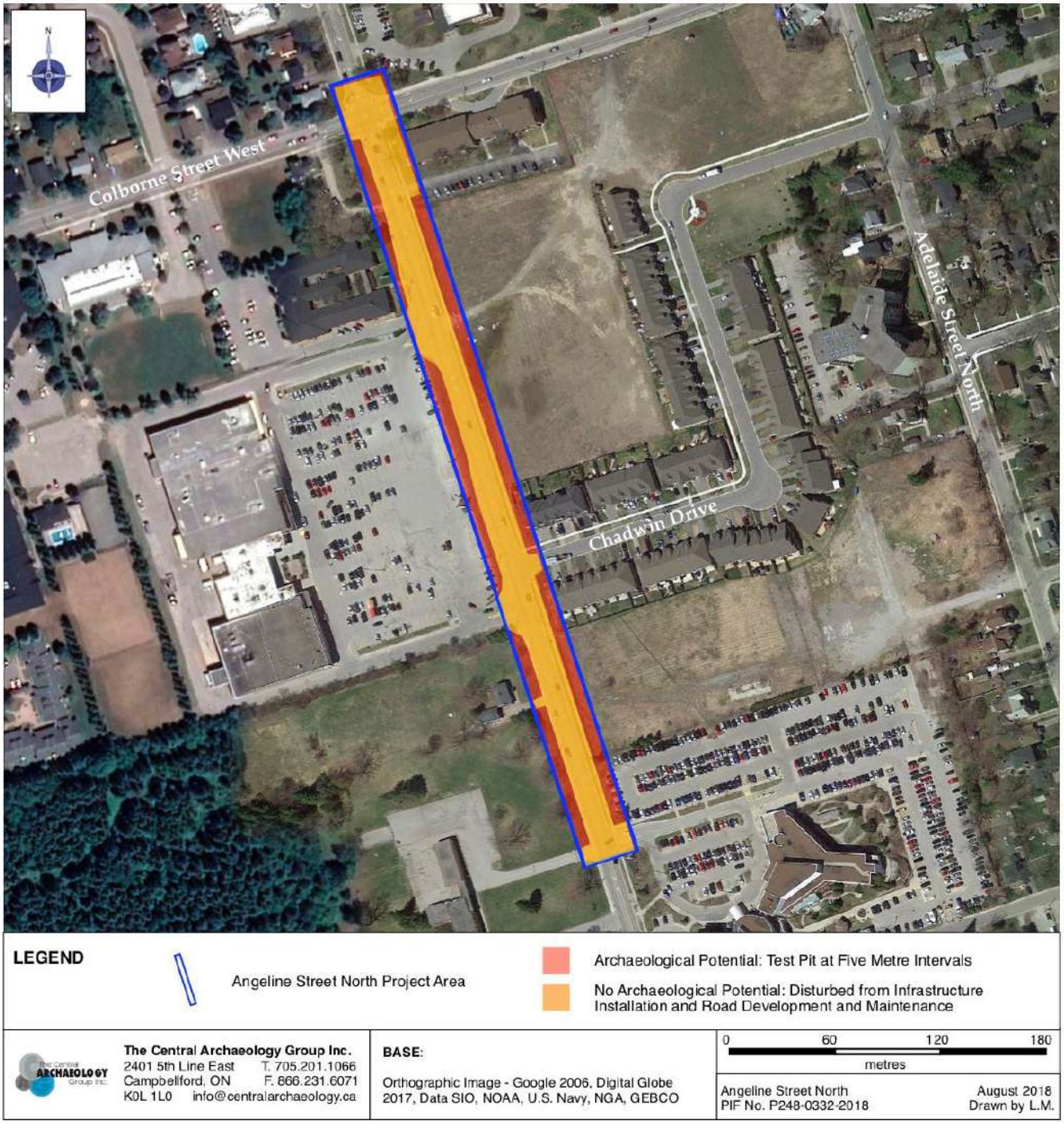



Plan 8. Angeline Street North, Plan 8 (AG 2020).

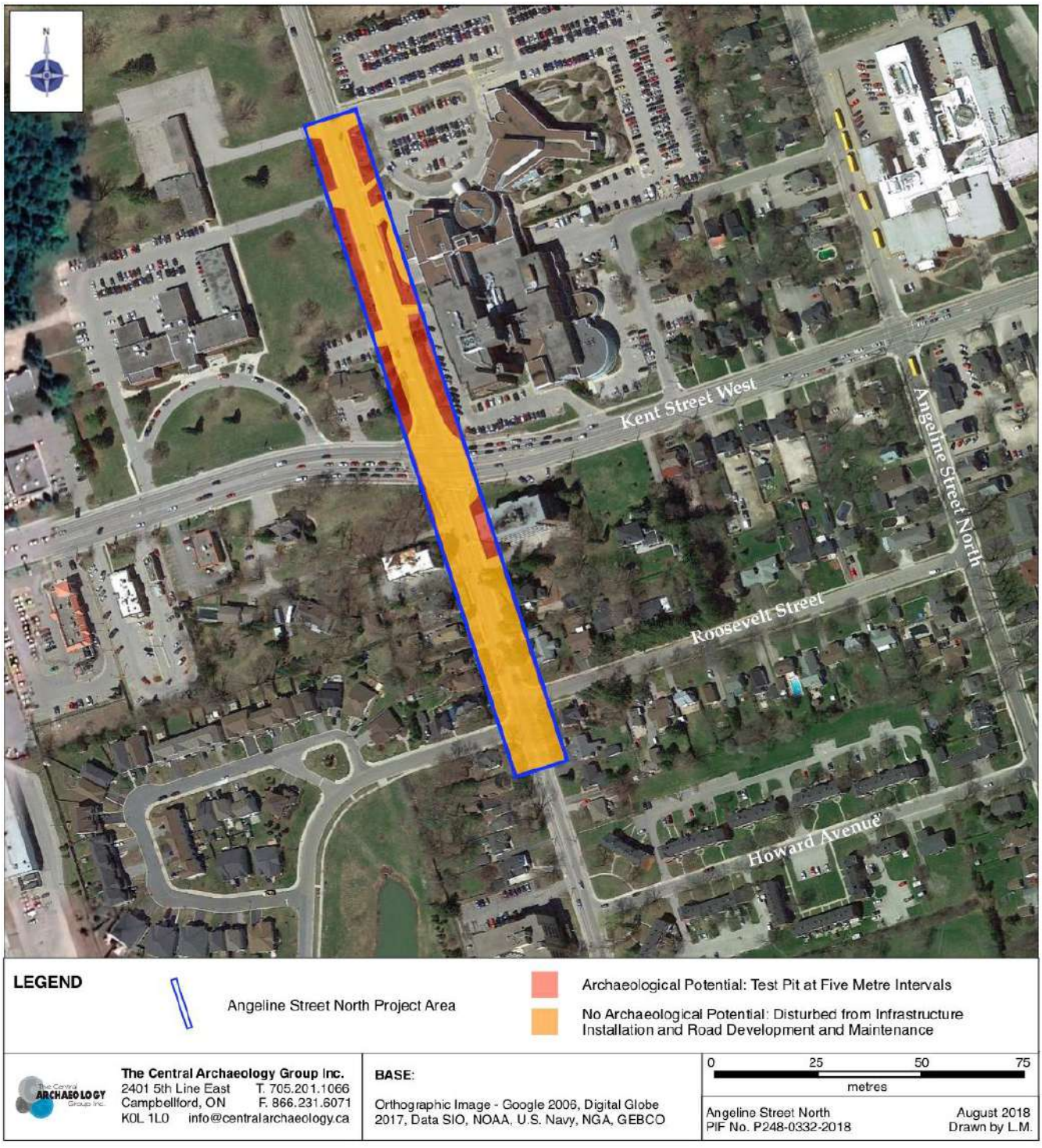
## 8.0 MAPS



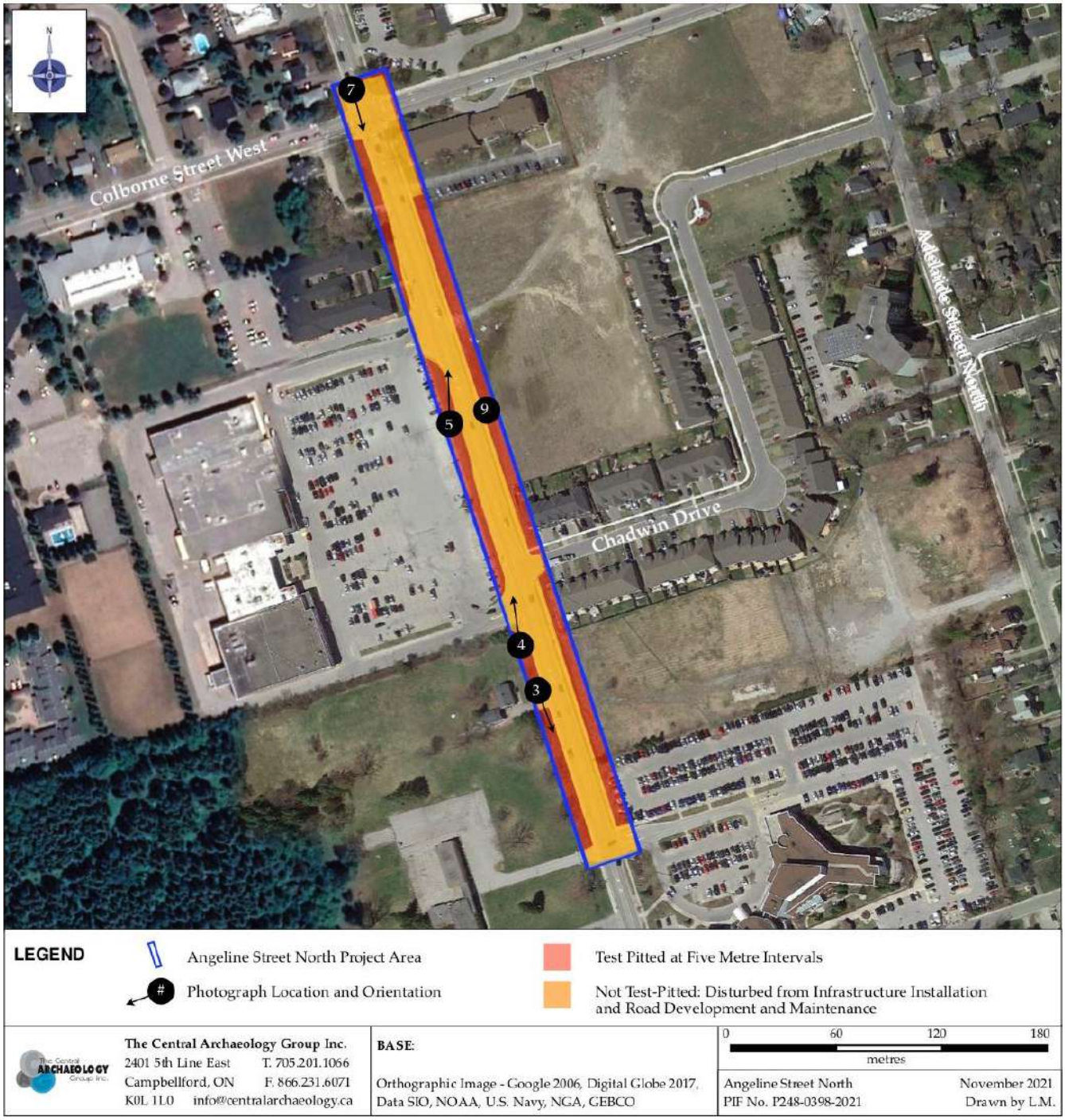

Map 1. Location of project area.



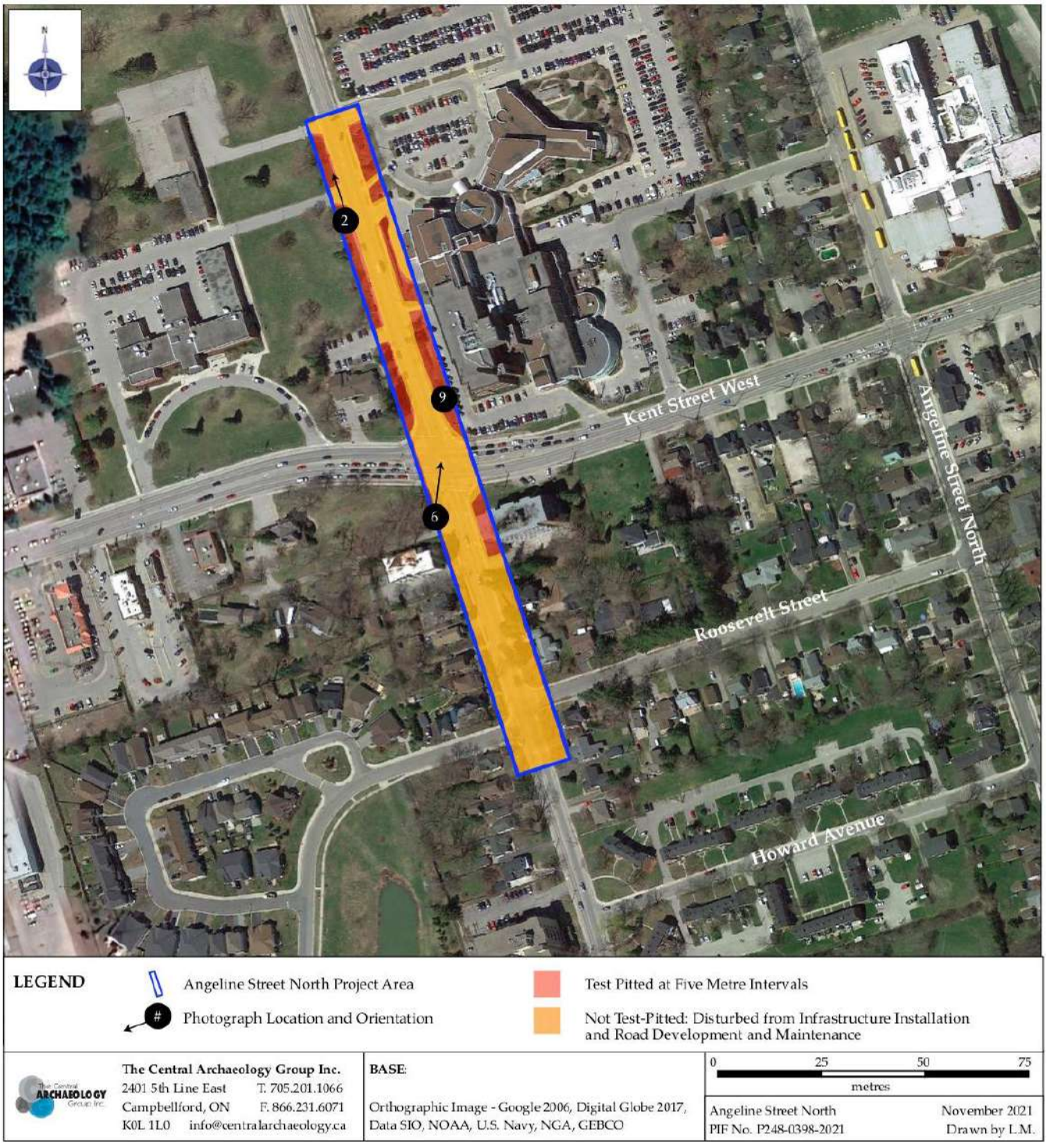

Map 2. Archaeological potential from the Stage 1 background study (CAGI 2022:48). Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.




Map 3. Archaeological potential from the Stage 1 background study (CAGI 2022:48). Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.




Map 4. Results 1. Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.




Map 5. Results 2. Angeline Street North from 200 metres north of Kent Street West to the northernmost limits of the Project Area.

## 9.0 IMAGES

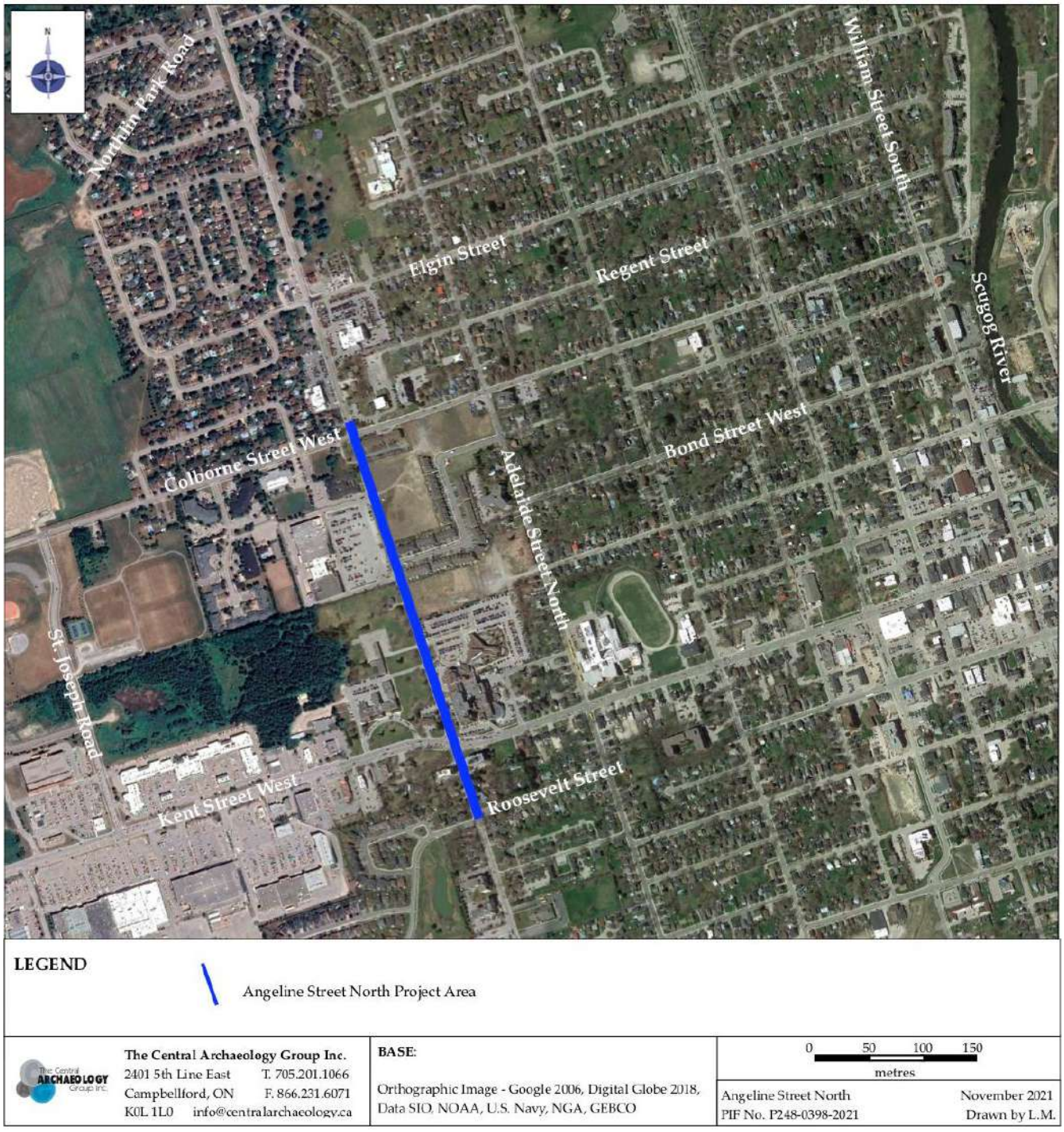



Image 1. Orthographic image of the project area (Google Earth 2018).

Image 2

Image 3

Image 4

Image 5

Image 6

Image 7

Image 8

Image 9

## 10.0 GLOSSARY OF TERMS

A Horizon - mineral horizon at or near the ground surface (topsoil). May be dark brown due to accumulated humus (Ah) or grey or lighter brown when clay, iron and humus have been leached out (Ae). It is most commonly disturbed by human activities.

Archaeology - is the scientific study of the physical evidence of past human societies recovered through excavation.

Archaeological Site - is a place in which physical evidence of past human activity is preserved and which has been, or may be, investigated using the discipline of archaeology.

Archaic Period - in Ontario is characterized by the appearance of ground stone tools, notched or stemmed projectile points, the predominance of less extensively flaked stone tools, increased reliance on local chert resources, a lack of pottery and smoking pipes, and an increase in the numbers and sizes of sites.

Atlatl - a tool used to throw spears faster and with more accuracy. It consists of a short pole with a handle at one end and a hook for engaging the spear in the other.

B Horizon - below the A Horizon (subsoil). It could be enriched with iron (Bf), with iron and organic matter (Bhf), with organic matter (Bh) or with clay (Bt). If saturated for extended periods, B horizons show signs of gleying or mottling (Bfg, Btg, Bg).

Bioturbation - results in changes to the nature, form, and arrangement of archaeological deposits and sediments as a result of biological activity in the ground. This includes root action, animal activity, and the degeneration of organic matter.

BP - Before Present. Years before present (1950), used in dating sites and/or artifacts from an archaeological site.

Borden Number - a borden number is an identifier given to an archaeological site in Canada. It was created by Charles E. Borden and contains four letters and one to several numbers.

Burial Goods or Burial Paraphernalia - items interred with an individual (or group) burial that may give clues to their social and/or economic and/or political position within their culture.

Chert - is a fine-grained, sedimentary rock, similar to flint. In antiquity, chert was one of the universally preferred materials for making stone tools.

Contact Period - refers to the period when European and First Nations peoples were first exposed to one another. In Ontario from 450 BP to 200 BP.

Cultural Resources - are sites, structures, landscapes, and objects of particular importance to a culture or community.

Diagnostic - a distinguishing characteristic serving to identify or determine the artifact.

Disarticulated - this occurs when bones are found separated at the joints.
Disturbed - refers to a study area that has recently been excavated or altered from its original

characteristics.

Ecozone - classification system that defines different parts of the environment with similar geography, vegetation, animals, climate, topography and water sources.

Environmental Assessment Act - sets up a process for reviewing the environmental impact of proposed activities prior to the granting of government funds.

Erratic - large rock or boulder that differs from the surrounding rock and is believed to have been transported a long distance as a result of glacial action.

Excavation - is the systematic digging and recording of an archaeological site. Flake - is a fragment of stone removed from a core or from another flake.

Feature - is a collection of one or more contexts representing some human activity that has a vertical characteristic to it in relation to site stratigraphy.

Fluted - grooved or channeled. A fluted point is a projectile point which has had one or more long thinning flakes removed from the base along one or both faces.

Glaciofluvial - sediments laid down by glacial meltwater action (i.e., rivers or streams).
Ground Stone - is a stone artifact shaped by sawing, grinding, and/or polishing with abrasive

materials.
Historic Period - the period when written records become available.

Holocene - the most recent period. Began approximately 10,000 years ago following the end of the Pleistocene.

Knap - to shape a piece of stone material by striking it at specific angles. Term used by archaeologists to denote the manufacture of a lithic tool.

Lanceolate - lance-shaped, much longer that wide, widened at or above the base and opening to the apex.

Lithic - stone, or made of stone.

Maize - also known as corn, is a cereal grain that was first domesticated in Mesoamerica and then

spread throughout the American continents.

Mitigation - measures undertaken to limit the adverse impact of construction methods on archaeological sites or cultural resources.

Ochre - used as a natural pigment, colour is commonly reddish-brown to yellow.

Ontario Heritage Act - allows municipalities and the provincial government to designate individual properties and districts in Ontario as being of cultural heritage value or interest.

Palaeoamerican Period - first evidence of human occupation in Ontario. This period is characterized by groups hunting large game and seasonal occupation along shore environments.

Pleistocene - an epoch within the Quaternary Period which began approximately 2,000,000 millions years ago and ended approximately 10,000 years ago. Immediately preceded the Holocene Period.

Projectile Point - is an artifact used to tip an arrow, atlatl dart, spear, or harpoon. Usually made of chipped or ground stone, however, some are also made of copper.

Stage 1 Background Study - The purpose of a Stage 1 assessment is to investigate the cultural land use, archaeological history, and the present conditions of a property. The majority of the Stage 1 process is conducted in the office and involves the examination of records such as historic settlement maps, land titles, and documents, historical land use and ownership records, primary and secondary documentary sources, and the Ministry of Culture's archaeological site database. The study may also involve interviews with individuals who can provide information about the property and consultation with local First Nations communities. The background study is followed by a property inspection to examine geography, topography and current conditions, and to determine the potential for archaeological resources. Stage 1 background research is usually completed in conjunction with a Stage 2 property survey.

Stage 2 Property Survey - A Stage 2 property survey is undertaken if the Stage 1 background study finds that a property retains archaeological potential. It involves the documentation of archaeological resources by collecting artifacts and mapping cultural features. Depending on the nature of the property environment, two methods are employed in the survey: 1)

pedestrian survey on cultivable properties, and; 2) test-pit survey on properties not cultivable due to tree growth, rock content, etc.

Strata - are layers of rock, soil, cultural material, etc. with internally consistent characteristics that distinguish contiguous.

Stratigraphy - the layering of deposits on archaeological sites. Cultural remains and natural sediments become buried over time, forming strata.

Subsistence - obtaining food and shelter necessary to support life.

Survey - is used to accurately determine the terrestrial or three-dimensional space position of points and the distances and angles between them.

Woodland Period - is a period of time following the Archaic Period. Middle, and Late.

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# Memorandum

| | |
|---|---|
| **To:** | Alexander Wilkinson |
| **Copies To:** | File |
| **From:** | Bashar Dhahir, P. Eng., PMP, Mohammad Ramezani, P. Eng. |
| **Date:** | March 13, 2024 |
| **Reference:** | Kent Street West and Angeline Street Intersection - Traffic Evaluation<br>Angeline Street, Lindsay, City of Kawartha Lakes |
| **Ainley File No.:** | 18545 - 2 |

## 1. BACKGROUND

Ainley Group has been retained to evaluate the performance of the Angeline Street and Kent Street West intersection with consideration to eliminating the right turn lane of the south approach (northbound movement). The intersection is located in the City of Kawartha Lakes, Ontario and is bounded by Ross Memorial Hospital from the northeast, Ambassador Apartments from the southeast, Dentistry on Kent from the northwest, and Angelina Apartments from the southwest as shown in **Figure 1**.

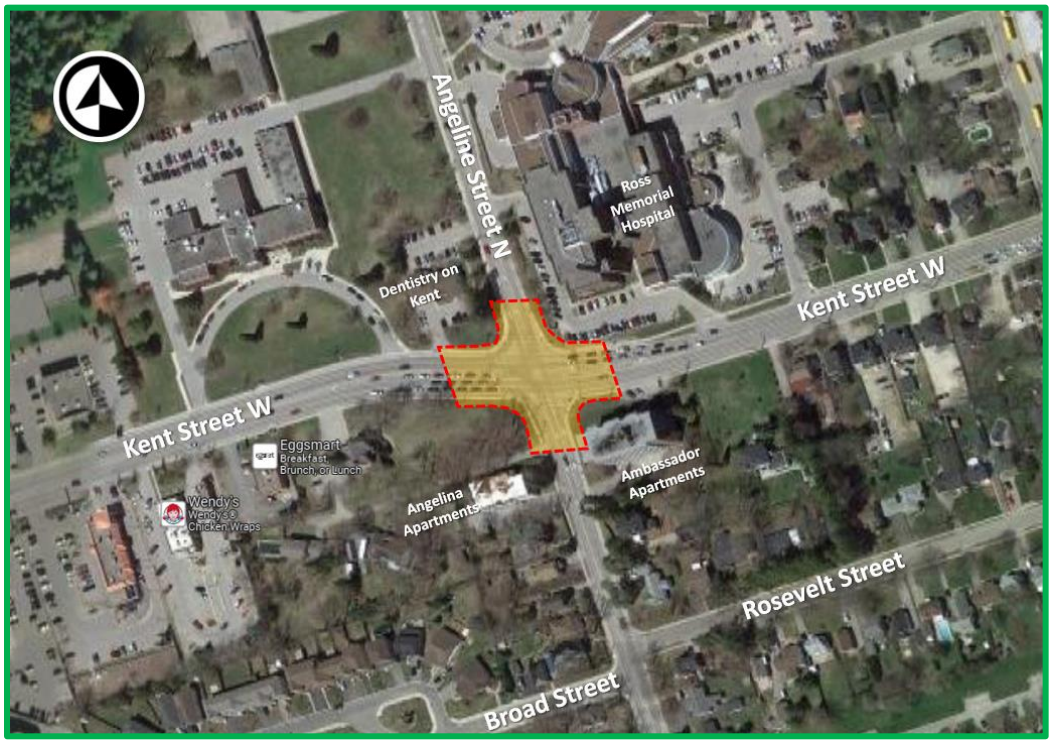


Figure 1: Intersection Location

# 2. EXISTING INTERSECTION CONFIGURATION

Angeline Street and Kent Street West intersection is a four-legged skewed (approximately 74°-85°) signalized intersection. Angeline Street is a two-lane north-south roadway that extends in a straight path through the intersection. The north and south approaches have a dedicated left-turn lane and a through-right shared lane. Kent Street is a four-lane east-west roadway and has a curved alignment through the intersection. The east and west approaches have a dedicated left-turn lane, through lane and through-right shared lane. **Figure 2** shows the existing configuration of the intersection.

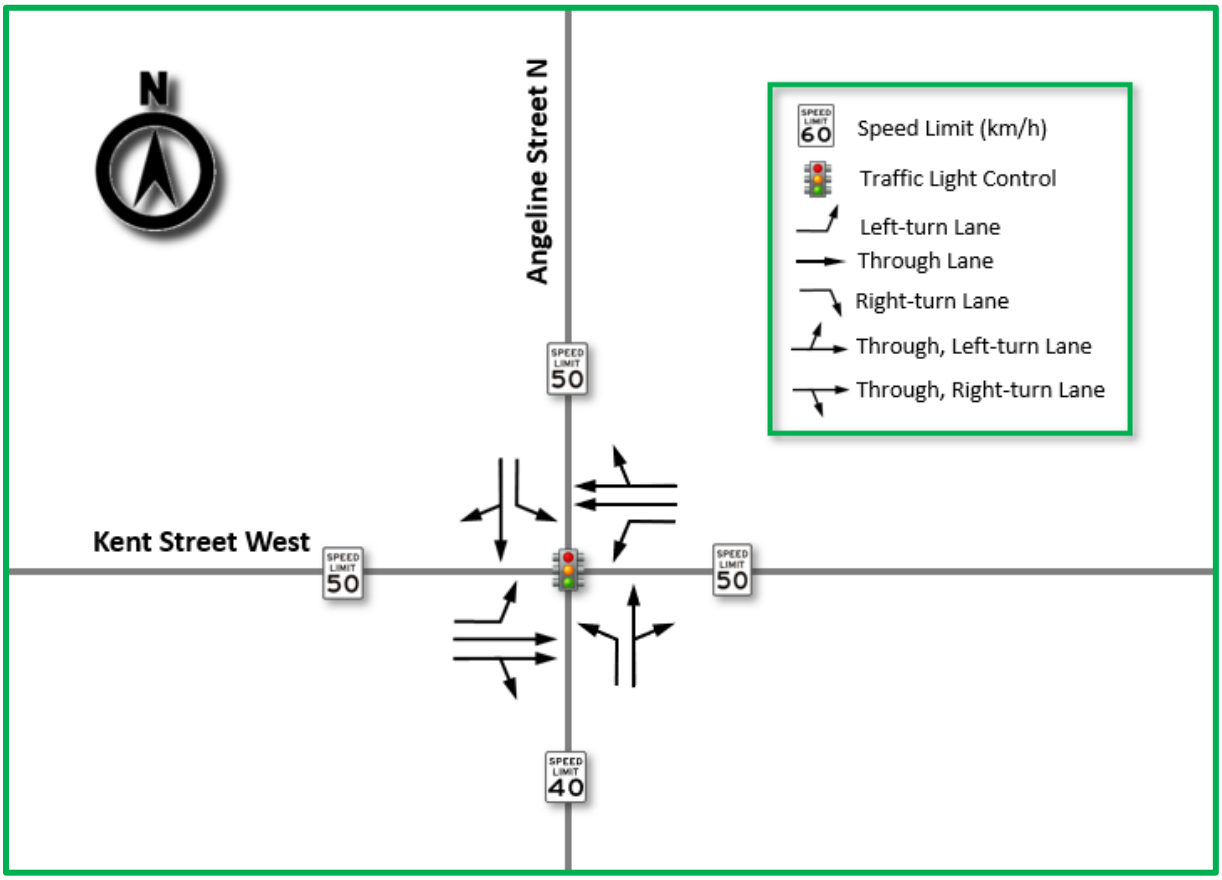


Figure 2: Intersection Configuration

# 3. PROPOSED INTERSECTION CONFIGURATION

The assessment of traffic conditions at the intersection was completed by HDR Corporation[1] in 2016 with a focus on 2031 as a horizon year. Through that study[1], alternatives were proposed to enhance the intersection's level of service, ultimately leading to the preferred alternative depicted in **Figure 3**. The proposed configuration includes the following:

- Kent Street West - East Approach: Consists of three lanes:
  - One left turn lane
  - One through lane
  - One through right shared lane
- Kent Street West - West Approach: Consists of four lanes:
  - One left turn lane
  - Two through lane
  - One right lane
- Angeline Street - North Approach: Consists of four lanes:
  - One left turn
  - Two through lanes
  - One right turn lane
- Angeline Street - South Approach: Consists of four lanes:
  - Two left turn lanes
  - One through lane
  - One through right shared lane

However, after further review, it has been determined that the proposed configuration for the right-turn lane on the south approach on Angeline Street cannot be applied due to its proximity to the underground parking facility of Ambassador Apartments. The location of this parking facility results in insufficient space to build four lanes for the northbound movements (two left-turn, one through-lane, and a through-right shared lane).

[1] City of Kawartha Lakes, Kent Street Schedule B Class Environmental Assessment and Corridor Study, Project File Report, November 2016

Consequently, there is a necessity to re-evaluate the operational conditions of the intersection with consideration to the removal of the right-turn lane.

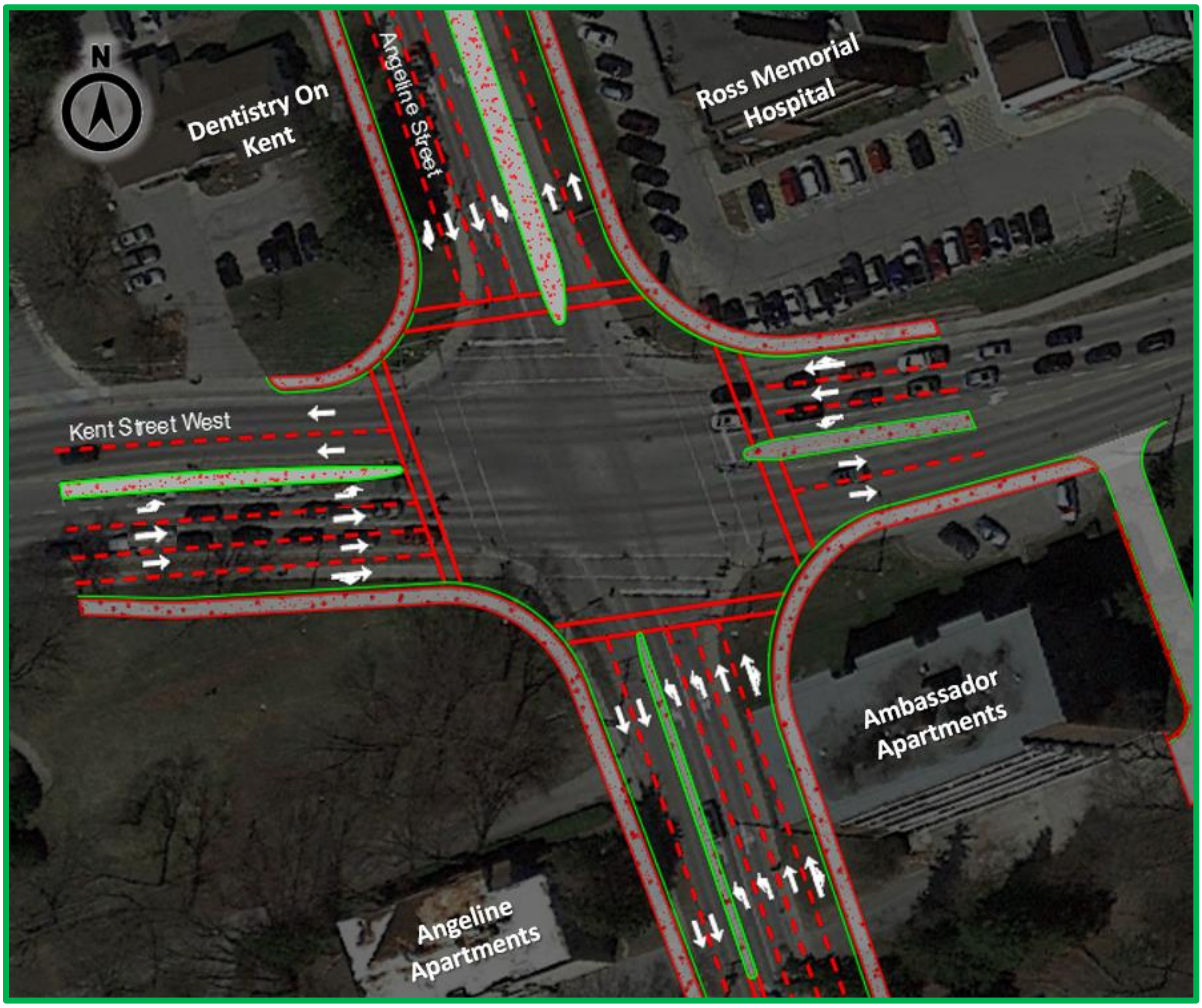


Figure 3: Preferable Alternative to Improve Traffic Operation in the Intersection

# 4. TRAFFIC VOLUMES

## 4.1. Existing Traffic Counts

To evaluate the traffic conditions at the intersection, traffic counts were collected on August 1, 2023. The summary of traffic data (for vehicular, bicycle, and pedestrian traffic) is provided in **Appendix A**. The resulting AM and PM peak-hour traffic volumes are

presented in **Figure 4**. As shown in the figure, traffic counts for the AM and PM peak hours have approximately the same distribution in the following flow patterns:

- Relatively high traffic volumes on the left-turn movement for the eastbound (238 veh/h) and northbound (210 veh/h)[2].
- Relatively high traffic volume on the right-turn movement for the eastbound (285 veh/h)[3] and southbound (238 veh/h)[4].
- Relatively high traffic volume of the through movement of the eastbound and westbound movement (571 veh/h and 654 veh/h, respectively).

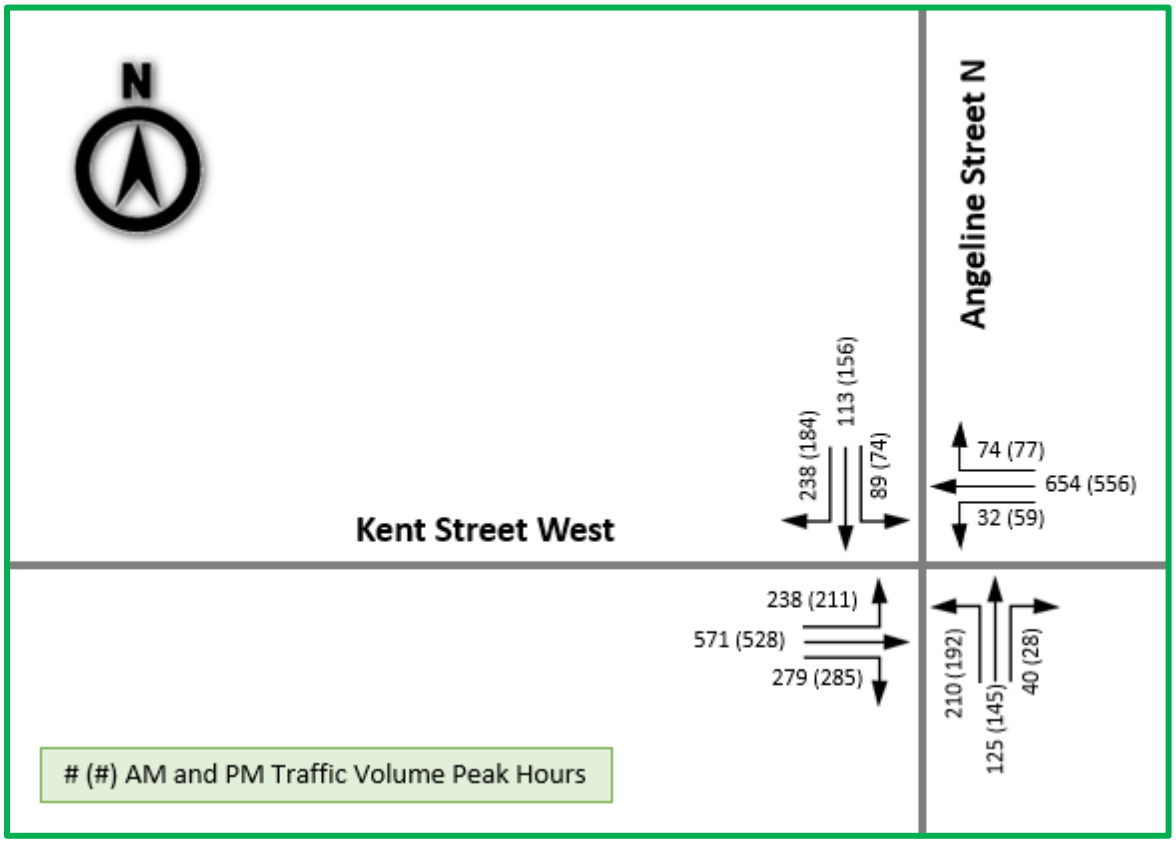


Figure 4: Exiting Traffic Volume AM and PM Peak Hours

[2] Double left-turn lanes are normally a design consideration when the peak left-turn volumes exceed 300 veh/h (Transportation Association of Canada – TAC, Geometric Design Guide for Canadian Roads, 2017.
[3] The right-turn volume is greater than 25% of the total approaching volume.
[4] The right-turn volume is greater than 44% of the total approaching volume.

## 4.2. Background Traffic Projections

In this study, the assessment of intersection traffic operations is contingent upon the assumption that the proposed improvement will be constructed in 2027. Consequently, an evaluation of traffic conditions for the years 2027, 2023 and 2051 is carried out. The underlying traffic data for these horizon years is extrapolated from the traffic counts recorded during the peak hours in 2023, factoring in a traffic growth rate of 1.6% as outlined in the Transportation Master Plan of the City of Kawartha Lakes from February 2012[5].

The resulting background traffic volumes for the morning (AM) and evening (PM) peak hours for the horizon years 2027, and 2037 are depicted in **Figure 5** and **Figure 6**.

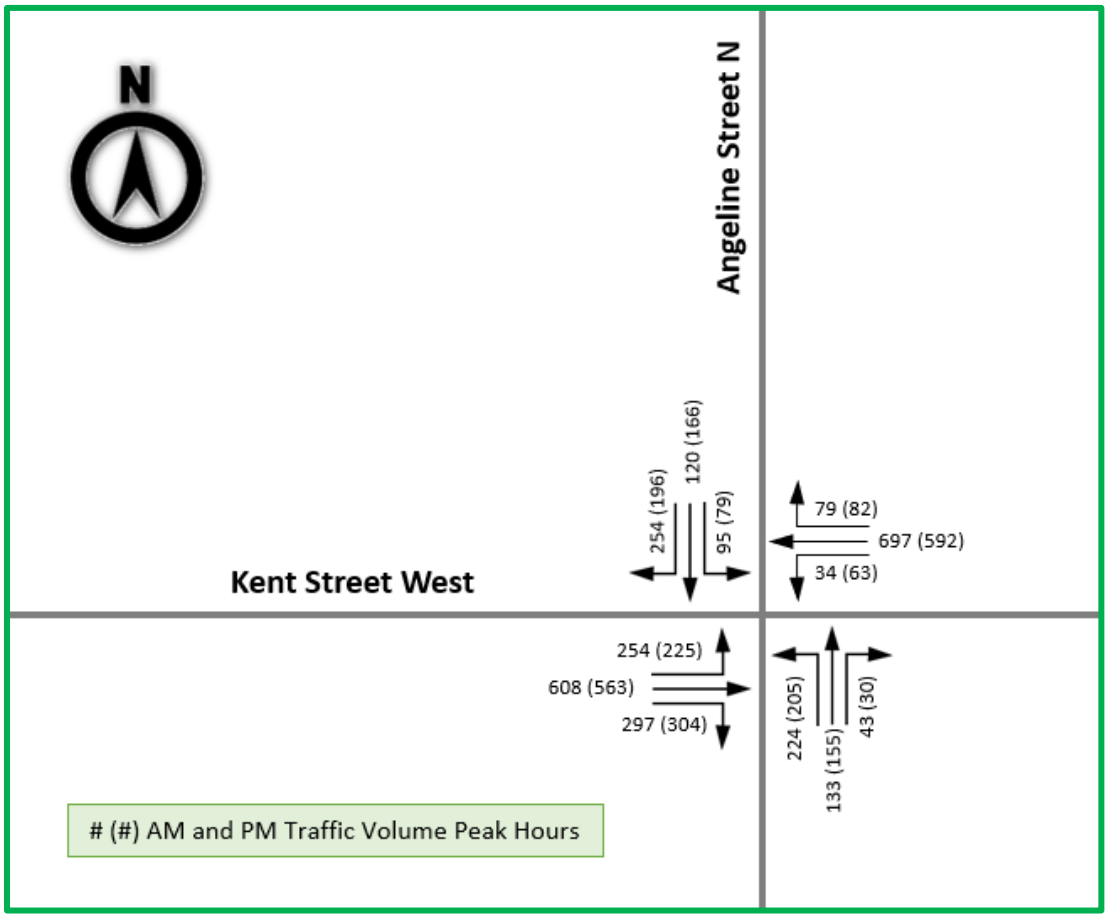


Figure 5: Background Traffic Counts AM and PM Peak Hours – 2027

[5] City of Kawartha Lakes, Growth Management Strategy and Municipal Master Plan Project, Transportation Master Plan, February 2012.

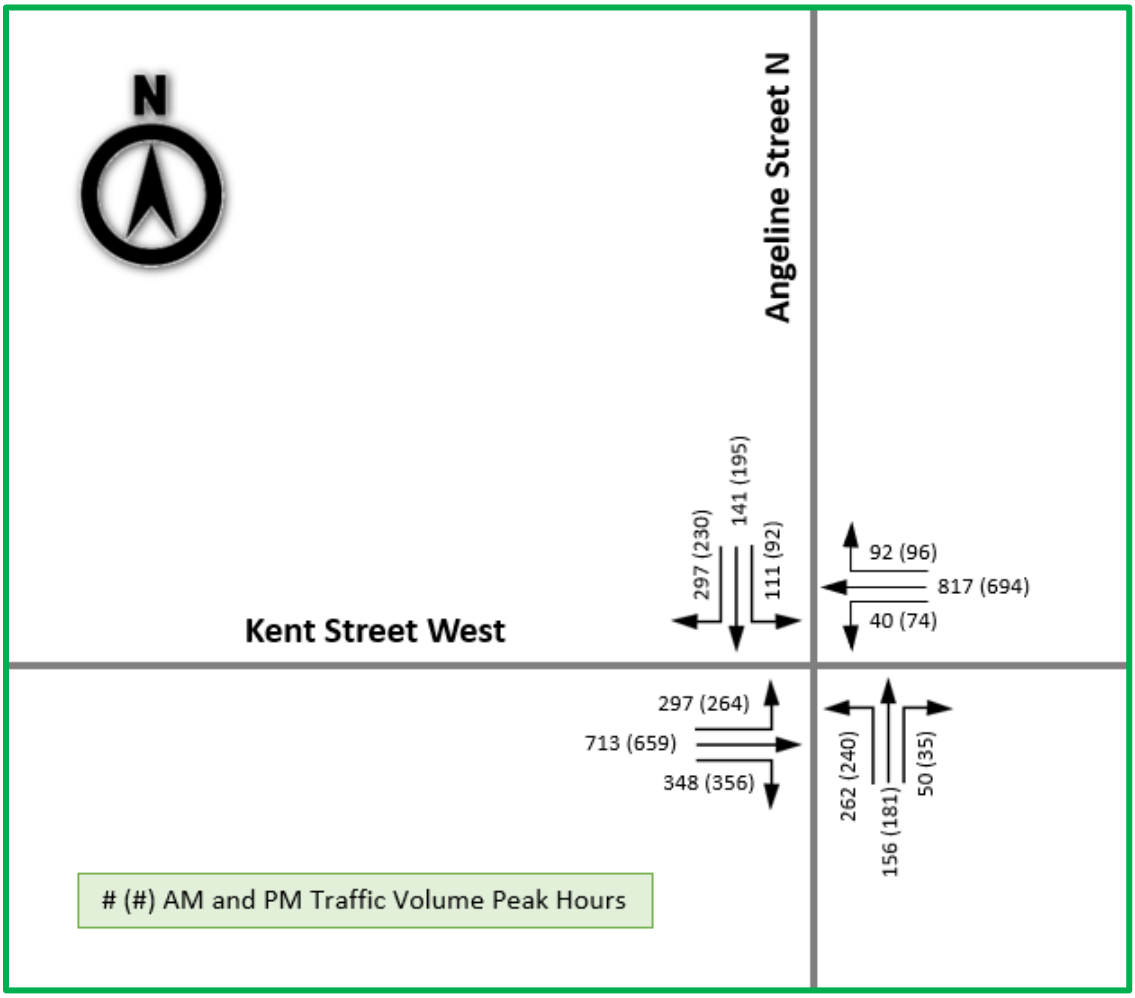


Figure 6: Background Traffic Counts AM and PM Peak Hours – 2037

# 5. TRAFFIC ANALYSIS

## 5.1. Traffic Capacity Analysis

The methodology employed to assess traffic conditions at the intersection in terms of level of service (LOS), delay, and volume-to-capacity ratio is based on the Highway Capacity Manual (HCM), which provides a systematic approach to evaluating transportation facilities and their performance. The HCM categorizes six levels of service (LOS) from A to F, representing a spectrum of operating conditions. LOS A indicates the most favourable conditions, while LOS F indicates the least desirable, reflecting congestion and poor traffic flow.

In the context of signalized intersections, the LOS is determined by two key factors: control delay and the volume-to-capacity ratio (v/c ratio). Control delay refers to the increase in travel time experienced by vehicles due to the influence of traffic signal control, while the v/c ratio measures the extent to which a lane group's capacity is utilized during a specific phase of operation. **Table 1** presents the specific thresholds established at a signalized intersection. It should be noted that the methodology of HCM 2000 was used in conducting the traffic analysis. The evaluation process incorporates the use of the Synchro 11 software program.

Table 1: LOS Thresholds for Signalized Intersections

| Control Delay (sec/veh) | LOS by v/c Ratio | |
|---|---|---|
| | ≤ 1.0 | > 1.0 |
| 0 – 10 | A | F |
| > 10 - 20 | B | F |
| > 20 - 35 | C | F |
| > 35 – 55 | D | F |
| > 55 - 80 | E | F |
| > 80 | F | F |

## 5.2. Existing Traffic Conditions 2023

The analysis is based on the 2023 traffic volumes and the existing intersection configuration and control. The signal timing of the intersection was provided by city staff. The analysis results for the AM peak hour for the intersection can be found in **Appendix B** and summarized in **Table 2**.

As shown in the table, the approaches of the intersection and the individual movements are operating at an acceptable LOS of D or better with a maximum delay of 53.2 s (Southbound through) and a maximum v/c ratio of 0.83 (Southbound through). The finding is consistent with the typical traffic flow conditions provided by Google Maps as shown in **Figure 7**.

SimTraffic, a traffic simulation application embedded in the Synchro application, was used (considering three runs of one hour each) to determine the queue length. The maximum 95$^{th}$ percentile queue length was noticed at the Southbound through lane (126.8m), which means that there is a probability of 95% that the queue length will not exceed this value.

Table 2: Operation Analysis for Existing Traffic Conditions - 2023

| Approach | Movement | Existing 2023 | | | | |
|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | Delay (s/veh) | v/c | 95th Queue (m) |
| West | EBL | C | C | 26.8 | 0.74 | 56.9 |
| | EBT | | C | 27.5 | 0.62 | 73.1 |
| | EBR | | | | | 83.8 |
| East | WBL | C | C | 22.3 | 0.15 | 30 |
| | WBT | | C | 32.7 | 0.63 | 84 |
| | WBR | | | | | 75.1 |
| South | NBL | C | C | 29.9 | 0.66 | 49.5 |
| | NBT | | C | 31.2 | 0.32 | 46.7 |
| | NBR | | | | | |
| North | SBL | D | C | 28.7 | 0.23 | 57.8 |
| | SBT | | D | 53.2 | 0.81 | 126.8 |
| | SBR | | | | | |

Figure 7: Typical Traffic Flow Condition at the Intersection

## 5.3. Capacity Analysis: No Geometric Improvement (Do Nothing)

The analysis for the Do-Nothing scenario is based on the background traffic volumes, the existing intersection configuration and control, and the current signal timing for the horizon years 2027 and 2037.

### 5.3.1. No Geometric Improvement (Do Nothing) - Background Conditions 2027

The analysis is based on the background traffic volumes in 2027, the existing intersection configuration and control, and the current signal timing. The results of the analysis for AM peak hour for the intersections are summarized in **Table 3** and Synchro analysis outputs are provided for reference in **Appendix B**. As shown in the table, the performance of the approaches of the intersection is similar to the observed for the existing traffic conditions. However, for the individual movement, the LOS is lower (E or better), v/c is higher (maximum of 0.85), and Delay is higher (maximum of 58.1s) compared to the observed for the existing traffic conditions.

Table 3: Operation Analysis for Background Traffic Conditions - 2027

| Approach | Movement | BG 2027 | | | | |
|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | Delay (s/veh) | v/c | 95th Queue (m) |
| West | EBL | C | D | 36.2 | 0.82 | 63.5 |
| | EBT | | C | 29.3 | 0.66 | 89.1 |
| | EBR | | | | | 98.1 |
| East | WBL | C | C | 23.4 | 0.18 | 36 |
| | WBT | | D | 35 | 0.68 | 90.4 |
| | WBR | | | | | 84.8 |
| South | NBL | C | C | 34.1 | 0.73 | 48.8 |
| | NBT | | C | 31.5 | 0.34 | 48.8 |
| | NBR | | | | | |
| North | SBL | D | C | 28.9 | 0.24 | 67 |
| | SBT | | E | 58.1 | 0.85 | 119.3 |
| | SBR | | | | | |

### 5.3.2. No Geometric Improvement (Do Nothing) - Background Conditions 2037

The analysis is based on the background traffic volumes in 2037, the existing intersection configuration and control, and the current signal timing. The results of the analysis for AM peak hour for the intersections are summarized in **Table 4** and Synchro analysis outputs

are provided for reference in **Appendix B**.

As shown in **Table 4**, both the west and north approaches of the intersection are rated as LOS E. Additionally, the individual movements, namely eastbound left and southbound through, are rated as LOS F. Also, the 95th queue length of the latter movement is 271.7 m, indicating a 95 percent probability that the queue will not exceed this length. It's important to highlight that the presence of new developments in the vicinity would likely lead to a decrease in the intersection's level of service and an increase in the delay duration and high v/c ratios. Accordingly, improvements are recommended for the intersection by this horizon year.

Table 4: Operation Analysis for Background Traffic Conditions - 2037

| Approach | Movement | BG 2037 | | | | |
|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | Delay (s/veh) | v/c | 95th Queue (m) |
| West | EBL | E | F | 146.7 | 1.18 | 71.1 |
| | EBT | | D | 36.9 | 0.81 | 206.3 |
| | EBR | | | | | 191.4 |
| East | WBL | D | C | 26.7 | 0.29 | 56.7 |
| | WBT | | D | 43 | 0.83 | 151.4 |
| | WBR | | | | | 144 |
| South | NBL | D | D | 45.4 | 0.83 | 60.7 |
| | NBT | | C | 33 | 0.39 | 57.4 |
| | NBR | | | | | |
| North | SBL | E | C | 27.5 | 0.26 | 86.5 |
| | SBT | | F | 82.7 | 0.98 | 271.7 |
| | SBR | | | | | |

### 5.3.3. No Geometric Improvement (Do Nothing) - Background Conditions 2051

Considering the Growth Management Strategy for the City of Kawartha Lakes for the year 2051, traffic capacity analysis has been conducted for the horizon year 2051. The analysis is based on the background traffic volumes in 2051, the existing intersection configuration and control, and the current signal timing. The results of the analysis for AM peak hour for the intersections are summarized in **Table 5** and Synchro analysis outputs are provided for reference in **Appendix B**.

As depicted in **Table 5**, LOS for the majority of intersection approaches and individual

movements is categorized as F. The 95th queue length for the eastbound and westbound is expected to be 279.2 m or higher. Consequently, the intersection is projected to operate at an extremely low LOS, resulting in lengthier delays for roadway users, estimated at approximately 274 seconds (for eastbound left movement). Again, the capacity analysis did not take into account the potential increase in traffic volumes due to new developments near the intersection. Therefore, it is imperative to implement improvements for this intersection by the specified horizon year.

Table 5: Operation Analysis for Background Traffic Conditions - 2051

| Approach | Movement | BG 2051 | | | | |
|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | Delay (s/veh) | v/c | 95th Queue (m) |
| West | EBL | F | F | 274 | 1.49 | 60.9 |
| | EBT | | F | 92.4 | 1.09 | 311.7 |
| | EBR | | | | | 312.1 |
| East | WBL | F | C | 29.5 | 0.34 | 64.9 |
| | WBT | | F | 88.5 | 1.07 | 279.2 |
| | WBR | | | | | 282.7 |
| South | NBL | E | E | 74.5 | 0.97 | 78.7 |
| | NBT | | C | 34.3 | 0.49 | 61.9 |
| | NBR | | | | | |
| North | SBL | F | C | 27.5 | 0.33 | 89.1 |
| | SBT | | F | 187.1 | 1.28 | 243.6 |
| | SBR | | | | | |

## 5.4. South Approach Modification

As mentioned in **Section 3**, the preferred option (having 4 lanes) cannot be implemented for the south approach due to the presence of the underground parking lot of the Ambassador Apartments property. Accordingly, the capacity analysis was conducted to evaluate the traffic operations after eliminating one of the lanes from the preferred option. In other words, the south approach will be limited to three lanes.

In order to assign the remaining three lanes to left turn, through and right lane, two options were considered in the analysis with the following configuration of the south approach:

- **Option 1**: Two left turns and one shared through / right turn lane (**Figure 8-a**).

- **Option 2**: One left turn lane, one through lane, and one shared through / right turn lane (**Figure 8-b**).

The capacity analysis was conducted for two horizon years: 2037 and 2051.

a. Option 1 b. Option 2

Figure 8: South Approach Configuration of Option 1 and Option 2

### 5.4.1. Option 1 – Horizon Year 2037

Similar to the "No Geometric Improvement (Do Nothing)" scenario for the horizon year 2037 mentioned in **Section 5.3.2**, the capacity analysis is based on the background traffic volumes in 2037, the proposed configuration of the intersection mentioned in **Sections 3** and **Section 5.4**, and the current signal timing. The results of the analysis for AM peak hour for the intersections are summarized in **Table 6** and Synchro analysis outputs are provided for reference in **Appendix B**.

As shown in **Table 6,** there is a significant improvement in the intersection traffic conditions. The LOS of all approaches is expected to be C and LOS for the individual movement is D or better except for eastbound left (LOS E). The maximum delay is expected to be 56.4s/veh with a maximum v/c ratio of 0.94. The 95th percentile queue length is projected to reach a maximum of 262.5 m in the westbound through lane, indicating a 95% probability that the queue length will not exceed this value. Nevertheless, the average queue length for this specific movement or lane stands at 155.3 m, reflecting

the typical queue length experienced during the majority of the time since the difference between the 95th queue and average queue length is significant (approximately 40%). It should be noted that the main intersection near Kent Street West and Angeline Street North, prone to queue impacts from the westbound through lane, is the Kent Street West and Adelaide Street South intersection, located approximately 260 m away. Consequently, there is no anticipation of traffic spillback occurring upstream of the Kent Street West and Adelaide Street South intersection. However, optimizing signal timing (optimizing cycle length to 100 s instead of 113 s) would reduce the 95th queue length to 152m and the average queue length to 78.4m as shown in **Table 7**.

Table 6: Option 1 - Operation Analysis for Background Traffic Conditions – 2037

| Approach | Movement | Existing 2037 | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | C | E | 0.94 | 56.4 | 97.5 | 62.1 |
| | EBT | | C | 0.47 | 20.5 | 104.6 | 63.6 |
| | EBR | | B | 0.24 | 18.1 | 35.4 | 17.5 |
| East | WBL | C | B | 0.14 | 18.3 | 83.7 | 27.6 |
| | WBT | | C | 0.73 | 31.1 | 262.5 | 155.3 |
| | WBR | | | | | 256.9 | 148.5 |
| South | NBL | C | C | 0.33 | 26.6 | 40.8 | 13.2 |
| | NBT | | D | 0.61 | 40.4 | 53.7 | 34 |
| | NBR | | | | | 55.5 | 31.9 |
| North | SBL | C | C | 0.32 | 27.8 | 28.3 | 13.9 |
| | SBT | | D | 0.23 | 35.2 | 30.4 | 16 |
| | SBR | | D | 0.2 | 35.2 | 75 | 42.6 |

Table 7: Option 1 - Operation Analysis for Background Traffic Conditions – 2037 After Optimizing Cycle Length

| Approach | Movement | Cycle Optimization 2037 | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | C | E | 0.99 | 66.3 | 103.3 | 65.4 |
| | EBT | | B | 0.47 | 18.8 | 152.4 | 71.6 |
| | EBR | | B | 0.23 | 16.6 | 41.3 | 17.9 |
| East | WBL | C | B | 0.13 | 15.7 | 47.9 | 12 |
| | WBT | | C | 0.68 | 26.1 | 115.1 | 78.4 |
| | WBR | | | | | 103 | 70.6 |
| South | NBL | C | C | 0.36 | 26.8 | 42.2 | 13.7 |
| | NBT | | D | 0.59 | 36.9 | 56.8 | 35.3 |
| | NBR | | | | | 47.7 | 28.5 |
| North | SBL | C | C | 0.35 | 27 | 29.7 | 13.9 |
| | SBT | | C | 0.21 | 31.9 | 30.1 | 15.4 |
| | SBR | | C | 0.46 | 34.5 | 60.2 | 35 |

### 5.4.2. Option 1 – Horizon Year 2051

The configuration and parameters of Option 1 used in the capacity analysis and simulation for the horizon year 2051 were the same as in 2037 except for the background traffic volumes (background traffic of 2051). The results of the analysis for AM peak hour for the intersections are summarized in **Table 8** and Synchro analysis outputs are provided for reference in **Appendix B**.

As per the capacity analysis, the intersection approaches are expected to operate at LOS of E or better. The individual movement is expected to operate at LOS D or better except for eastbound left (LOS F). This is expected because the traffic volume is 371 veh/h. As per Geometric Design Guide for Canadian Roads (GDGCR)[6], double left-turn lanes are normally would be considered when the peak left-turn volumes exceed 300 veh/h. Also, the 95th queue length and the average queue are high for eastbound and westbound movement. Accordingly, the Kent Street West and Adelaide Street South intersection is

[6] Transportation Association of Canada – TAC, Geometric Design Guide for Canadian Roads, 2017

prone to queue impacts from the westbound through lane. Optimizing signal timing (phase split optimization - see **Appendix B**) would mitigate the queue length as shown in **Table 9**; however, the Adelaide Street South intersection would be prone to queue impacts from the westbound through lane. Again, the capacity analysis was conducted considering only background traffic volume (additional trips generated by new developments within the vicinity of the intersection were not considered).

Table 8: Option 1 - Operation Analysis for Background Traffic Conditions - 2051

| Approach | Movement | Existing 2051 | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | E | F | 1.34 | 204.1 | 104.8 | 94.9 |
| | EBT | | C | 0.62 | 25.9 | 376.5 | 275.6 |
| | EBR | | C | 0.37 | 22.8 | 64.9 | 28.4 |
| East | WBL | D | B | 0.21 | 19.8 | 86.9 | 28.4 |
| | WBT | | D | 0.95 | 49.6 | 265.2 | 260.8 |
| | WBR | | | | | 264.1 | 260.5 |
| South | NBL | C | C | 0.38 | 25.6 | 56.3 | 23.6 |
| | NBT | | D | 0.7 | 43.6 | 64.3 | 43.1 |
| | NBR | | | | | 71.1 | 43.8 |
| North | SBL | D | C | 0.41 | 27.7 | 39.3 | 19.2 |
| | SBT | | D | 0.26 | 35.3 | 260.4 | 140.8 |
| | SBR | | D | 0.51 | 38.3 | 149.2 | 100 |

Table 9: Option 1 - Operation Analysis for Background Traffic Conditions – 2051 After Split Optimization

| Approach | Movement | Split Optimization | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | C | E | 0.98 | 74.7 | 113.1 | 74 |
| | EBT | | C | 0.52 | 20.2 | 304.9 | 139.3 |
| | EBR | | B | 0.29 | 17.6 | 47.4 | 22.8 |
| East | WBL | D | C | 0.18 | 20.3 | 82.5 | 26.9 |
| | WBT | | D | 0.93 | 46.7 | 276.7 | 258.6 |
| | WBR | | | | | 279.7 | 257.3 |
| South | NBL | D | C | 0.49 | 33.1 | 71.5 | 38.2 |
| | NBT | | D | 0.75 | 49.8 | 82.3 | 55.3 |
| | NBR | | | | | 73.1 | 43.4 |
| North | SBL | D | D | 0.57 | 35.7 | 41.2 | 20.3 |
| | SBT | | D | 0.27 | 37.4 | 310 | 129.9 |
| | SBR | | D | 0.5 | 40.4 | 153.1 | 95.9 |

### 5.4.3. Option 2 – Horizon Year 2037

As previously indicated in **Section 5.4**, Option 2 shares the same setup as Option 1 with the exception of the southern approach, where there is one left turn lane, one through lane, and one shared through-right turn lane. The capacity analysis for Option 2 is based on the background traffic volumes in 2037 and the current signal timing. The results of the analysis for AM peak hour for the intersections are summarized in **Table 10** and Synchro analysis outputs are provided for reference in **Appendix B**.

As shown in **Table 10**, there is an improvement in the intersection traffic conditions. The LOS of all approaches and individual movements is expected to be D or better, except for the eastbound left (LOS E). The maximum delay is expected to be 70.6s with a maximum v/c ratio of 0.98. The 95th percentile queue length is projected to reach a maximum of 136.8 m in the westbound through lane, indicating a 95% probability that the queue length will not exceed this value. Nevertheless, the average queue length for this specific movement or lane stands at 90.8 m, reflecting the typical queue length experienced during the majority of the time since the difference between the 95th queue

and average queue length is significant (approximately 33%). Consequently, there is no anticipation of traffic spillback occurring upstream of the Kent Street West and Adelaide Street South intersection.

However, optimizing signal timing (see **Appendix B**) would reduce the 95th queue length to 100.6m and the average queue length to 68.2 m as shown in **Table 11**.

Table 10: Option 2 - Operation Analysis for Background Traffic Conditions – 2037

| Approach | Movement | Existing 2037 | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | C | E | 0.98 | 70.6 | 78.6 | 48.9 |
| | EBT | | C | 0.47 | 21.8 | 84.4 | 50.7 |
| | EBR | | B | 0.23 | 19.2 | 35.1 | 14.7 |
| East | WBL | C | B | 0.14 | 19.5 | 58.6 | 16 |
| | WBT | | C | 0.74 | 33.1 | 136.8 | 90.8 |
| | WBR | | | | | 130.7 | 84.3 |
| South | NBL | C | C | 0.57 | 26.6 | 63.9 | 38.1 |
| | NBT | | C | 0.26 | 34 | 27.6 | 14.8 |
| | NBR | | | | | 29.1 | 15 |
| North | SBL | D | C | 0.31 | 30.4 | 30.1 | 13.9 |
| | SBT | | D | 0.26 | 38.1 | 30.5 | 17.3 |
| | SBR | | D | 0.2 | 37.9 | 55.7 | 30.9 |

Table 11: Option 2 - Operation Analysis for Background Traffic Conditions – 2037 After Split Optimization

| Approach | Movement | Split Optimization | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | B | C | 0.75 | 22.7 | 63.3 | 38.1 |
| | EBT | | B | 0.4 | 15.8 | 60.6 | 38.8 |
| | EBR | | B | 0.23 | 14.5 | 27.2 | 12.7 |
| East | WBL | C | B | 0.13 | 17.3 | 35.6 | 9 |
| | WBT | | C | 0.67 | 28.3 | 100.6 | 68.2 |
| | WBR | | | | | 94.4 | 62.5 |
| South | NBL | D | D | 0.81 | 49.6 | 74 | 43.7 |
| | NBT | | D | 0.34 | 38.3 | 46.2 | 19.6 |
| | NBR | | | | | 35.6 | 18.2 |
| North | SBL | D | C | 0.35 | 32.5 | 32.1 | 15.6 |
| | SBT | | D | 0.26 | 37.7 | 31.4 | 16.3 |
| | SBR | | D | 0.2 | 37.5 | 47.5 | 27.9 |

### 5.4.4. Option 2 – Horizon Year 2051

The configuration and parameters of Option 2 used in the capacity analysis and simulation for the horizon year 2051 were the same as in 2037 except for the background traffic volumes (background traffic of 2051). The results of the analysis for AM peak hour for the intersections are summarized in **Table 12** and Synchro analysis outputs are provided for reference in **Appendix B**.

As per the capacity analysis, the intersection approaches and individual movements are expected to operate at LOS of E or better (except for the eastbound through movement which has LOS of F). It is expected since the traffic volume for this single left turn lane is greater than 300 veh/h. Similar to Option 1, the 95th queue length and the average queue are high for eastbound and westbound movements. Accordingly, the Kent Street West and Adelaide Street South intersection is prone to queue impacts from the westbound through lane. Optimizing signal timing (phase split optimization) would mitigate the queue

length as shown in **Table 13**. However, it is anticipated that the upstream of the Kent Street West and Adelaide Street South intersection could be impacted. In other words, the queue at the intersection of Kent Street West and Angeline Street may overflow to the adjacent intersection (Kent Street West and Adelaide Street South), resulting in delays and potential congestion. Again, the capacity analysis was conducted considering only background traffic volume (additional trips generated by new developments within the vicinity of the intersection were not considered).

Table 12: Option 2 - Operation Analysis for Background Traffic Conditions - 2051

| Approach | Movement | Existing 2051 | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | E | F | 1.37 | 219.6 | 102.3 | 95 |
| | EBT | | C | 0.64 | 27.9 | 378.8 | 276.7 |
| | EBR | | C | 0.38 | 24.3 | 76.9 | 31.1 |
| East | WBL | E | C | 0.23 | 21.1 | 99.5 | 38.7 |
| | WBT | | E | 0.98 | 56.6 | 263.3 | 259 |
| | WBR | | | | | 265.9 | 258.2 |
| South | NBL | C | C | 0.67 | 28.3 | 81.9 | 50.8 |
| | NBT | | C | 0.31 | 33.9 | 67.4 | 27.2 |
| | NBR | | | | | 39.1 | 21.5 |
| North | SBL | D | C | 0.36 | 29.6 | 35.7 | 17.4 |
| | SBT | | D | 0.29 | 37.8 | 37.3 | 22.6 |
| | SBR | | D | 0.57 | 42.3 | 67.9 | 41.2 |

Table 13: Option 2 - Operation Analysis for Background Traffic Conditions – 2051 After Split Optimization

| Approach | Movement | Split Optimization | | | | | |
|---|---|---|---|---|---|---|---|
| | | LOS Approach | LOS Movement | v/c | Delay s/veh | 95th Queue (m) | Average Queue (m) |
| West | EBL | C | E | 0.96 | 67.9 | 103.9 | 68.8 |
| | EBT | | B | 0.51 | 19.1 | 130.4 | 72.5 |
| | EBR | | B | 0.29 | 16.7 | 45.9 | 21.5 |
| East | WBL | D | B | 0.18 | 19.4 | 87.5 | 29.3 |
| | WBT | | D | 0.91 | 43.3 | 291.8 | 234.9 |
| | WBR | | | | | 295.3 | 229.1 |
| South | NBL | E | F | 0.99 | 84.7 | 111.3 | 89.9 |
| | NBT | | D | 0.4 | 39.1 | 250.7 | 142.5 |
| | NBR | | | | | 182.2 | 79.6 |
| North | SBL | D | C | 0.46 | 33.7 | 35.8 | 17.7 |
| | SBT | | D | 0.29 | 38.1 | 39.3 | 21.9 |
| | SBR | | D | 0.53 | 41.5 | 75.3 | 44.5 |

It should be noted that the length of the storage areas of the left and right turns used in the capacity analysis and simulation were as follows:

- Eastbound left and right: 60 m each
- Westbound left: 45 m
- Northbound left and right: 60 m each
- Southbound left: 50 m
- Southbound right: 70 m

It should be further noted that the capacity analysis and simulation were carried out, taking into account solely the background traffic volume, and it did not account for any additional trips generated by new developments in the vicinity of the intersection.

# 6. SWEPT PATH ANALYSIS

Swept path analysis was carried out for both options, taking into account the WB-19 vehicle type. As illustrated in **Figure 9** and **Figure 10**, the layout of these options is capable of accommodating the turning maneuvers required for this specific vehicle. The Swept path analysis shows all movements for both presented options could be properly accommodated and eliminating the right turn lane of the south approach (northbound movement) won't affect vehicle turning maneuvers.

It should be noted that the northbound travel lane is situated near the property line of the Ambassador Apartments. Therefore, it is strongly advised to conduct a structural review to assess the safety of the underground parking lot.

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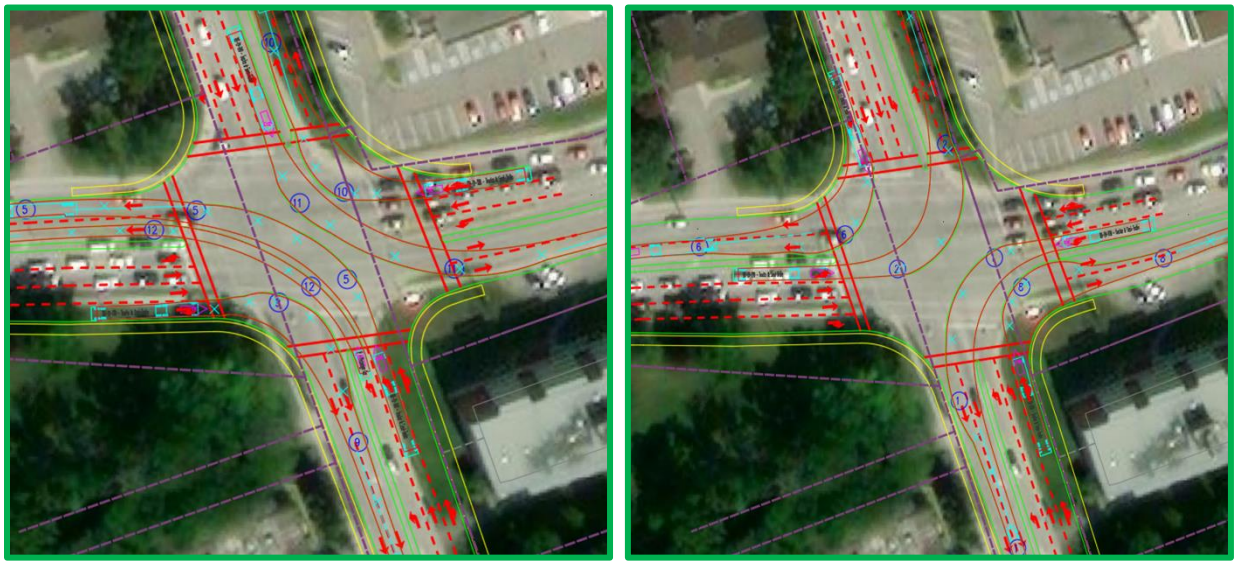


Figure 9: Swept Path Analysis for Option 1

Figure 10: Swept Path Analysis for Option 2

# 7. COMPARISON OF THE DIFFERENT SCENARIOS

- The results of the analyses can be outlined as follows: Horizon year 2037:
  - **No Geometric Improvement (Do Nothing) Option**: The intersection approaches are anticipated to function with a LOS of E or better, while the individual movements are projected to achieve a LOS of D or better, except for the eastbound left and southbound through movements, which are predicted to experience a LOS of F. Additionally, it is anticipated that the 95th percentile queue length will be significant for the eastbound and westbound movements, as well as for the southbound through movement. Accordingly, improvements for the intersection are recommended by this horizon year. Since one lane of the south approach is located above the underground parking lot of Ambassador Apartments property, therefore, reduction at least one lane is mandatory. Accordingly, "No Geometric Improvement (Do Nothing)" Option is not a selected choice.
  - **Option 1**: The intersection approaches are anticipated to function with a LOS of C or better, while the individual movements are projected to achieve a LOS of D or better, except for the eastbound left movement (LOS E). Furthermore, there is an expectation that the 95th percentile queue length will be notably elevated for the eastbound and westbound movements. Nevertheless, it is not anticipated that the queue length will have an impact on the intersections upstream.

Implementing optimizations to the current signal timing can help alleviate these queue lengths and prevent any overflow from affecting the upstream intersection.

- **Option 2**: The intersection approaches and individual movements are anticipated to function with a LOS of D or better, except for eastbound left movement (LOS E). Furthermore, there is an expectation that the 95th percentile queue length will be notably elevated for the eastbound and westbound movements. However, it is not anticipated that the queue length will have an impact on the intersections upstream. Implementing optimizations to the current signal timing can help alleviate these queue lengths and prevent any overflow from affecting the upstream intersection.
- Given the information provided above, Option 1 and Option 2 can be regarded as viable choices for enhancing the operational conditions of the intersection.

- Horizon year 2051:
  - **Option 1**: The intersection approaches are expected to operate at LOS E or better while individual movements are projected to operate at a LOS of D or better, except for the eastbound movement (LOS F). However, it is anticipated that both the 95th percentile and average queue length will be significantly high for the eastbound, westbound, and southbound movements. Signal timing optimizations could help reduce queue lengths. , it is expected that the upstream of the Kent Street West and Adelaide Street South intersection will be affected.
  - **Option 2**: The intersection approaches and individual movements are anticipated to function with a LOS of E or better, except for the eastbound through movement which is expected to operate at a LOS of F. Furthermore, there is an expectation that the 95th percentile queue length will be notably elevated for the eastbound and westbound movements. The implementation of signal timing optimizations can effectively mitigate these queue lengths for the majority of the time.
  - Given the information provided above, both Option 1 and Option 2 appear to be feasible options for eliminating the right turn lane from the south approach of preferred alternative 2 (which consists of two left turn lanes, one through lane, and one shared through-right lane). However, it is anticipated that operational challenges may arise for eastbound and westbound movements. This is expected because of the high traffic volume at the eastbound left turn lane (greater than 300 veh/h) and westbound through lane.

- Considering all the above, both Option 1 and Option 2 can be regarded as viable choices for enhancing the operational conditions of the intersection. The owner may decide to implement either of these options at any time. Having said that, Option 2 has been chosen as the preferred option (**Figure 11**) for its consistency, traffic flow, queue length, continuity, and safety. In this selection, the preference was also given to allocate two lanes for through-lane traffic.

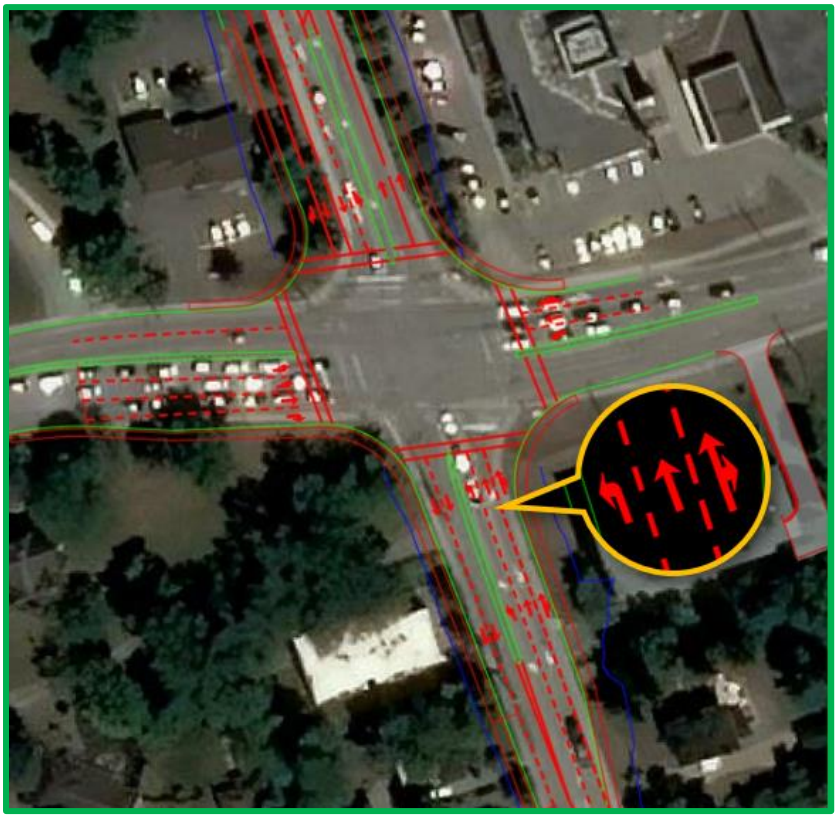


Figure 11: South Approach Configuration of the Preferred Option

# 8. CONCLUSION

This report has been provided to document the assessment of the traffic conditions associated with the previously suggested preferred alternative, which is grounded in a capacity analysis performed by HDR Corporation. The analysis takes into account the need for the elimination of one lane, specifically the northbound right turn lane, from the south approach due to the presence of the underground parking lot.

- To achieve the objective of this report,
  - Traffic counts were collected for the intersection from 7:00 to 16:00.
  - Capacity analysis was conducted for the 2027, 2037, and 2051 horizon years.
  - Background traffic volumes for the horizon years were determined based on a growth rate of 1.6%. The analysis did not take into account the trips generated by future new developments in the vicinity of the intersection.
  - Multiple scenarios were considered in the analysis for the south approach lane configuration as described in detail in **Section 5**.
  - Simulation for traffic flow was conducted to determine the 95th and average queue length.
  - Capacity analysis and simulation considered the existing signal timing and also an optimized one.
- Based on the capacity analysis, in regards to the "No Geometric Improvement (Do Nothing)" option and the maintenance of only two lanes for the northbound (south approach), due to the expected LOS of E & F observed and the expected significant 95th percentile queue length, improvements for the intersection are recommended before the horizon years of 2037 and 2051.
- Since one lane of the south approach in the presented preferred option is situated above the underground parking lot of Ambassador Apartment property, the reduction of at least one lane is mandatory. Consequently, for the horizon years 2037 and 2051, both options presented in Section 5.4 (South Approach Modification) can be considered viable choices for enhancing the operational conditions of the intersection. The owner may choose to implement either of these options at any time. That being said, Option 2 has been designated as the preferred option due to its slightly better consistency, traffic flow, queue length, continuity, and safety.

# 9. ADDITIONAL FINDINGS AND RECOMMENDATIONS

During the study, which primarily focused on evaluating the consequences of removing one lane from the south approach (northbound movement) of the Kent Street West and Angeline Street Intersection situated above the Ambassador Apartments from the southeast, the examination and synchro model review provided additional insights. These

findings, considered as added value, have prompted recommendations deemed crucial for enhancing the overall operational conditions of the site. Therefore, supplementary recommendations are presented for consideration and potential implementation. Supplemental studies are necessary to assess each recommendation and address associated concerns. These studies will help gauge the potential consequences should the choice be to implement any or all of these suggestions.

## 9.1. East Approach:

### 9.1.1. Extend Storage Area

Extend the storage area for the westbound left turn to minimum of 45 meters to mitigate queue length, reduce delays, and enhance Level of Service (**Figure 12**). Implementation of this extension can be incorporated during the detailed design stage. Considering the volume of Westbound through traffic, extending the storage area for westbound left turn could assist with better through movements. Without the aforementioned storage expansion, the 95th percentile queue length for westbound traffic is anticipated to reach 279.2 meters or more. As a consequence, the intersection is projected to operate at a low LOS, leading to extended delays for roadway users. further details can be found in **Table 5**.

Figure 12: East Approach Configuration of the Preferred Option

## 9.2. West Approach:

### 9.2.1. Extend Storage Area

Recommendation: Extend the storage area for both eastbound left and right turns to minimum of 60 meters each to alleviate queue length, reduce delays, and enhance Level of Service (**Figure 13**). This extension can be integrated during the detailed design stage. Without the specified storage expansions, the intersection is projected to operate at an exceptionally low LOS, leading to prolonged delays for roadway users. The estimated delay for the eastbound left movement is approximately 274 seconds. Additional details can be found in **Table 5**.

Figure 13: Extend Storage Area of the West Approach

### 9.2.2. Considering Two (2) Left-turn Lanes

Preliminary studies conducted as part of this investigation indicate that the intersection could derive advantages from improved LOS, shorter queue lengths, and reduced delays for eastbound roadway users when two lanes are allocated to left turns (as opposed to the currently depicted one lane). Opting for double left turns for the eastbound movement (**Figure 14**) aligns with the recommendation of the GDGCR, especially given that the

traffic volume exceeds 300 vehicles per hour. Capacity analyses for this configuration are yet to be conducted to assess its impact on the operational performance of the intersection. Further traffic analysis is recommended to validate the findings, thoroughly examine their advantages and disadvantages and delve into the specific details of the proposed adjustments.

Figure 14: West Approach with Two left-turn Lanes

## 9.3. South Approach:

### 9.3.1. Structural Review:

While this report confirms the feasibility of reducing one lane from the south approach to avoid positioning a lane over the underground parking lot of Ambassador Apartment property, it is recommended to conduct a structural review. This review should assess the safety of the underground parking lot of the Ambassador Apartment property, taking into account its proximity to the nearest traffic lane and the potential impact of passing heavy trucks.

### 9.3.2. Encroachment and Landownership Concerns.

Even with the elimination of one lane above the underground parking lot of Ambassador Apartment Property, the pedestrian walkway remains within that property at the southeast

corner (**Figure 15**). A similar issue persists on the southwest corner of the intersection, particularly for No. 3 and 7 Angeline St S. A thorough review is essential to ascertain that the preferred option can be executed without encountering conflicts over property rights and legal ownership. This may necessitate the removal of one more lane from the south-north corridor. Further examination is advised to validate the aforementioned points, evaluate their advantages and disadvantages, and delve into the specifics of the proposed adjustments.

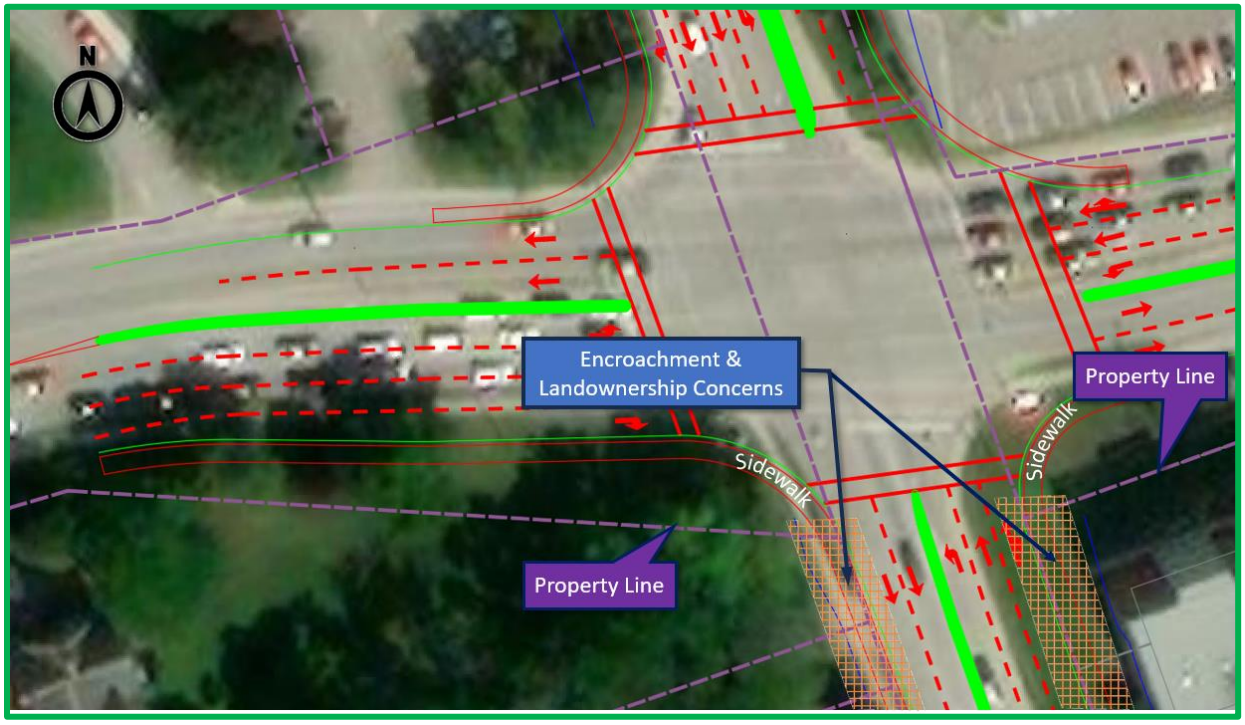



Figure 15: South Approach - Encroachment and Landownership Concerns.

## 9.4. North Approach:

### 9.4.1. Reducing Another Lane from North and South Approaches

Subject to the results of the additional studies suggested for the south approach—specifically, the recommended Structural Review and review of Encroachment and Landownership concerns—if the reduction of one more lane becomes necessary from the south approach, it will undoubtedly impact the geometric design of the north approach. On the one hand, this adjustment might aid in addressing space constraints currently faced by the design team between Memorial Hospital and the Dentist office situated on the opposite side of Angeline Street North. On the other hand, there are concerns about

the potential reduction in LOS and increased delays for road users, considering both existing and future traffic volumes. To validate these considerations, further traffic analysis is recommended. This will allow for a comprehensive exploration of the advantages and disadvantages associated with the proposed changes, along with a detailed examination of the specifics involved.

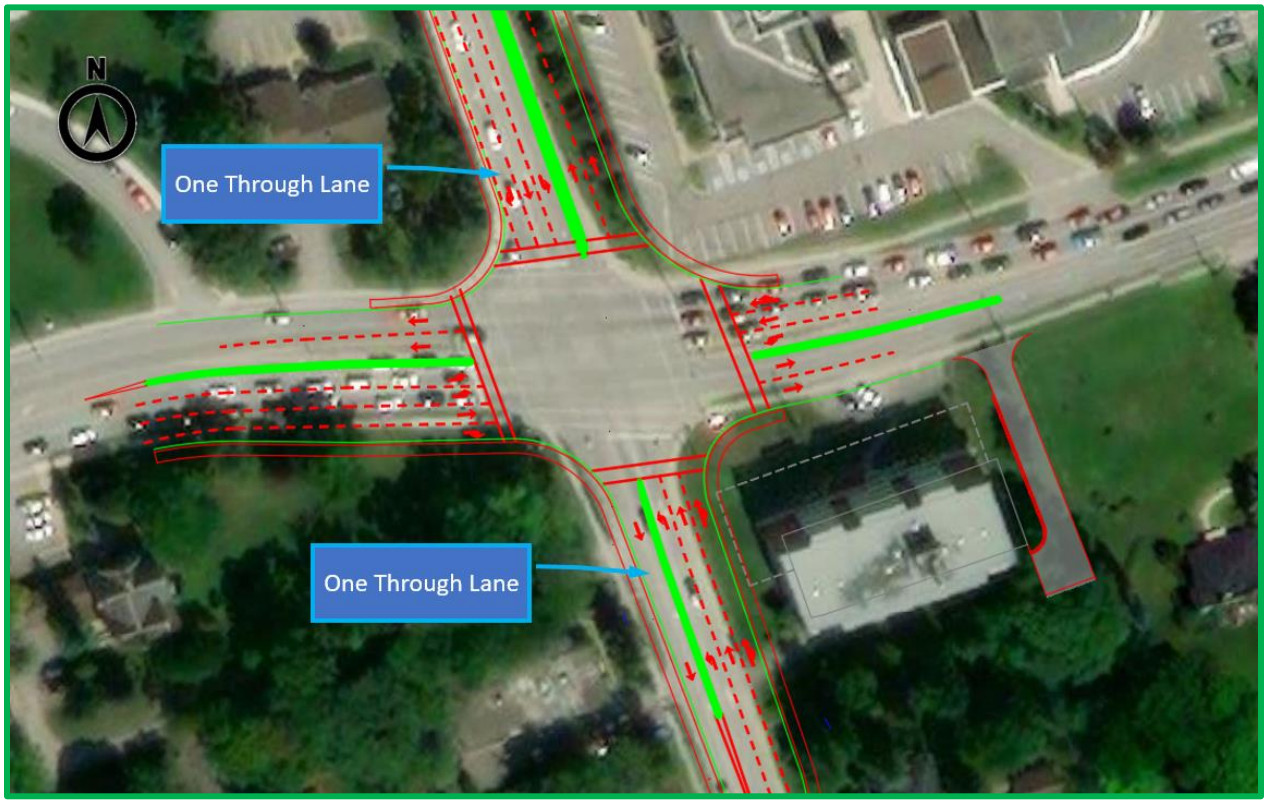



Figure 16: Reducing Another Lane from North and South Approaches

## 9.5. Extend storage area as follows:

The intersection can benefit from adjusting the storage areas on all approaches. The following suggesting are provided for consideration during the Detail Design phase:

- Eastbound left and right: 60 m each
- Westbound left: 45 m
- Northbound left and right: 60 m each
- Southbound left: 50 m
- Southbound right: 70 m

## 9.6. Optimize signal timing of the intersection.

Preliminary studies carried out as part of this investigation suggest that the intersection could experience benefits from enhanced LOS, shorter queue lengths, and reduced delays through the optimization of signal timing and phase split. Examples of these potential improvements are detailed in this report, specifically in **Table 7** under “Operation Analysis for Background Traffic Conditions – 2037 After Optimizing Cycle Length.”

# Traffic Counts

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

# Morning Peak Diagram

**Specified Period**
**From:** 7:00:00
**To:** 10:00:00

**One Hour Peak**
**From:** 9:00:00
**To:** 10:00:00

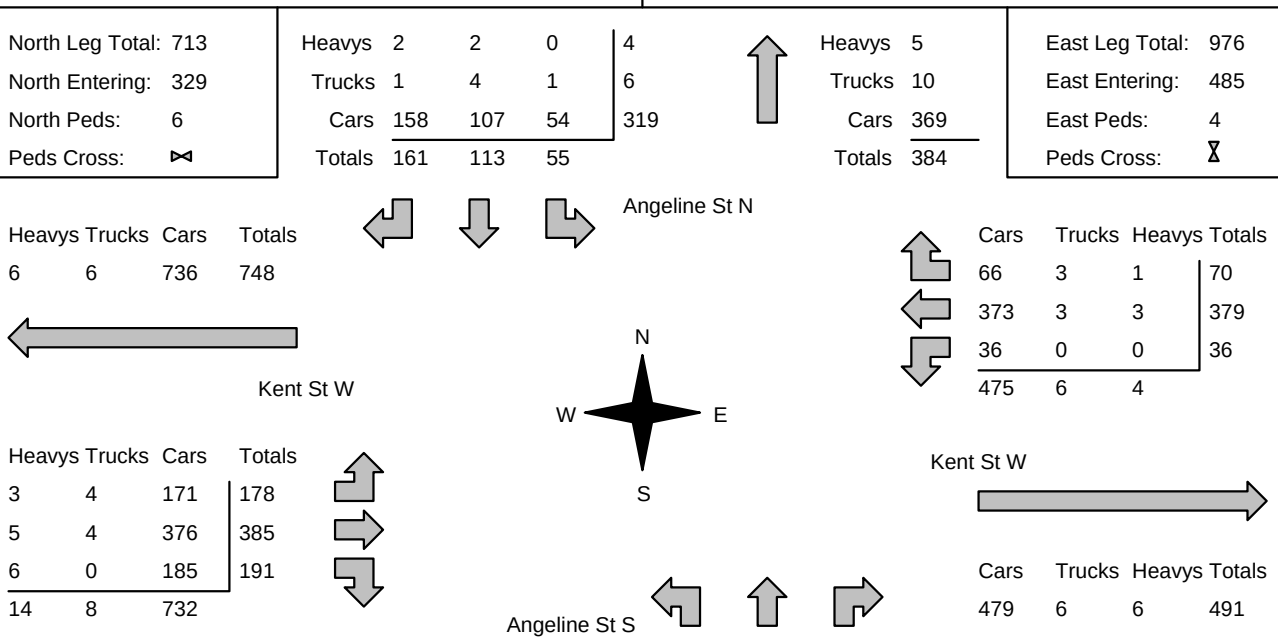
**Municipality:** Lindsay
**Site #:** 2318400001
**Intersection:** Kent St W & Angeline St S
**TFR File #:** 1
**Count date:** 1-Aug-23

**Weather conditions:**

**Person counted:**
**Person prepared:**
**Person checked:**

**** Signalized Intersection ****

**Major Road:** Kent St W runs W/E




## Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

# Mid-day Peak Diagram

**Specified Period**
**From:** 11:00:00
**To:** 13:00:00

**One Hour Peak**
**From:** 11:30:00
**To:** 12:30:00

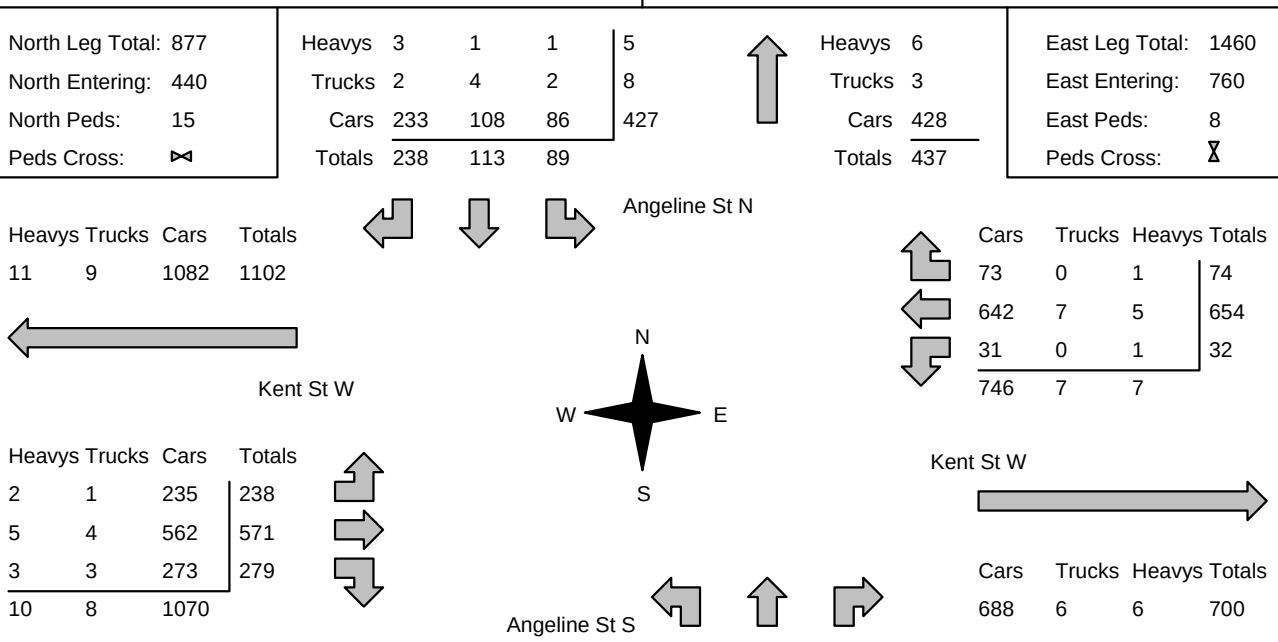
**Municipality:** Lindsay
**Site #:** 2318400001
**Intersection:** Kent St W & Angeline St S
**TFR File #:** 1
**Count date:** 1-Aug-23

**Weather conditions:**

**Person counted:**
**Person prepared:**
**Person checked:**

**** Signalized Intersection ****

**Major Road:** Kent St W runs W/E




## Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

# Afternoon Peak Diagram

**Specified Period**
**From:** 15:00:00
**To:** 18:00:00

**One Hour Peak**
**From:** 16:30:00
**To:** 17:30:00

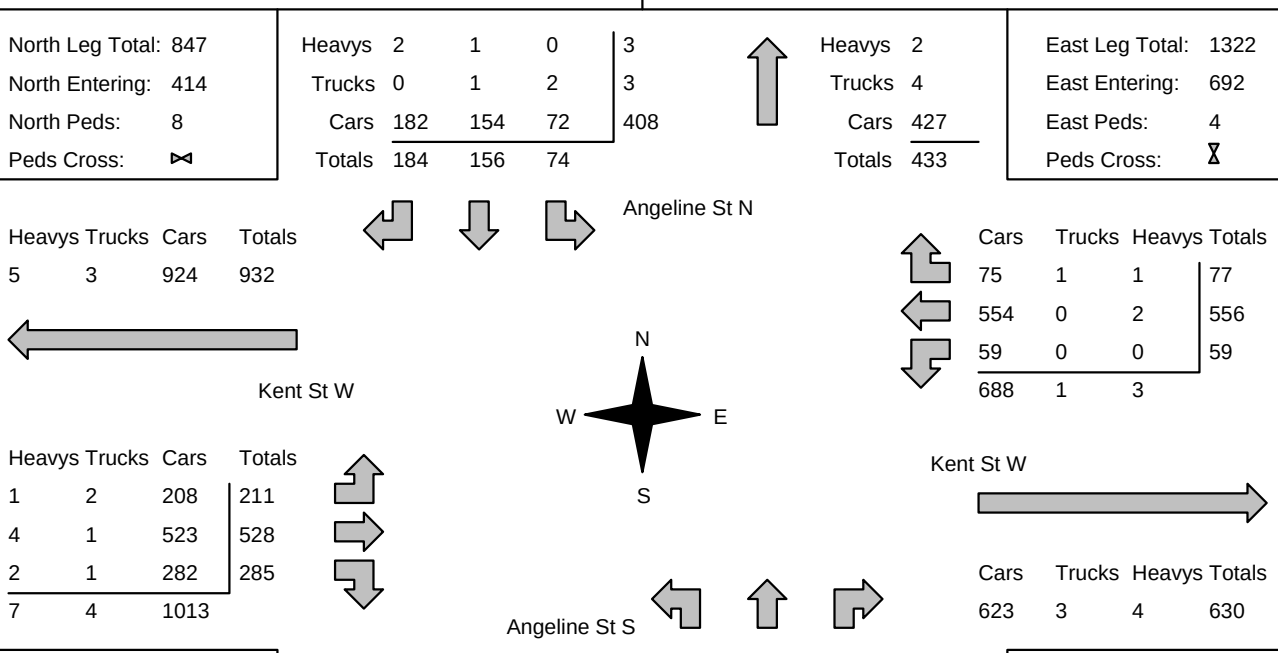
**Municipality:** Lindsay
**Site #:** 2318400001
**Intersection:** Kent St W & Angeline St S
**TFR File #:** 1
**Count date:** 1-Aug-23

**Weather conditions:**

**Person counted:**
**Person prepared:**
**Person checked:**

**** Signalized Intersection ****

**Major Road:** Kent St W runs W/E




## Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

# Total Count Diagram

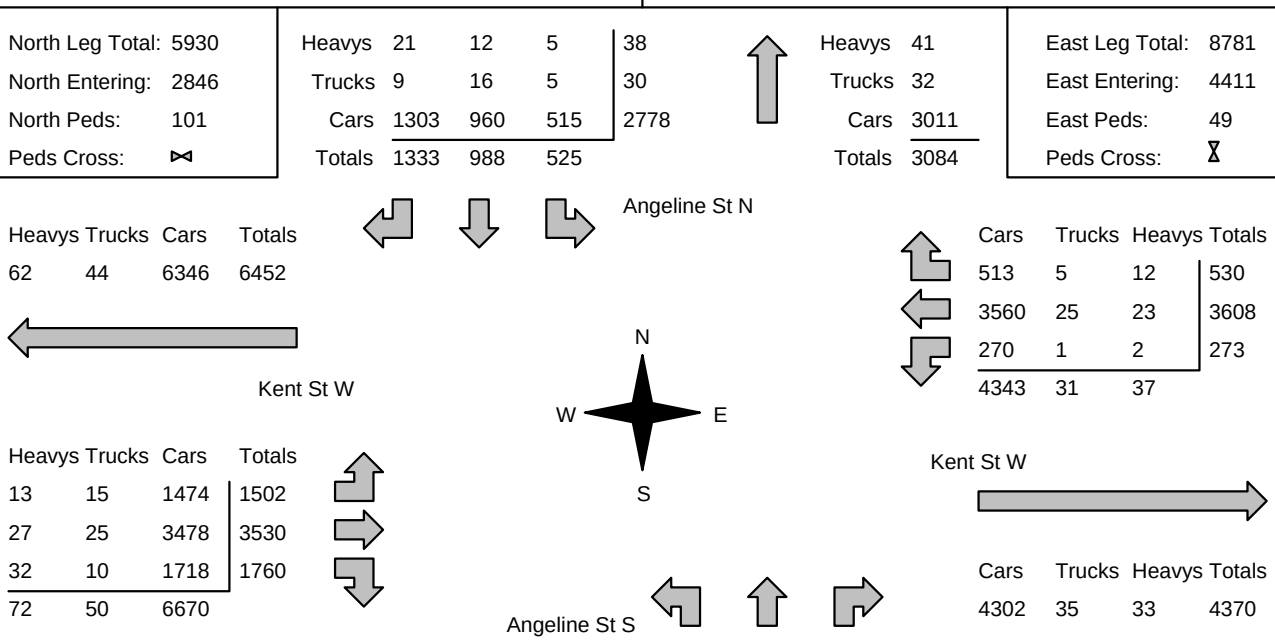
**Municipality:** Lindsay
**Site #:** 2318400001
**Intersection:** Kent St W & Angeline St S
**TFR File #:** 1
**Count date:** 1-Aug-23

**Weather conditions:**

**Person counted:**
**Person prepared:**
**Person checked:**

**** Signalized Intersection ****

**Major Road:** Kent St W runs W/E




## Comments

Accu-Traffic Inc.
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# Traffic Count Summary

**Intersection:** Kent St W & Angeline St S | **Count Date:** 1-Aug-23 | **Municipality:** Lindsay

## North Approach Totals

| Hour Ending | Includes Cars, Trucks, & Heavys | | | | Total Peds |
|---|---|---|---|---|---|
| | Left | Thru | Right | Grand Total | |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 |
| 8:00:00 | 26 | 97 | 83 | 206 | 5 |
| 9:00:00 | 56 | 113 | 127 | 296 | 9 |
| 10:00:00 | 55 | 113 | 161 | 329 | 6 |
| 11:00:00 | 0 | 0 | 0 | 0 | 0 |
| 12:00:00 | 94 | 122 | 207 | 423 | 15 |
| 13:00:00 | 75 | 105 | 220 | 400 | 14 |
| 15:00:00 | 0 | 0 | 0 | 0 | 0 |
| 16:00:00 | 61 | 154 | 184 | 399 | 28 |
| 17:00:00 | 95 | 161 | 185 | 441 | 13 |
| 18:00:00 | 63 | 123 | 166 | 352 | 11 |
| Totals: | 525 | 988 | 1333 | 2846 | 101 |

North/South Total Approaches: 5724

## South Approach Totals

| Hour Ending | Includes Cars, Trucks, & Heavys | | | | Total Peds |
|---|---|---|---|---|---|
| | Left | Thru | Right | Grand Total | |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 |
| 8:00:00 | 153 | 95 | 26 | 274 | 3 |
| 9:00:00 | 183 | 150 | 37 | 370 | 12 |
| 10:00:00 | 208 | 136 | 51 | 395 | 15 |
| 11:00:00 | 0 | 0 | 0 | 0 | 0 |
| 12:00:00 | 209 | 119 | 52 | 380 | 17 |
| 13:00:00 | 214 | 138 | 42 | 394 | 23 |
| 15:00:00 | 0 | 0 | 0 | 0 | 0 |
| 16:00:00 | 175 | 130 | 41 | 346 | 21 |
| 17:00:00 | 186 | 146 | 33 | 365 | 36 |
| 18:00:00 | 183 | 138 | 33 | 354 | 30 |
| S Totals: | 1511 | 1052 | 315 | 2878 | 157 |

## East Approach Totals

| Hour Ending | Includes Cars, Trucks, & Heavys | | | | Total Peds |
|---|---|---|---|---|---|
| | Left | Thru | Right | Grand Total | |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 |
| 8:00:00 | 25 | 170 | 32 | 227 | 2 |
| 9:00:00 | 24 | 297 | 48 | 369 | 7 |
| 10:00:00 | 36 | 379 | 70 | 485 | 4 |
| 11:00:00 | 0 | 0 | 0 | 0 | 0 |
| 12:00:00 | 32 | 588 | 79 | 699 | 12 |
| 13:00:00 | 34 | 652 | 77 | 763 | 5 |
| 15:00:00 | 0 | 0 | 0 | 0 | 0 |
| 16:00:00 | 35 | 495 | 75 | 605 | 8 |
| 17:00:00 | 51 | 542 | 76 | 669 | 7 |
| 18:00:00 | 36 | 485 | 73 | 594 | 4 |
| Totals: | 273 | 3608 | 530 | 4411 | 49 |

East/West Total Approaches: 11203

## West Approach Totals

| Hour Ending | Includes Cars, Trucks, & Heavys | | | | Total Peds |
|---|---|---|---|---|---|
| | Left | Thru | Right | Grand Total | |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 |
| 8:00:00 | 88 | 197 | 133 | 418 | 5 |
| 9:00:00 | 141 | 328 | 154 | 623 | 16 |
| 10:00:00 | 178 | 385 | 191 | 754 | 5 |
| 11:00:00 | 0 | 0 | 0 | 0 | 0 |
| 12:00:00 | 239 | 515 | 275 | 1029 | 8 |
| 13:00:00 | 240 | 584 | 272 | 1096 | 13 |
| 15:00:00 | 0 | 0 | 0 | 0 | 0 |
| 16:00:00 | 231 | 522 | 229 | 982 | 18 |
| 17:00:00 | 206 | 534 | 247 | 987 | 8 |
| 18:00:00 | 179 | 465 | 259 | 903 | 8 |
| W Totals: | 1502 | 3530 | 1760 | 6792 | 81 |

## Calculated Values for Traffic Crossing Major Street

| Hours Ending: | 8:00 | 9:00 | 10:00 | 12:00 | 13:00 | 16:00 | 17:00 | 18:00 |
|---|---|---|---|---|---|---|---|---|
| Crossing Values: | 283 | 412 | 408 | 445 | 445 | 416 | 457 | 396 |

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

**Count Date: 1-Aug-23 Site #: 2318400001**

| Interval Time | Passenger Cars - North Approach | | | | | | Trucks - North Approach | | | | | | Heavys - North Approach | | | | | | Pedestrians | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | North Cross | |
| | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15:00 | 8 | 8 | 29 | 29 | 21 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 |
| 7:30:00 | 12 | 4 | 47 | 18 | 36 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 3 | 1 |
| 7:45:00 | 17 | 5 | 67 | 20 | 58 | 22 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 1 |
| 8:00:00 | 26 | 9 | 97 | 30 | 78 | 20 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 1 |
| 8:15:00 | 35 | 9 | 116 | 19 | 106 | 28 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 7 | 2 |
| 8:30:00 | 43 | 8 | 147 | 31 | 140 | 34 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 2 | 2 | 6 | 2 | 9 | 2 |
| 8:45:00 | 55 | 12 | 177 | 30 | 166 | 26 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 7 | 1 | 12 | 3 |
| 9:00:00 | 80 | 25 | 207 | 30 | 201 | 35 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 3 | 1 | 7 | 0 | 14 | 2 |
| 9:15:00 | 94 | 14 | 237 | 30 | 237 | 36 | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 4 | 1 | 7 | 0 | 16 | 2 |
| 9:30:00 | 101 | 7 | 263 | 26 | 272 | 35 | 0 | 0 | 3 | 2 | 3 | 1 | 2 | 0 | 4 | 0 | 9 | 2 | 17 | 1 |
| 9:45:00 | 120 | 19 | 292 | 29 | 314 | 42 | 1 | 1 | 3 | 0 | 3 | 0 | 2 | 0 | 5 | 1 | 9 | 0 | 19 | 2 |
| 10:00:00 | 134 | 14 | 314 | 22 | 359 | 45 | 1 | 0 | 4 | 1 | 3 | 0 | 2 | 0 | 5 | 0 | 9 | 0 | 20 | 1 |
| 10:15:00 | 134 | 0 | 314 | 0 | 359 | 0 | 1 | 0 | 4 | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 9 | 0 | 20 | 0 |
| 11:00:00 | 134 | 0 | 314 | 0 | 359 | 0 | 1 | 0 | 4 | 0 | 3 | 0 | 2 | 0 | 5 | 0 | 9 | 0 | 20 | 0 |
| 11:15:00 | 155 | 21 | 343 | 29 | 401 | 42 | 1 | 0 | 4 | 0 | 4 | 1 | 2 | 0 | 6 | 1 | 9 | 0 | 21 | 1 |
| 11:30:00 | 175 | 20 | 371 | 28 | 445 | 44 | 1 | 0 | 6 | 2 | 4 | 0 | 2 | 0 | 7 | 1 | 11 | 2 | 26 | 5 |
| 11:45:00 | 202 | 27 | 399 | 28 | 507 | 62 | 1 | 0 | 7 | 1 | 4 | 0 | 2 | 0 | 7 | 0 | 11 | 0 | 31 | 5 |
| 12:00:00 | 226 | 24 | 430 | 31 | 562 | 55 | 3 | 2 | 8 | 1 | 5 | 1 | 2 | 0 | 7 | 0 | 11 | 0 | 35 | 4 |
| 12:15:00 | 244 | 18 | 453 | 23 | 622 | 60 | 3 | 0 | 10 | 2 | 6 | 1 | 3 | 1 | 8 | 1 | 11 | 0 | 37 | 2 |
| 12:30:00 | 261 | 17 | 479 | 26 | 678 | 56 | 3 | 0 | 10 | 0 | 6 | 0 | 3 | 0 | 8 | 0 | 14 | 3 | 41 | 4 |
| 12:45:00 | 275 | 14 | 506 | 27 | 729 | 51 | 3 | 0 | 11 | 1 | 6 | 0 | 3 | 0 | 8 | 0 | 14 | 0 | 43 | 2 |
| 13:00:00 | 300 | 25 | 531 | 25 | 778 | 49 | 3 | 0 | 11 | 0 | 6 | 0 | 3 | 0 | 8 | 0 | 14 | 0 | 49 | 6 |
| 13:15:00 | 300 | 0 | 531 | 0 | 778 | 0 | 3 | 0 | 11 | 0 | 6 | 0 | 3 | 0 | 8 | 0 | 14 | 0 | 49 | 0 |
| 15:00:00 | 300 | 0 | 531 | 0 | 778 | 0 | 3 | 0 | 11 | 0 | 6 | 0 | 3 | 0 | 8 | 0 | 14 | 0 | 49 | 0 |
| 15:15:00 | 315 | 15 | 560 | 29 | 831 | 53 | 3 | 0 | 12 | 1 | 6 | 0 | 3 | 0 | 8 | 0 | 15 | 1 | 60 | 11 |
| 15:30:00 | 330 | 15 | 605 | 45 | 874 | 43 | 3 | 0 | 13 | 1 | 7 | 1 | 4 | 1 | 8 | 0 | 17 | 2 | 63 | 3 |
| 15:45:00 | 346 | 16 | 636 | 31 | 910 | 36 | 3 | 0 | 14 | 1 | 8 | 1 | 4 | 0 | 9 | 1 | 17 | 0 | 71 | 8 |
| 16:00:00 | 359 | 13 | 680 | 44 | 956 | 46 | 3 | 0 | 14 | 0 | 9 | 1 | 5 | 1 | 10 | 1 | 17 | 0 | 77 | 6 |
| 16:15:00 | 386 | 27 | 720 | 40 | 996 | 40 | 3 | 0 | 14 | 0 | 9 | 0 | 5 | 0 | 11 | 1 | 17 | 0 | 77 | 0 |
| 16:30:00 | 410 | 24 | 760 | 40 | 1049 | 53 | 3 | 0 | 14 | 0 | 9 | 0 | 5 | 0 | 11 | 0 | 19 | 2 | 85 | 8 |
| 16:45:00 | 436 | 26 | 799 | 39 | 1088 | 39 | 4 | 1 | 15 | 1 | 9 | 0 | 5 | 0 | 11 | 0 | 19 | 0 | 86 | 1 |
| 17:00:00 | 453 | 17 | 839 | 40 | 1139 | 51 | 4 | 0 | 15 | 0 | 9 | 0 | 5 | 0 | 11 | 0 | 19 | 0 | 90 | 4 |
| 17:15:00 | 470 | 17 | 882 | 43 | 1195 | 56 | 5 | 1 | 15 | 0 | 9 | 0 | 5 | 0 | 11 | 0 | 19 | 0 | 90 | 0 |
| 17:30:00 | 482 | 12 | 914 | 32 | 1231 | 36 | 5 | 0 | 15 | 0 | 9 | 0 | 5 | 0 | 12 | 1 | 21 | 2 | 93 | 3 |
| 17:45:00 | 501 | 19 | 934 | 20 | 1264 | 33 | 5 | 0 | 16 | 1 | 9 | 0 | 5 | 0 | 12 | 0 | 21 | 0 | 99 | 6 |
| 18:00:00 | 515 | 14 | 960 | 26 | 1303 | 39 | 5 | 0 | 16 | 0 | 9 | 0 | 5 | 0 | 12 | 0 | 21 | 0 | 101 | 2 |
| 18:15:00 | 515 | 0 | 960 | 0 | 1303 | 0 | 5 | 0 | 16 | 0 | 9 | 0 | 5 | 0 | 12 | 0 | 21 | 0 | 101 | 0 |
| 18:15:15 | 515 | 0 | 960 | 0 | 1303 | 0 | 5 | 0 | 16 | 0 | 9 | 0 | 5 | 0 | 12 | 0 | 21 | 0 | 101 | 0 |

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

**Count Date: 1-Aug-23 Site #: 2318400001**

| Interval Time | Passenger Cars - East Approach | | | | | | Trucks - East Approach | | | | | | Heavys - East Approach | | | | | | Pedestrians | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | East Cross | |
| | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15:00 | 10 | 10 | 35 | 35 | 7 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 7:30:00 | 19 | 9 | 76 | 41 | 15 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 7:45:00 | 21 | 2 | 122 | 46 | 23 | 8 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 2 |
| 8:00:00 | 24 | 3 | 166 | 44 | 31 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 0 |
| 8:15:00 | 28 | 4 | 230 | 64 | 43 | 12 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 5 | 3 | 3 | 2 | 5 | 3 |
| 8:30:00 | 32 | 4 | 301 | 71 | 54 | 11 | 0 | 0 | 2 | 0 | 1 | 1 | 1 | 0 | 7 | 2 | 3 | 0 | 7 | 2 |
| 8:45:00 | 40 | 8 | 369 | 68 | 67 | 13 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 7 | 0 | 3 | 0 | 9 | 2 |
| 9:00:00 | 48 | 8 | 455 | 86 | 76 | 9 | 0 | 0 | 3 | 1 | 1 | 0 | 1 | 0 | 9 | 2 | 3 | 0 | 9 | 0 |
| 9:15:00 | 53 | 5 | 545 | 90 | 94 | 18 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 9 | 0 | 4 | 1 | 10 | 1 |
| 9:30:00 | 62 | 9 | 640 | 95 | 112 | 18 | 0 | 0 | 4 | 1 | 2 | 1 | 1 | 0 | 11 | 2 | 4 | 0 | 11 | 1 |
| 9:45:00 | 70 | 8 | 735 | 95 | 123 | 11 | 0 | 0 | 5 | 1 | 4 | 2 | 1 | 0 | 11 | 0 | 4 | 0 | 11 | 0 |
| 10:00:00 | 84 | 14 | 828 | 93 | 142 | 19 | 0 | 0 | 6 | 1 | 4 | 0 | 1 | 0 | 12 | 1 | 4 | 0 | 13 | 2 |
| 10:15:00 | 84 | 0 | 828 | 0 | 142 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | 1 | 0 | 12 | 0 | 4 | 0 | 13 | 0 |
| 11:00:00 | 84 | 0 | 828 | 0 | 142 | 0 | 0 | 0 | 6 | 0 | 4 | 0 | 1 | 0 | 12 | 0 | 4 | 0 | 13 | 0 |
| 11:15:00 | 89 | 5 | 981 | 153 | 166 | 24 | 0 | 0 | 9 | 3 | 4 | 0 | 1 | 0 | 12 | 0 | 6 | 2 | 16 | 3 |
| 11:30:00 | 103 | 14 | 1124 | 143 | 186 | 20 | 0 | 0 | 10 | 1 | 4 | 0 | 1 | 0 | 13 | 1 | 6 | 0 | 21 | 5 |
| 11:45:00 | 108 | 5 | 1275 | 151 | 201 | 15 | 0 | 0 | 11 | 1 | 4 | 0 | 1 | 0 | 13 | 0 | 6 | 0 | 22 | 1 |
| 12:00:00 | 116 | 8 | 1405 | 130 | 219 | 18 | 0 | 0 | 14 | 3 | 4 | 0 | 1 | 0 | 15 | 2 | 6 | 0 | 25 | 3 |
| 12:15:00 | 125 | 9 | 1602 | 197 | 235 | 16 | 0 | 0 | 14 | 0 | 4 | 0 | 1 | 0 | 17 | 2 | 7 | 1 | 26 | 1 |
| 12:30:00 | 134 | 9 | 1766 | 164 | 259 | 24 | 0 | 0 | 17 | 3 | 4 | 0 | 2 | 1 | 18 | 1 | 7 | 0 | 29 | 3 |
| 12:45:00 | 141 | 7 | 1919 | 153 | 275 | 16 | 0 | 0 | 19 | 2 | 4 | 0 | 2 | 0 | 18 | 0 | 7 | 0 | 29 | 0 |
| 13:00:00 | 149 | 8 | 2048 | 129 | 293 | 18 | 0 | 0 | 19 | 0 | 4 | 0 | 2 | 0 | 19 | 1 | 9 | 2 | 30 | 1 |
| 13:15:00 | 149 | 0 | 2048 | 0 | 293 | 0 | 0 | 0 | 19 | 0 | 4 | 0 | 2 | 0 | 19 | 0 | 9 | 0 | 30 | 0 |
| 15:00:00 | 149 | 0 | 2048 | 0 | 293 | 0 | 0 | 0 | 19 | 0 | 4 | 0 | 2 | 0 | 19 | 0 | 9 | 0 | 30 | 0 |
| 15:15:00 | 159 | 10 | 2162 | 114 | 318 | 25 | 0 | 0 | 19 | 0 | 4 | 0 | 2 | 0 | 19 | 0 | 10 | 1 | 30 | 0 |
| 15:30:00 | 164 | 5 | 2261 | 99 | 327 | 9 | 0 | 0 | 19 | 0 | 4 | 0 | 2 | 0 | 19 | 0 | 10 | 0 | 32 | 2 |
| 15:45:00 | 171 | 7 | 2401 | 140 | 353 | 26 | 1 | 1 | 22 | 3 | 4 | 0 | 2 | 0 | 19 | 0 | 10 | 0 | 38 | 6 |
| 16:00:00 | 183 | 12 | 2537 | 136 | 367 | 14 | 1 | 0 | 24 | 2 | 4 | 0 | 2 | 0 | 20 | 1 | 10 | 0 | 38 | 0 |
| 16:15:00 | 194 | 11 | 2685 | 148 | 391 | 24 | 1 | 0 | 24 | 0 | 4 | 0 | 2 | 0 | 20 | 0 | 11 | 1 | 40 | 2 |
| 16:30:00 | 205 | 11 | 2815 | 130 | 406 | 15 | 1 | 0 | 25 | 1 | 4 | 0 | 2 | 0 | 20 | 0 | 11 | 0 | 44 | 4 |
| 16:45:00 | 220 | 15 | 2949 | 134 | 424 | 18 | 1 | 0 | 25 | 0 | 4 | 0 | 2 | 0 | 20 | 0 | 11 | 0 | 45 | 1 |
| 17:00:00 | 234 | 14 | 3076 | 127 | 442 | 18 | 1 | 0 | 25 | 0 | 4 | 0 | 2 | 0 | 22 | 2 | 11 | 0 | 45 | 0 |
| 17:15:00 | 253 | 19 | 3207 | 131 | 457 | 15 | 1 | 0 | 25 | 0 | 4 | 0 | 2 | 0 | 22 | 0 | 12 | 1 | 47 | 2 |
| 17:30:00 | 264 | 11 | 3369 | 162 | 481 | 24 | 1 | 0 | 25 | 0 | 5 | 1 | 2 | 0 | 22 | 0 | 12 | 0 | 48 | 1 |
| 17:45:00 | 268 | 4 | 3468 | 99 | 498 | 17 | 1 | 0 | 25 | 0 | 5 | 0 | 2 | 0 | 22 | 0 | 12 | 0 | 48 | 0 |
| 18:00:00 | 270 | 2 | 3560 | 92 | 513 | 15 | 1 | 0 | 25 | 0 | 5 | 0 | 2 | 0 | 23 | 1 | 12 | 0 | 49 | 1 |
| 18:15:00 | 270 | 0 | 3560 | 0 | 513 | 0 | 1 | 0 | 25 | 0 | 5 | 0 | 2 | 0 | 23 | 0 | 12 | 0 | 49 | 0 |
| 18:15:15 | 270 | 0 | 3560 | 0 | 513 | 0 | 1 | 0 | 25 | 0 | 5 | 0 | 2 | 0 | 23 | 0 | 12 | 0 | 49 | 0 |

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

**Count Date: 1-Aug-23 Site #: 2318400001**

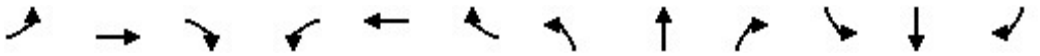
| Interval Time | Passenger Cars - South Approach | | | | | | Trucks - South Approach | | | | | | Heavys - South Approach | | | | | | Pedestrians | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | South Cross | |
| | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15:00 | 26 | 26 | 13 | 13 | 7 | 7 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 3 | 0 | 0 | 0 | 0 |
| 7:30:00 | 54 | 28 | 31 | 18 | 14 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 3 | 0 | 0 | 0 | 0 | 0 |
| 7:45:00 | 101 | 47 | 53 | 22 | 20 | 6 | 1 | 0 | 1 | 1 | 0 | 0 | 5 | 1 | 5 | 2 | 0 | 0 | 1 | 1 |
| 8:00:00 | 145 | 44 | 87 | 34 | 26 | 6 | 2 | 1 | 2 | 1 | 0 | 0 | 6 | 1 | 6 | 1 | 0 | 0 | 3 | 2 |
| 8:15:00 | 189 | 44 | 129 | 42 | 30 | 4 | 3 | 1 | 3 | 1 | 0 | 0 | 7 | 1 | 6 | 0 | 0 | 0 | 5 | 2 |
| 8:30:00 | 226 | 37 | 167 | 38 | 39 | 9 | 3 | 0 | 3 | 0 | 0 | 0 | 8 | 1 | 6 | 0 | 0 | 0 | 7 | 2 |
| 8:45:00 | 273 | 47 | 191 | 24 | 49 | 10 | 3 | 0 | 3 | 0 | 0 | 0 | 8 | 0 | 7 | 1 | 0 | 0 | 12 | 5 |
| 9:00:00 | 324 | 51 | 235 | 44 | 63 | 14 | 3 | 0 | 3 | 0 | 0 | 0 | 9 | 1 | 7 | 0 | 0 | 0 | 15 | 3 |
| 9:15:00 | 373 | 49 | 264 | 29 | 72 | 9 | 3 | 0 | 4 | 1 | 0 | 0 | 9 | 0 | 7 | 0 | 0 | 0 | 18 | 3 |
| 9:30:00 | 427 | 54 | 307 | 43 | 80 | 8 | 3 | 0 | 4 | 0 | 0 | 0 | 10 | 1 | 7 | 0 | 1 | 1 | 21 | 3 |
| 9:45:00 | 475 | 48 | 331 | 24 | 94 | 14 | 4 | 1 | 6 | 2 | 0 | 0 | 10 | 0 | 8 | 1 | 1 | 0 | 25 | 4 |
| 10:00:00 | 529 | 54 | 367 | 36 | 112 | 18 | 5 | 1 | 6 | 0 | 1 | 1 | 10 | 0 | 8 | 0 | 1 | 0 | 30 | 5 |
| 10:15:00 | 529 | 0 | 367 | 0 | 112 | 0 | 5 | 0 | 6 | 0 | 1 | 0 | 10 | 0 | 8 | 0 | 1 | 0 | 30 | 0 |
| 11:00:00 | 529 | 0 | 367 | 0 | 112 | 0 | 5 | 0 | 6 | 0 | 1 | 0 | 10 | 0 | 8 | 0 | 1 | 0 | 30 | 0 |
| 11:15:00 | 574 | 45 | 391 | 24 | 122 | 10 | 5 | 0 | 6 | 0 | 1 | 0 | 10 | 0 | 9 | 1 | 1 | 0 | 33 | 3 |
| 11:30:00 | 625 | 51 | 428 | 37 | 141 | 19 | 5 | 0 | 6 | 0 | 1 | 0 | 11 | 1 | 9 | 0 | 1 | 0 | 39 | 6 |
| 11:45:00 | 677 | 52 | 455 | 27 | 149 | 8 | 5 | 0 | 8 | 2 | 1 | 0 | 11 | 0 | 10 | 1 | 1 | 0 | 43 | 4 |
| 12:00:00 | 736 | 59 | 482 | 27 | 164 | 15 | 5 | 0 | 8 | 0 | 1 | 0 | 12 | 1 | 10 | 0 | 1 | 0 | 47 | 4 |
| 12:15:00 | 791 | 55 | 516 | 34 | 172 | 8 | 5 | 0 | 8 | 0 | 1 | 0 | 13 | 1 | 12 | 2 | 1 | 0 | 51 | 4 |
| 12:30:00 | 832 | 41 | 548 | 32 | 181 | 9 | 5 | 0 | 8 | 0 | 1 | 0 | 14 | 1 | 12 | 0 | 1 | 0 | 62 | 11 |
| 12:45:00 | 891 | 59 | 590 | 42 | 193 | 12 | 6 | 1 | 8 | 0 | 2 | 1 | 15 | 1 | 13 | 1 | 1 | 0 | 66 | 4 |
| 13:00:00 | 946 | 55 | 617 | 27 | 204 | 11 | 6 | 0 | 8 | 0 | 3 | 1 | 15 | 0 | 13 | 0 | 1 | 0 | 70 | 4 |
| 13:15:00 | 946 | 0 | 617 | 0 | 204 | 0 | 6 | 0 | 8 | 0 | 3 | 0 | 15 | 0 | 13 | 0 | 1 | 0 | 70 | 0 |
| 15:00:00 | 946 | 0 | 617 | 0 | 204 | 0 | 6 | 0 | 8 | 0 | 3 | 0 | 15 | 0 | 13 | 0 | 1 | 0 | 70 | 0 |
| 15:15:00 | 988 | 42 | 640 | 23 | 210 | 6 | 6 | 0 | 8 | 0 | 4 | 1 | 15 | 0 | 13 | 0 | 1 | 0 | 79 | 9 |
| 15:30:00 | 1032 | 44 | 679 | 39 | 223 | 13 | 6 | 0 | 8 | 0 | 4 | 0 | 16 | 1 | 15 | 2 | 1 | 0 | 85 | 6 |
| 15:45:00 | 1073 | 41 | 711 | 32 | 234 | 11 | 6 | 0 | 9 | 1 | 4 | 0 | 16 | 0 | 15 | 0 | 1 | 0 | 87 | 2 |
| 16:00:00 | 1120 | 47 | 744 | 33 | 243 | 9 | 6 | 0 | 9 | 0 | 5 | 1 | 16 | 0 | 15 | 0 | 1 | 0 | 91 | 4 |
| 16:15:00 | 1165 | 45 | 775 | 31 | 251 | 8 | 6 | 0 | 9 | 0 | 5 | 0 | 16 | 0 | 15 | 0 | 1 | 0 | 101 | 10 |
| 16:30:00 | 1211 | 46 | 814 | 39 | 265 | 14 | 7 | 1 | 9 | 0 | 5 | 0 | 17 | 1 | 16 | 1 | 1 | 0 | 115 | 14 |
| 16:45:00 | 1256 | 45 | 856 | 42 | 270 | 5 | 8 | 1 | 10 | 1 | 5 | 0 | 17 | 0 | 16 | 0 | 1 | 0 | 122 | 7 |
| 17:00:00 | 1302 | 46 | 888 | 32 | 276 | 6 | 9 | 1 | 10 | 0 | 5 | 0 | 17 | 0 | 16 | 0 | 1 | 0 | 127 | 5 |
| 17:15:00 | 1359 | 57 | 927 | 39 | 283 | 7 | 10 | 1 | 10 | 0 | 5 | 0 | 17 | 0 | 16 | 0 | 1 | 0 | 139 | 12 |
| 17:30:00 | 1399 | 40 | 958 | 31 | 293 | 10 | 10 | 0 | 10 | 0 | 5 | 0 | 18 | 1 | 16 | 0 | 1 | 0 | 149 | 10 |
| 17:45:00 | 1440 | 41 | 996 | 38 | 303 | 10 | 10 | 0 | 11 | 1 | 5 | 0 | 18 | 0 | 16 | 0 | 1 | 0 | 154 | 5 |
| 18:00:00 | 1483 | 43 | 1024 | 28 | 309 | 6 | 10 | 0 | 12 | 1 | 5 | 0 | 18 | 0 | 16 | 0 | 1 | 0 | 157 | 3 |
| 18:15:00 | 1483 | 0 | 1024 | 0 | 309 | 0 | 10 | 0 | 12 | 0 | 5 | 0 | 18 | 0 | 16 | 0 | 1 | 0 | 157 | 0 |
| 18:15:15 | 1483 | 0 | 1024 | 0 | 309 | 0 | 10 | 0 | 12 | 0 | 5 | 0 | 18 | 0 | 16 | 0 | 1 | 0 | 157 | 0 |

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

**Count Date: 1-Aug-23 Site #: 2318400001**

| Interval Time | Passenger Cars - West Approach | | | | | | Trucks - West Approach | | | | | | Heavys - West Approach | | | | | | Pedestrians | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | West Cross | |
| | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr | Cum | Incr |
| 7:00:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15:00 | 16 | 16 | 37 | 37 | 19 | 19 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 7:30:00 | 39 | 23 | 78 | 41 | 48 | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 2 |
| 7:45:00 | 61 | 22 | 118 | 40 | 87 | 39 | 0 | 0 | 4 | 3 | 0 | 0 | 1 | 1 | 2 | 1 | 2 | 2 | 4 | 0 |
| 8:00:00 | 86 | 25 | 186 | 68 | 128 | 41 | 0 | 0 | 6 | 2 | 0 | 0 | 2 | 1 | 5 | 3 | 5 | 3 | 5 | 1 |
| 8:15:00 | 116 | 30 | 248 | 62 | 161 | 33 | 1 | 1 | 6 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 6 | 1 | 8 | 3 |
| 8:30:00 | 142 | 26 | 327 | 79 | 196 | 35 | 2 | 1 | 6 | 0 | 0 | 0 | 3 | 1 | 6 | 1 | 7 | 1 | 10 | 2 |
| 8:45:00 | 189 | 47 | 416 | 89 | 235 | 39 | 3 | 1 | 7 | 1 | 0 | 0 | 4 | 1 | 7 | 1 | 9 | 2 | 18 | 8 |
| 9:00:00 | 221 | 32 | 510 | 94 | 277 | 42 | 4 | 1 | 7 | 0 | 0 | 0 | 4 | 0 | 8 | 1 | 10 | 1 | 21 | 3 |
| 9:15:00 | 262 | 41 | 592 | 82 | 313 | 36 | 5 | 1 | 8 | 1 | 0 | 0 | 5 | 1 | 8 | 0 | 12 | 2 | 21 | 0 |
| 9:30:00 | 304 | 42 | 678 | 86 | 348 | 35 | 5 | 0 | 10 | 2 | 0 | 0 | 5 | 0 | 9 | 1 | 12 | 0 | 24 | 3 |
| 9:45:00 | 354 | 50 | 779 | 101 | 401 | 53 | 6 | 1 | 10 | 0 | 0 | 0 | 6 | 1 | 9 | 0 | 14 | 2 | 26 | 2 |
| 10:00:00 | 392 | 38 | 886 | 107 | 462 | 61 | 8 | 2 | 11 | 1 | 0 | 0 | 7 | 1 | 13 | 4 | 16 | 2 | 26 | 0 |
| 10:15:00 | 392 | 0 | 886 | 0 | 462 | 0 | 8 | 0 | 11 | 0 | 0 | 0 | 7 | 0 | 13 | 0 | 16 | 0 | 26 | 0 |
| 11:00:00 | 392 | 0 | 886 | 0 | 462 | 0 | 8 | 0 | 11 | 0 | 0 | 0 | 7 | 0 | 13 | 0 | 16 | 0 | 26 | 0 |
| 11:15:00 | 464 | 72 | 989 | 103 | 524 | 62 | 8 | 0 | 14 | 3 | 0 | 0 | 7 | 0 | 13 | 0 | 18 | 2 | 27 | 1 |
| 11:30:00 | 515 | 51 | 1122 | 133 | 595 | 71 | 8 | 0 | 14 | 0 | 1 | 1 | 7 | 0 | 13 | 0 | 18 | 0 | 32 | 5 |
| 11:45:00 | 566 | 51 | 1255 | 133 | 678 | 83 | 9 | 1 | 14 | 0 | 1 | 0 | 8 | 1 | 14 | 1 | 19 | 1 | 34 | 2 |
| 12:00:00 | 628 | 62 | 1394 | 139 | 730 | 52 | 9 | 0 | 15 | 1 | 2 | 1 | 9 | 1 | 16 | 2 | 21 | 2 | 34 | 0 |
| 12:15:00 | 691 | 63 | 1527 | 133 | 812 | 82 | 9 | 0 | 17 | 2 | 3 | 1 | 9 | 0 | 16 | 0 | 21 | 0 | 35 | 1 |
| 12:30:00 | 750 | 59 | 1684 | 157 | 868 | 56 | 9 | 0 | 18 | 1 | 4 | 1 | 9 | 0 | 18 | 2 | 21 | 0 | 42 | 7 |
| 12:45:00 | 807 | 57 | 1808 | 124 | 945 | 77 | 9 | 0 | 18 | 0 | 5 | 1 | 10 | 1 | 18 | 0 | 22 | 1 | 46 | 4 |
| 13:00:00 | 867 | 60 | 1969 | 161 | 995 | 50 | 9 | 0 | 19 | 1 | 6 | 1 | 10 | 0 | 21 | 3 | 24 | 2 | 47 | 1 |
| 13:15:00 | 867 | 0 | 1969 | 0 | 995 | 0 | 9 | 0 | 19 | 0 | 6 | 0 | 10 | 0 | 21 | 0 | 24 | 0 | 47 | 0 |
| 15:00:00 | 867 | 0 | 1969 | 0 | 995 | 0 | 9 | 0 | 19 | 0 | 6 | 0 | 10 | 0 | 21 | 0 | 24 | 0 | 47 | 0 |
| 15:15:00 | 923 | 56 | 2107 | 138 | 1052 | 57 | 9 | 0 | 20 | 1 | 8 | 2 | 10 | 0 | 21 | 0 | 25 | 1 | 48 | 1 |
| 15:30:00 | 976 | 53 | 2231 | 124 | 1102 | 50 | 10 | 1 | 21 | 1 | 8 | 0 | 10 | 0 | 21 | 0 | 25 | 0 | 53 | 5 |
| 15:45:00 | 1048 | 72 | 2345 | 114 | 1163 | 61 | 12 | 2 | 22 | 1 | 8 | 0 | 11 | 1 | 21 | 0 | 27 | 2 | 57 | 4 |
| 16:00:00 | 1094 | 46 | 2486 | 141 | 1218 | 55 | 12 | 0 | 23 | 1 | 8 | 0 | 11 | 0 | 22 | 1 | 28 | 1 | 65 | 8 |
| 16:15:00 | 1149 | 55 | 2615 | 129 | 1280 | 62 | 12 | 0 | 24 | 1 | 9 | 1 | 11 | 0 | 22 | 0 | 28 | 0 | 68 | 3 |
| 16:30:00 | 1190 | 41 | 2738 | 123 | 1328 | 48 | 13 | 1 | 24 | 0 | 9 | 0 | 11 | 0 | 22 | 0 | 28 | 0 | 69 | 1 |
| 16:45:00 | 1241 | 51 | 2885 | 147 | 1401 | 73 | 14 | 1 | 25 | 1 | 9 | 0 | 12 | 1 | 23 | 1 | 29 | 1 | 72 | 3 |
| 17:00:00 | 1296 | 55 | 3016 | 131 | 1462 | 61 | 15 | 1 | 25 | 0 | 9 | 0 | 12 | 0 | 24 | 1 | 30 | 1 | 73 | 1 |
| 17:15:00 | 1348 | 52 | 3130 | 114 | 1528 | 66 | 15 | 0 | 25 | 0 | 10 | 1 | 12 | 0 | 25 | 1 | 30 | 0 | 75 | 2 |
| 17:30:00 | 1398 | 50 | 3261 | 131 | 1610 | 82 | 15 | 0 | 25 | 0 | 10 | 0 | 12 | 0 | 26 | 1 | 30 | 0 | 80 | 5 |
| 17:45:00 | 1439 | 41 | 3370 | 109 | 1668 | 58 | 15 | 0 | 25 | 0 | 10 | 0 | 13 | 1 | 26 | 0 | 31 | 1 | 81 | 1 |
| 18:00:00 | 1474 | 35 | 3478 | 108 | 1718 | 50 | 15 | 0 | 25 | 0 | 10 | 0 | 13 | 0 | 27 | 1 | 32 | 1 | 81 | 0 |
| 18:15:00 | 1474 | 0 | 3478 | 0 | 1718 | 0 | 15 | 0 | 25 | 0 | 10 | 0 | 13 | 0 | 27 | 0 | 32 | 0 | 81 | 0 |
| 18:15:15 | 1474 | 0 | 3478 | 0 | 1718 | 0 | 15 | 0 | 25 | 0 | 10 | 0 | 13 | 0 | 27 | 0 | 32 | 0 | 81 | 0 |

# Existing Traffic Conditions 2023



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 238 | 571 | 279 | 32 | 654 | 74 | 210 | 125 | 40 | 89 | 113 | 238 |
| Future Volume (vph) | 238 | 571 | 279 | 32 | 654 | 74 | 210 | 125 | 40 | 89 | 113 | 238 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1769 | 3287 | | 1785 | 3505 | | 1787 | 1800 | | 1776 | 1617 | |
| Flt Permitted | 0.20 | 1.00 | | 0.25 | 1.00 | | 0.17 | 1.00 | | 0.65 | 1.00 | |
| Satd. Flow (perm) | 373 | 3287 | | 477 | 3505 | | 317 | 1800 | | 1215 | 1617 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 243 | 583 | 285 | 33 | 667 | 76 | 214 | 128 | 41 | 91 | 115 | 243 |
| RTOR Reduction (vph) | 0 | 45 | 0 | 0 | 7 | 0 | 0 | 9 | 0 | 0 | 69 | 0 |
| Lane Group Flow (vph) | 243 | 823 | 0 | 33 | 736 | 0 | 214 | 160 | 0 | 91 | 289 | 0 |
| Confl. Peds. (#/hr) | 6 | | 15 | 15 | | 6 | 5 | | 4 | 4 | | 5 |
| Confl. Bikes (#/hr) | | | 9 | | | 2 | | | 3 | | | 6 |
| Heavy Vehicles (%) | 2% | 2% | 4% | 1% | 1% | 2% | 1% | 1% | 2% | 1% | 3% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | | 2 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | 52.8 | 44.0 | | 40.1 | 36.3 | | 43.3 | 30.2 | | 31.9 | 23.8 | |
| Effective Green, g (s) | 52.8 | 44.0 | | 40.1 | 36.3 | | 43.3 | 30.2 | | 31.9 | 23.8 | |
| Actuated g/C Ratio | 0.49 | 0.41 | | 0.37 | 0.34 | | 0.40 | 0.28 | | 0.30 | 0.22 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.5 | 0.2 | | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | |
| Lane Grp Cap (vph) | 330 | 1337 | | 222 | 1176 | | 324 | 502 | | 400 | 356 | |
| v/s Ratio Prot | c0.08 | 0.25 | | 0.01 | 0.21 | | c0.09 | 0.09 | | 0.02 | c0.18 | |
| v/s Ratio Perm | c0.28 | | | 0.05 | | | 0.18 | | | 0.05 | | |
| v/c Ratio | 0.74 | 0.62 | | 0.15 | 0.63 | | 0.66 | 0.32 | | 0.23 | 0.81 | |
| Uniform Delay, d1 | 19.0 | 25.4 | | 22.1 | 30.2 | | 24.4 | 30.8 | | 28.3 | 40.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.8 | 2.1 | | 0.2 | 2.5 | | 5.5 | 0.4 | | 0.4 | 13.2 | |
| Delay (s) | 26.8 | 27.5 | | 22.3 | 32.7 | | 29.9 | 31.2 | | 28.7 | 53.2 | |
| Level of Service | C | C | | C | C | | C | C | | C | D | |
| Approach Delay (s) | | 27.3 | | | 32.3 | | | 30.4 | | | 48.3 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 32.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 108.1 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 92.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

## Intersection: 3:

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 60.7 | 88.0 | 98.6 | 45.9 | 95.6 | 87.4 | 60.0 | 54.8 | 55.3 | 135.6 |
| Average Queue (m) | 33.1 | 44.9 | 50.5 | 7.2 | 57.1 | 46.5 | 26.5 | 25.7 | 23.1 | 64.1 |
| 95th Queue (m) | 56.9 | 73.1 | 83.8 | 30.0 | 84.0 | 75.1 | 49.5 | 46.7 | 57.8 | 126.8 |
| Link Distance (m) | | 302.2 | 302.2 | | 257.3 | 257.3 | | 191.4 | | 233.4 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 41.0 | | | 25.0 | | | 58.0 | | 45.0 | |
| Storage Blk Time (%) | 5 | 7 | | | 39 | | 1 | 0 | | 26 |
| Queuing Penalty (veh) | 15 | 16 | | | 13 | | 1 | 0 | | 23 |

## Network Summary

Network wide Queuing Penalty: 67

# Background Conditions 2027

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 254 | 608 | 297 | 34 | 697 | 79 | 224 | 133 | 43 | 95 | 120 | 254 |
| Future Volume (vph) | 254 | 608 | 297 | 34 | 697 | 79 | 224 | 133 | 43 | 95 | 120 | 254 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1786 | 3321 | | 1733 | 3500 | | 1769 | 1776 | | 1753 | 1635 | |
| Flt Permitted | 0.17 | 1.00 | | 0.22 | 1.00 | | 0.14 | 1.00 | | 0.64 | 1.00 | |
| Satd. Flow (perm) | 323 | 3321 | | 403 | 3500 | | 261 | 1776 | | 1188 | 1635 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 259 | 620 | 303 | 35 | 711 | 81 | 229 | 136 | 44 | 97 | 122 | 259 |
| RTOR Reduction (vph) | 0 | 45 | 0 | 0 | 7 | 0 | 0 | 10 | 0 | 0 | 69 | 0 |
| Lane Group Flow (vph) | 259 | 878 | 0 | 35 | 785 | 0 | 229 | 170 | 0 | 97 | 312 | 0 |
| Confl. Peds. (#/hr) | 16 | | 25 | 25 | | 16 | 11 | | 9 | 9 | | 11 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | | 2 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | 53.3 | 44.3 | | 40.4 | 36.4 | | 44.8 | 31.4 | | 33.1 | 24.7 | |
| Effective Green, g (s) | 53.3 | 44.3 | | 40.4 | 36.4 | | 44.8 | 31.4 | | 33.1 | 24.7 | |
| Actuated g/C Ratio | 0.48 | 0.40 | | 0.37 | 0.33 | | 0.41 | 0.29 | | 0.30 | 0.22 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.5 | 0.2 | | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | |
| Lane Grp Cap (vph) | 314 | 1336 | | 196 | 1157 | | 313 | 506 | | 400 | 366 | |
| v/s Ratio Prot | c0.09 | 0.26 | | 0.01 | 0.22 | | c0.10 | 0.10 | | 0.02 | c0.19 | |
| v/s Ratio Perm | c0.31 | | | 0.06 | | | 0.20 | | | 0.05 | | |
| v/c Ratio | 0.82 | 0.66 | | 0.18 | 0.68 | | 0.73 | 0.34 | | 0.24 | 0.85 | |
| Uniform Delay, d1 | 20.5 | 26.7 | | 23.0 | 31.8 | | 25.1 | 31.1 | | 28.5 | 41.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 15.7 | 2.5 | | 0.3 | 3.2 | | 9.1 | 0.4 | | 0.4 | 17.2 | |
| Delay (s) | 36.2 | 29.3 | | 23.4 | 35.0 | | 34.1 | 31.5 | | 28.9 | 58.1 | |
| Level of Service | D | C | | C | D | | C | C | | C | E | |
| Approach Delay (s) | | 30.8 | | | 34.5 | | | 33.0 | | | 52.2 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 35.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.85 | | |
| Actuated Cycle Length (s) | 110.1 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 95.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 60.8 | 107.2 | 113.3 | 62.8 | 99.0 | 94.0 | 56.7 | 60.2 | 63.8 | 132.1 |
| Average Queue (m) | 38.5 | 53.3 | 59.5 | 9.9 | 64.6 | 55.5 | 29.5 | 26.6 | 27.6 | 70.0 |
| 95th Queue (m) | 63.5 | 89.1 | 98.1 | 36.0 | 90.4 | 84.8 | 48.8 | 48.8 | 67.0 | 119.3 |
| Link Distance (m) | | 302.2 | 302.2 | | 257.3 | 257.3 | | 191.4 | | 233.4 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 41.0 | | | 25.0 | | | 58.0 | | 45.0 | |
| Storage Blk Time (%) | 4 | 12 | | 0 | 46 | | 1 | 0 | 0 | 32 |
| Queuing Penalty (veh) | 13 | 30 | | 0 | 16 | | 1 | 1 | 2 | 30 |

## Network Summary

Network wide Queuing Penalty: 92

# Background Conditions 2037

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3313 | | 1734 | 3498 | | 1770 | 1775 | | 1752 | 1634 | |
| Flt Permitted | 0.10 | 1.00 | | 0.13 | 1.00 | | 0.12 | 1.00 | | 0.63 | 1.00 | |
| Satd. Flow (perm) | 186 | 3313 | | 233 | 3498 | | 233 | 1775 | | 1156 | 1634 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 728 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 46 | 0 | 0 | 8 | 0 | 0 | 9 | 0 | 0 | 67 | 0 |
| Lane Group Flow (vph) | 303 | 1037 | 0 | 41 | 920 | 0 | 267 | 201 | 0 | 113 | 380 | 0 |
| Confl. Peds. (#/hr) | 19 | | 29 | 29 | | 19 | 12 | | 10 | 10 | | 12 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | | 2 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | 53.1 | 43.8 | | 40.4 | 36.1 | | 48.5 | 32.7 | | 37.8 | 27.0 | |
| Effective Green, g (s) | 53.1 | 43.8 | | 40.4 | 36.1 | | 48.5 | 32.7 | | 37.8 | 27.0 | |
| Actuated g/C Ratio | 0.47 | 0.39 | | 0.36 | 0.32 | | 0.43 | 0.29 | | 0.33 | 0.24 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.5 | 0.2 | | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | |
| Lane Grp Cap (vph) | 256 | 1277 | | 139 | 1111 | | 322 | 510 | | 441 | 388 | |
| v/s Ratio Prot | c0.13 | 0.31 | | 0.01 | 0.26 | | c0.12 | 0.11 | | 0.02 | c0.23 | |
| v/s Ratio Perm | c0.43 | | | 0.09 | | | 0.23 | | | 0.06 | | |
| v/c Ratio | 1.18 | 0.81 | | 0.29 | 0.83 | | 0.83 | 0.39 | | 0.26 | 0.98 | |
| Uniform Delay, d1 | 31.5 | 31.2 | | 25.8 | 35.9 | | 28.7 | 32.5 | | 27.0 | 43.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 115.1 | 5.7 | | 0.9 | 7.2 | | 16.7 | 0.5 | | 0.4 | 39.7 | |
| Delay (s) | 146.7 | 36.9 | | 26.7 | 43.0 | | 45.4 | 33.0 | | 27.5 | 82.7 | |
| Level of Service | F | D | | C | D | | D | C | | C | F | |
| Approach Delay (s) | | 60.9 | | | 42.4 | | | 39.9 | | | 71.5 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 54.4 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 113.6 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 104.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

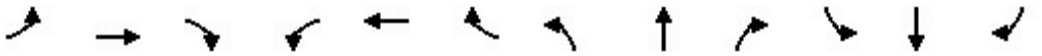
## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 60.9 | 196.8 | 194.3 | 62.8 | 159.1 | 146.8 | 72.0 | 63.6 | 63.9 | 241.8 |
| Average Queue (m) | 55.2 | 118.6 | 115.2 | 18.2 | 95.3 | 87.1 | 35.6 | 32.8 | 46.2 | 165.9 |
| 95th Queue (m) | 71.1 | 206.3 | 191.4 | 56.7 | 151.4 | 144.0 | 60.7 | 57.4 | 86.5 | 271.7 |
| Link Distance (m) | | 302.2 | 302.2 | | 257.3 | 257.3 | | 191.4 | | 233.4 |
| Upstream Blk Time (%) | | | | | | | | | | 25 |
| Queuing Penalty (veh) | | | | | | | | | | 0 |
| Storage Bay Dist (m) | 41.0 | | | 25.0 | | | 58.0 | | 45.0 | |
| Storage Blk Time (%) | 45 | 22 | | 1 | 57 | | 2 | 1 | 0 | 71 |
| Queuing Penalty (veh) | 160 | 65 | | 2 | 23 | | 4 | 3 | 2 | 79 |

## Network Summary

Network wide Queuing Penalty: 338

# Background Conditions 2051



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.97 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Frt | 1.00 | 0.95 | | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.90 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1787 | 3299 | | 1736 | 3496 | | 1770 | 1775 | | 1753 | 1628 | |
| Flt Permitted | 0.10 | 1.00 | | 0.11 | 1.00 | | 0.12 | 1.00 | | 0.56 | 1.00 | |
| Satd. Flow (perm) | 188 | 3299 | | 209 | 3496 | | 233 | 1775 | | 1029 | 1628 | |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 48 | 0 | 0 | 8 | 0 | 0 | 9 | 0 | 0 | 67 | 0 |
| Lane Group Flow (vph) | 379 | 1305 | 0 | 51 | 1150 | 0 | 335 | 253 | 0 | 142 | 492 | 0 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | | 2 | | | 8 | | | 4 | | |
| Actuated Green, G (s) | 52.0 | 41.2 | | 40.8 | 35.0 | | 50.0 | 33.0 | | 39.0 | 27.0 | |
| Effective Green, g (s) | 52.0 | 41.2 | | 40.8 | 35.0 | | 50.0 | 33.0 | | 39.0 | 27.0 | |
| Actuated g/C Ratio | 0.46 | 0.36 | | 0.36 | 0.31 | | 0.44 | 0.29 | | 0.34 | 0.24 | |
| Clearance Time (s) | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | |
| Vehicle Extension (s) | 2.5 | 0.2 | | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | |
| Lane Grp Cap (vph) | 254 | 1192 | | 152 | 1073 | | 344 | 513 | | 428 | 385 | |
| v/s Ratio Prot | c0.16 | 0.40 | | 0.02 | 0.33 | | c0.15 | 0.14 | | 0.03 | c0.30 | |
| v/s Ratio Perm | c0.52 | | | 0.10 | | | 0.27 | | | 0.08 | | |
| v/c Ratio | 1.49 | 1.09 | | 0.34 | 1.07 | | 0.97 | 0.49 | | 0.33 | 1.28 | |
| Uniform Delay, d1 | 32.8 | 36.4 | | 28.5 | 39.5 | | 33.1 | 33.6 | | 26.9 | 43.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 241.2 | 56.0 | | 1.0 | 49.0 | | 41.4 | 0.7 | | 0.6 | 143.6 | |
| Delay (s) | 274.0 | 92.4 | | 29.5 | 88.5 | | 74.5 | 34.3 | | 27.5 | 187.1 | |
| Level of Service | F | F | | C | F | | E | C | | C | F | |
| Approach Delay (s) | | 132.1 | | | 86.0 | | | 56.8 | | | 154.8 | |
| Approach LOS | | F | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 112.1 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.37 | | |
| Actuated Cycle Length (s) | 114.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 122.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

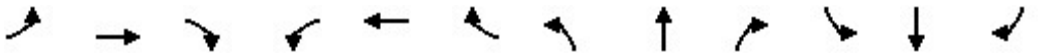
## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 60.9 | 315.5 | 318.9 | 62.9 | 270.1 | 271.2 | 84.1 | 71.5 | 63.9 | 246.1 |
| Average Queue (m) | 60.8 | 307.8 | 307.7 | 22.0 | 259.6 | 259.1 | 49.5 | 37.4 | 48.3 | 239.4 |
| 95th Queue (m) | 60.9 | 311.7 | 312.1 | 64.9 | 279.2 | 282.7 | 78.7 | 61.9 | 89.1 | 243.6 |
| Link Distance (m) | | 302.2 | 302.2 | | 257.3 | 257.3 | | 191.4 | | 233.4 |
| Upstream Blk Time (%) | | 77 | 65 | | 71 | 79 | | | | 90 |
| Queuing Penalty (veh) | | 0 | 0 | | 0 | 0 | | | | 0 |
| Storage Bay Dist (m) | 41.0 | | | 25.0 | | | 58.0 | | 45.0 | |
| Storage Blk Time (%) | 86 | 21 | | 2 | 72 | | 5 | 1 | 2 | 83 |
| Queuing Penalty (veh) | 381 | 80 | | 11 | 36 | | 14 | 4 | 9 | 116 |

## Network Summary

Network wide Queuing Penalty: 649

# Option 1
# 2037



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1786 | 3574 | 1515 | 1729 | 3498 | | 3383 | 1775 | | 1755 | 3560 | 1523 |
| Flt Permitted | 0.14 | 1.00 | 1.00 | 0.35 | 1.00 | | 0.64 | 1.00 | | 0.48 | 1.00 | 1.00 |
| Satd. Flow (perm) | 261 | 3574 | 1515 | 643 | 3498 | | 2263 | 1775 | | 896 | 3560 | 1523 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 746 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 195 | 0 | 7 | 0 | 0 | 11 | 0 | 0 | 0 | 249 |
| Lane Group Flow (vph) | 303 | 746 | 160 | 41 | 921 | 0 | 267 | 199 | 0 | 113 | 144 | 54 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 53.2 | 44.2 | 44.2 | 40.2 | 36.2 | | 30.2 | 18.5 | | 28.8 | 17.8 | 17.8 |
| Effective Green, g (s) | 53.2 | 44.2 | 44.2 | 40.2 | 36.2 | | 30.2 | 18.5 | | 28.8 | 17.8 | 17.8 |
| Actuated g/C Ratio | 0.53 | 0.44 | 0.44 | 0.40 | 0.36 | | 0.30 | 0.19 | | 0.29 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 322 | 1584 | 671 | 302 | 1270 | | 816 | 329 | | 353 | 635 | 271 |
| v/s Ratio Prot | c0.11 | 0.21 | | 0.01 | 0.26 | | c0.04 | c0.11 | | 0.04 | 0.04 | |
| v/s Ratio Perm | c0.39 | | 0.11 | 0.05 | | | 0.06 | | | 0.06 | | 0.04 |
| v/c Ratio | 0.94 | 0.47 | 0.24 | 0.14 | 0.73 | | 0.33 | 0.61 | | 0.32 | 0.23 | 0.20 |
| Uniform Delay, d1 | 21.5 | 19.5 | 17.3 | 18.2 | 27.4 | | 26.3 | 37.3 | | 27.0 | 35.1 | 34.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 34.8 | 1.0 | 0.8 | 0.1 | 3.6 | | 0.3 | 3.1 | | 0.7 | 0.2 | 0.4 |
| Delay (s) | 56.4 | 20.5 | 18.1 | 18.3 | 31.1 | | 26.6 | 40.4 | | 27.8 | 35.2 | 35.2 |
| Level of Service | E | C | B | B | C | | C | D | | C | D | D |
| Approach Delay (s) | | 27.7 | | | 30.5 | | | 32.7 | | | 33.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 30.2 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 99.7 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 17 | 40 | 23 | 33 | 17 | 40 | 23 | 33 |
| Maximum Split (%) | 15.0% | 35.4% | 20.4% | 29.2% | 15.0% | 35.4% | 20.4% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 17 | 57 | 80 | 0 | 17 | 57 | 80 |
| End Time (s) | 17 | 57 | 80 | 0 | 17 | 57 | 80 | 0 |
| Yield/Force Off (s) | 12 | 51 | 75 | 107 | 12 | 51 | 75 | 107 |
| Yield/Force Off 170(s) | 12 | 39 | 75 | 107 | 12 | 39 | 75 | 107 |
| Local Start Time (s) | 96 | 0 | 40 | 63 | 96 | 0 | 40 | 63 |
| Local Yield (s) | 108 | 34 | 58 | 90 | 108 | 34 | 58 | 90 |
| Local Yield 170(s) | 108 | 22 | 58 | 90 | 108 | 22 | 58 | 90 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

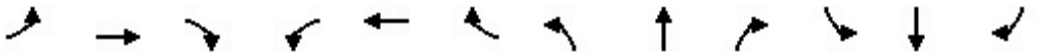
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 93.1 | 125.4 | 103.3 | 48.1 | 80.8 | 218.3 | 216.8 | 50.9 | 60.4 | 62.2 | 30.6 | 36.5 |
| Average Queue (m) | 62.1 | 63.6 | 48.8 | 17.5 | 27.6 | 155.3 | 148.5 | 13.2 | 34.0 | 31.9 | 13.9 | 16.0 |
| 95th Queue (m) | 97.5 | 104.6 | 79.4 | 35.4 | 83.7 | 262.5 | 256.9 | 40.8 | 53.7 | 55.5 | 28.3 | 30.4 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | | | | | 8 | 6 | | | | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 23 | 5 | 3 | | | 66 | | 0 | 0 | | | |
| Queuing Penalty (veh) | 84 | 16 | 10 | | | 26 | | 0 | 0 | | | |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 65.3 | 94.3 |
| Average Queue (m) | 9.1 | 42.6 |
| 95th Queue (m) | 30.0 | 75.0 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | 0 | 3 |
| Queuing Penalty (veh) | 1 | 2 |

## Network Summary

Network wide Queuing Penalty: 139



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1786 | 3574 | 1519 | 1730 | 3498 | | 3383 | 1775 | | 1756 | 3560 | 1525 |
| Flt Permitted | 0.16 | 1.00 | 1.00 | 0.34 | 1.00 | | 0.66 | 1.00 | | 0.49 | 1.00 | 1.00 |
| Satd. Flow (perm) | 297 | 3574 | 1519 | 618 | 3498 | | 2353 | 1775 | | 898 | 3560 | 1525 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 746 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 196 | 0 | 8 | 0 | 0 | 13 | 0 | 0 | 0 | 170 |
| Lane Group Flow (vph) | 303 | 746 | 159 | 41 | 920 | 0 | 267 | 197 | 0 | 113 | 144 | 133 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 50.1 | 41.5 | 41.5 | 39.7 | 36.1 | | 25.5 | 17.5 | | 25.5 | 17.5 | 17.5 |
| Effective Green, g (s) | 50.1 | 41.5 | 41.5 | 39.7 | 36.1 | | 25.5 | 17.5 | | 25.5 | 17.5 | 17.5 |
| Actuated g/C Ratio | 0.54 | 0.45 | 0.45 | 0.43 | 0.39 | | 0.28 | 0.19 | | 0.28 | 0.19 | 0.19 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 305 | 1601 | 680 | 308 | 1363 | | 736 | 335 | | 321 | 672 | 288 |
| v/s Ratio Prot | c0.10 | 0.21 | | 0.01 | 0.26 | | c0.03 | c0.11 | | 0.03 | 0.04 | |
| v/s Ratio Perm | c0.44 | | 0.10 | 0.05 | | | 0.07 | | | 0.07 | | 0.09 |
| v/c Ratio | 0.99 | 0.47 | 0.23 | 0.13 | 0.68 | | 0.36 | 0.59 | | 0.35 | 0.21 | 0.46 |
| Uniform Delay, d1 | 16.8 | 17.8 | 15.8 | 15.5 | 23.4 | | 26.4 | 34.3 | | 26.1 | 31.7 | 33.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 49.5 | 1.0 | 0.8 | 0.1 | 2.7 | | 0.4 | 2.6 | | 0.9 | 0.2 | 1.2 |
| Delay (s) | 66.3 | 18.8 | 16.6 | 15.7 | 26.1 | | 26.8 | 36.9 | | 27.0 | 31.9 | 34.5 |
| Level of Service | E | B | B | B | C | | C | D | | C | C | C |
| Approach Delay (s) | | 28.5 | | | 25.6 | | | 31.3 | | | 32.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |

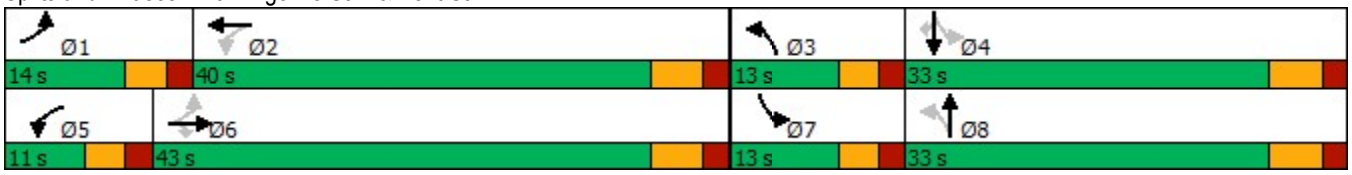
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 28.7 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 92.6 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 14 | 40 | 13 | 33 | 11 | 43 | 13 | 33 |
| Maximum Split (%) | 14.0% | 40.0% | 13.0% | 33.0% | 11.0% | 43.0% | 13.0% | 33.0% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 14 | 54 | 67 | 0 | 11 | 54 | 67 |
| End Time (s) | 14 | 54 | 67 | 0 | 11 | 54 | 67 | 0 |
| Yield/Force Off (s) | 9 | 48 | 62 | 94 | 6 | 48 | 62 | 94 |
| Yield/Force Off 170(s) | 9 | 36 | 62 | 94 | 6 | 36 | 62 | 94 |
| Local Start Time (s) | 86 | 0 | 40 | 53 | 86 | 97 | 40 | 53 |
| Local Yield (s) | 95 | 34 | 48 | 80 | 92 | 34 | 48 | 80 |
| Local Yield 170(s) | 95 | 22 | 48 | 80 | 92 | 22 | 48 | 80 |

| Intersection Summary | |
|---|---|
| Cycle Length | 100 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W



## Intersection: 3: Angeline St N & Kent St W

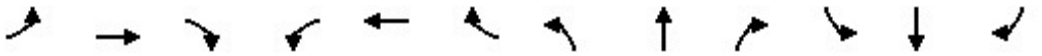
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 95.9 | 196.0 | 187.7 | 62.3 | 80.7 | 118.9 | 106.5 | 55.4 | 65.3 | 52.3 | 38.6 | 37.4 |
| Average Queue (m) | 65.4 | 71.6 | 57.1 | 17.9 | 12.0 | 78.4 | 70.6 | 13.7 | 35.3 | 28.5 | 13.9 | 15.4 |
| 95th Queue (m) | 103.3 | 152.4 | 132.1 | 41.3 | 47.9 | 115.1 | 103.0 | 42.2 | 56.8 | 47.7 | 29.7 | 30.1 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 33 | 4 | 2 | 0 | | 36 | | 0 | 1 | | 0 | |
| Queuing Penalty (veh) | 121 | 10 | 7 | 0 | | 14 | | 0 | 1 | | 0 | |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 18.0 | 69.5 |
| Average Queue (m) | 7.6 | 35.0 |
| 95th Queue (m) | 17.0 | 60.2 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 1 |
| Queuing Penalty (veh) | | 0 |

## Network Summary

Network wide Queuing Penalty: 154



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 731 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1786 | 3574 | 1513 | 1729 | 3497 | | 3378 | 1775 | | 1756 | 3560 | 1522 |
| Flt Permitted | 0.15 | 1.00 | 1.00 | 0.37 | 1.00 | | 0.66 | 1.00 | | 0.45 | 1.00 | 1.00 |
| Satd. Flow (perm) | 274 | 3574 | 1513 | 670 | 3497 | | 2349 | 1775 | | 828 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 746 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 178 | 0 | 7 | 0 | 0 | 11 | 0 | 0 | 0 | 249 |
| Lane Group Flow (vph) | 303 | 746 | 177 | 41 | 921 | 0 | 267 | 199 | 0 | 113 | 144 | 54 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 59.9 | 51.5 | 51.5 | 42.1 | 38.7 | | 26.3 | 18.3 | | 26.3 | 18.3 | 18.3 |
| Effective Green, g (s) | 59.9 | 51.5 | 51.5 | 42.1 | 38.7 | | 26.3 | 18.3 | | 26.3 | 18.3 | 18.3 |
| Actuated g/C Ratio | 0.58 | 0.50 | 0.50 | 0.41 | 0.38 | | 0.25 | 0.18 | | 0.25 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 396 | 1783 | 755 | 308 | 1311 | | 678 | 314 | | 282 | 631 | 269 |
| v/s Ratio Prot | c0.12 | 0.21 | | 0.00 | 0.26 | | 0.03 | c0.11 | | c0.03 | 0.04 | |
| v/s Ratio Perm | c0.32 | | 0.12 | 0.05 | | | 0.07 | | | 0.07 | | 0.04 |
| v/c Ratio | 0.77 | 0.42 | 0.23 | 0.13 | 0.70 | | 0.39 | 0.63 | | 0.40 | 0.23 | 0.20 |
| Uniform Delay, d1 | 18.4 | 16.4 | 14.7 | 18.5 | 27.4 | | 31.1 | 39.4 | | 30.8 | 36.4 | 36.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.2 | 0.7 | 0.7 | 0.1 | 3.2 | | 0.5 | 4.2 | | 1.3 | 0.2 | 0.4 |
| Delay (s) | 26.6 | 17.1 | 15.4 | 18.7 | 30.5 | | 31.6 | 43.5 | | 32.0 | 36.6 | 36.6 |
| Level of Service | C | B | B | B | C | | C | D | | C | D | D |
| Approach Delay (s) | | 18.7 | | | 30.0 | | | 36.9 | | | 35.7 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.2 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 103.2 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 25 | 42 | 13 | 33 | 11 | 56 | 13 | 33 |
| Maximum Split (%) | 22.1% | 37.2% | 11.5% | 29.2% | 9.7% | 49.6% | 11.5% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 25 | 67 | 80 | 0 | 11 | 67 | 80 |
| End Time (s) | 25 | 67 | 80 | 0 | 11 | 67 | 80 | 0 |
| Yield/Force Off (s) | 20 | 61 | 75 | 107 | 6 | 61 | 75 | 107 |
| Yield/Force Off 170(s) | 20 | 49 | 75 | 107 | 6 | 49 | 75 | 107 |
| Local Start Time (s) | 88 | 0 | 42 | 55 | 88 | 99 | 42 | 55 |
| Local Yield (s) | 108 | 36 | 50 | 82 | 94 | 36 | 50 | 82 |
| Local Yield 170(s) | 108 | 24 | 50 | 82 | 94 | 24 | 50 | 82 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 72.3 | 78.1 | 66.9 | 37.1 | 80.8 | 134.4 | 120.4 | 56.1 | 64.7 | 75.4 | 37.8 | 41.8 |
| Average Queue (m) | 39.2 | 42.7 | 34.8 | 14.5 | 11.6 | 79.7 | 69.3 | 19.1 | 36.3 | 33.8 | 14.3 | 17.0 |
| 95th Queue (m) | 63.1 | 66.6 | 58.7 | 29.6 | 45.5 | 128.3 | 117.2 | 49.6 | 57.4 | 59.7 | 28.0 | 33.5 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 2 | 1 | 0 | | | 32 | | 0 | 0 | | | 0 |
| Queuing Penalty (veh) | 6 | 2 | 1 | | | 13 | | 0 | 1 | | | 0 |

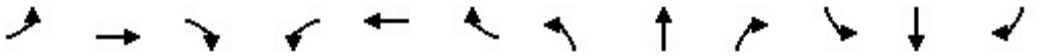
## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 33.6 | 84.9 |
| Average Queue (m) | 7.5 | 36.0 |
| 95th Queue (m) | 21.5 | 64.4 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 2 |
| Queuing Penalty (veh) | | 1 |

## Network Summary

Network wide Queuing Penalty: 24

# Option 1
# 2051



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1514 | 1733 | 3497 | | 3387 | 1776 | | 1757 | 3560 | 1522 |
| Flt Permitted | 0.10 | 1.00 | 1.00 | 0.23 | 1.00 | | 0.60 | 1.00 | | 0.39 | 1.00 | 1.00 |
| Satd. Flow (perm) | 187 | 3574 | 1514 | 421 | 3497 | | 2155 | 1776 | | 725 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 213 | 0 | 7 | 0 | 0 | 10 | 0 | 0 | 0 | 230 |
| Lane Group Flow (vph) | 379 | 909 | 231 | 51 | 1151 | 0 | 335 | 252 | 0 | 142 | 180 | 149 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 52.2 | 41.7 | 41.7 | 40.7 | 35.2 | | 33.9 | 20.7 | | 31.7 | 19.6 | 19.6 |
| Effective Green, g (s) | 52.2 | 41.7 | 41.7 | 40.7 | 35.2 | | 33.9 | 20.7 | | 31.7 | 19.6 | 19.6 |
| Actuated g/C Ratio | 0.51 | 0.41 | 0.41 | 0.40 | 0.35 | | 0.33 | 0.20 | | 0.31 | 0.19 | 0.19 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 283 | 1461 | 618 | 238 | 1206 | | 875 | 360 | | 347 | 684 | 292 |
| v/s Ratio Prot | c0.16 | 0.25 | | 0.01 | 0.33 | | c0.05 | c0.14 | | 0.05 | 0.05 | |
| v/s Ratio Perm | c0.53 | | 0.15 | 0.07 | | | 0.08 | | | 0.08 | | 0.10 |
| v/c Ratio | 1.34 | 0.62 | 0.37 | 0.21 | 0.95 | | 0.38 | 0.70 | | 0.41 | 0.26 | 0.51 |
| Uniform Delay, d1 | 29.5 | 23.9 | 21.0 | 19.4 | 32.6 | | 25.2 | 37.8 | | 26.6 | 35.1 | 36.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 174.6 | 2.0 | 1.7 | 0.3 | 17.0 | | 0.4 | 5.8 | | 1.1 | 0.2 | 1.4 |
| Delay (s) | 204.1 | 25.9 | 22.8 | 19.8 | 49.6 | | 25.6 | 43.6 | | 27.7 | 35.3 | 38.3 |
| Level of Service | F | C | C | B | D | | C | D | | C | D | D |
| Approach Delay (s) | | 64.1 | | | 48.4 | | | 33.5 | | | 35.4 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 50.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 102.0 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 17 | 40 | 23 | 33 | 17 | 40 | 23 | 33 |
| Maximum Split (%) | 15.0% | 35.4% | 20.4% | 29.2% | 15.0% | 35.4% | 20.4% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 17 | 57 | 80 | 0 | 17 | 57 | 80 |
| End Time (s) | 17 | 57 | 80 | 0 | 17 | 57 | 80 | 0 |
| Yield/Force Off (s) | 12 | 51 | 75 | 107 | 12 | 51 | 75 | 107 |
| Yield/Force Off 170(s) | 12 | 39 | 75 | 107 | 12 | 39 | 75 | 107 |
| Local Start Time (s) | 96 | 0 | 40 | 63 | 96 | 0 | 40 | 63 |
| Local Yield (s) | 108 | 34 | 58 | 90 | 108 | 34 | 58 | 90 |
| Local Yield 170(s) | 108 | 22 | 58 | 90 | 108 | 22 | 58 | 90 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

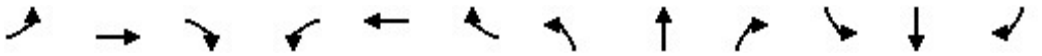
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 96.0 | 303.3 | 306.0 | 94.6 | 80.9 | 270.4 | 269.3 | 58.7 | 66.8 | 76.2 | 44.6 | 170.0 |
| Average Queue (m) | 94.9 | 275.6 | 265.9 | 28.4 | 28.4 | 260.8 | 260.5 | 23.6 | 43.1 | 43.8 | 19.2 | 101.7 |
| 95th Queue (m) | 104.8 | 368.4 | 376.5 | 64.9 | 86.9 | 265.2 | 264.1 | 56.3 | 64.3 | 71.1 | 39.3 | 260.4 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | 62 | 30 | | | 90 | 82 | | | | | 4 |
| Queuing Penalty (veh) | | 0 | 0 | | | 0 | 0 | | | | | 0 |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 88 | 2 | 8 | 0 | | 74 | | 0 | 2 | | 1 | 0 |
| Queuing Penalty (veh) | 392 | 8 | 34 | 0 | | 37 | | 0 | 3 | | 1 | 0 |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 188.8 | 114.4 |
| Average Queue (m) | 140.8 | 100.0 |
| 95th Queue (m) | 310.7 | 149.2 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | 37 | |
| Queuing Penalty (veh) | 0 | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | 0 | 69 |
| Queuing Penalty (veh) | 1 | 61 |

## Network Summary

Network wide Queuing Penalty: 536



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1513 | 1731 | 3497 | | 3382 | 1775 | | 1758 | 3560 | 1522 |
| Flt Permitted | 0.09 | 1.00 | 1.00 | 0.30 | 1.00 | | 0.64 | 1.00 | | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | 178 | 3574 | 1513 | 545 | 3497 | | 2272 | 1775 | | 649 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 234 | 0 | 8 | 0 | 0 | 11 | 0 | 0 | 0 | 215 |
| Lane Group Flow (vph) | 379 | 909 | 210 | 51 | 1150 | 0 | 335 | 251 | 0 | 142 | 180 | 164 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 59.2 | 49.4 | 49.4 | 42.0 | 37.2 | | 28.2 | 20.2 | | 28.2 | 20.2 | 20.2 |
| Effective Green, g (s) | 59.2 | 49.4 | 49.4 | 42.0 | 37.2 | | 28.2 | 20.2 | | 28.2 | 20.2 | 20.2 |
| Actuated g/C Ratio | 0.57 | 0.47 | 0.47 | 0.40 | 0.36 | | 0.27 | 0.19 | | 0.27 | 0.19 | 0.19 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 362 | 1691 | 715 | 273 | 1246 | | 698 | 343 | | 260 | 688 | 294 |
| v/s Ratio Prot | c0.17 | 0.25 | | 0.01 | 0.33 | | 0.04 | c0.14 | | c0.04 | 0.05 | |
| v/s Ratio Perm | c0.42 | | 0.14 | 0.07 | | | 0.09 | | | 0.11 | | 0.11 |
| v/c Ratio | 1.05 | 0.54 | 0.29 | 0.19 | 0.92 | | 0.48 | 0.73 | | 0.55 | 0.26 | 0.56 |
| Uniform Delay, d1 | 32.1 | 19.4 | 16.8 | 19.2 | 32.2 | | 30.9 | 39.5 | | 30.6 | 35.8 | 38.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 60.1 | 1.2 | 1.0 | 0.2 | 12.7 | | 0.7 | 7.8 | | 2.9 | 0.2 | 2.3 |
| Delay (s) | 92.2 | 20.7 | 17.9 | 19.5 | 44.9 | | 31.6 | 47.3 | | 33.6 | 36.0 | 40.4 |
| Level of Service | F | C | B | B | D | | C | D | | C | D | D |
| Approach Delay (s) | | 35.6 | | | 43.9 | | | 38.5 | | | 37.9 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 38.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 104.4 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 22 | 42 | 13 | 33 | 11 | 53 | 13 | 33 |
| Maximum Split (%) | 20.0% | 38.2% | 11.8% | 30.0% | 10.0% | 48.2% | 11.8% | 30.0% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 22 | 64 | 77 | 0 | 11 | 64 | 77 |
| End Time (s) | 22 | 64 | 77 | 0 | 11 | 64 | 77 | 0 |
| Yield/Force Off (s) | 17 | 58 | 72 | 104 | 6 | 58 | 72 | 104 |
| Yield/Force Off 170(s) | 17 | 46 | 72 | 104 | 6 | 46 | 72 | 104 |
| Local Start Time (s) | 88 | 0 | 42 | 55 | 88 | 99 | 42 | 55 |
| Local Yield (s) | 105 | 36 | 50 | 82 | 94 | 36 | 50 | 82 |
| Local Yield 170(s) | 105 | 24 | 50 | 82 | 94 | 24 | 50 | 82 |

| Intersection Summary | |
|---|---|
| Cycle Length | 110 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

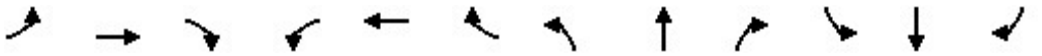
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 96.0 | 224.5 | 199.2 | 78.8 | 80.9 | 268.0 | 265.6 | 65.1 | 77.8 | 83.7 | 43.2 | 93.0 |
| Average Queue (m) | 79.2 | 110.3 | 93.2 | 21.0 | 36.1 | 253.6 | 250.1 | 33.7 | 49.2 | 43.0 | 17.3 | 27.5 |
| 95th Queue (m) | 112.4 | 224.3 | 203.3 | 47.6 | 97.7 | 287.8 | 293.6 | 62.3 | 71.6 | 74.0 | 34.7 | 79.0 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | | | | | 74 | 63 | | | | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 48 | 3 | 4 | 0 | | 72 | | 0 | 3 | | 1 | 0 |
| Queuing Penalty (veh) | 214 | 13 | 19 | 1 | | 36 | | 0 | 6 | | 0 | 0 |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 160.7 | 120.0 |
| Average Queue (m) | 33.4 | 84.7 |
| 95th Queue (m) | 119.1 | 130.2 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | 0 | 46 |
| Queuing Penalty (veh) | 1 | 40 |

## Network Summary

Network wide Queuing Penalty: 330



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 0.97 | 1.00 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.95 | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.98 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1511 | 1731 | 3497 | | 3380 | 1775 | | 1758 | 3560 | 1521 |
| Flt Permitted | 0.09 | 1.00 | 1.00 | 0.31 | 1.00 | | 0.64 | 1.00 | | 0.34 | 1.00 | 1.00 |
| Satd. Flow (perm) | 174 | 3574 | 1511 | 572 | 3497 | | 2271 | 1775 | | 628 | 3560 | 1521 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 228 | 0 | 7 | 0 | 0 | 11 | 0 | 0 | 0 | 233 |
| Lane Group Flow (vph) | 379 | 909 | 216 | 51 | 1151 | 0 | 335 | 251 | 0 | 142 | 180 | 146 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 62.2 | 52.4 | 52.4 | 43.0 | 38.2 | | 28.5 | 20.5 | | 28.5 | 20.5 | 20.5 |
| Effective Green, g (s) | 62.2 | 52.4 | 52.4 | 43.0 | 38.2 | | 28.5 | 20.5 | | 28.5 | 20.5 | 20.5 |
| Actuated g/C Ratio | 0.58 | 0.49 | 0.49 | 0.40 | 0.35 | | 0.26 | 0.19 | | 0.26 | 0.19 | 0.19 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 385 | 1738 | 735 | 280 | 1240 | | 683 | 337 | | 250 | 677 | 289 |
| v/s Ratio Prot | c0.17 | 0.25 | | 0.01 | 0.33 | | 0.04 | c0.14 | | c0.04 | 0.05 | |
| v/s Ratio Perm | c0.39 | | 0.14 | 0.06 | | | 0.09 | | | 0.11 | | 0.10 |
| v/c Ratio | 0.98 | 0.52 | 0.29 | 0.18 | 0.93 | | 0.49 | 0.75 | | 0.57 | 0.27 | 0.50 |
| Uniform Delay, d1 | 33.3 | 19.0 | 16.6 | 20.0 | 33.4 | | 32.3 | 41.1 | | 32.1 | 37.2 | 39.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 41.4 | 1.1 | 1.0 | 0.2 | 13.3 | | 0.8 | 8.7 | | 3.6 | 0.2 | 1.4 |
| Delay (s) | 74.7 | 20.2 | 17.6 | 20.3 | 46.7 | | 33.1 | 49.8 | | 35.7 | 37.4 | 40.4 |
| Level of Service | E | C | B | C | D | | C | D | | D | D | D |
| Approach Delay (s) | | 31.4 | | | 45.6 | | | 40.4 | | | 38.7 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.9 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 107.7 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 97.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 24 | 43 | 13 | 33 | 11 | 56 | 13 | 33 |
| Maximum Split (%) | 21.2% | 38.1% | 11.5% | 29.2% | 9.7% | 49.6% | 11.5% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 24 | 67 | 80 | 0 | 11 | 67 | 80 |
| End Time (s) | 24 | 67 | 80 | 0 | 11 | 67 | 80 | 0 |
| Yield/Force Off (s) | 19 | 61 | 75 | 107 | 6 | 61 | 75 | 107 |
| Yield/Force Off 170(s) | 19 | 49 | 75 | 107 | 6 | 49 | 75 | 107 |
| Local Start Time (s) | 89 | 0 | 43 | 56 | 89 | 100 | 43 | 56 |
| Local Yield (s) | 108 | 37 | 51 | 83 | 95 | 37 | 51 | 83 |
| Local Yield 170(s) | 108 | 25 | 51 | 83 | 95 | 25 | 51 | 83 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | L | TR | L | T |
| Maximum Queue (m) | 95.9 | 233.2 | 221.2 | 69.1 | 80.9 | 268.0 | 268.0 | 72.8 | 85.7 | 77.3 | 53.3 | 169.9 |
| Average Queue (m) | 74.0 | 139.3 | 128.3 | 22.8 | 26.9 | 258.6 | 257.3 | 38.2 | 55.3 | 43.4 | 20.3 | 84.2 |
| 95th Queue (m) | 113.1 | 304.9 | 296.1 | 47.4 | 82.5 | 276.7 | 279.7 | 71.5 | 82.3 | 73.1 | 41.2 | 240.3 |
| Link Distance (m) | | 293.0 | 293.0 | | | 255.2 | 255.2 | | 191.0 | 191.0 | | 231.2 |
| Upstream Blk Time (%) | | 10 | 7 | | | 77 | 66 | | | | | 3 |
| Queuing Penalty (veh) | | 0 | 0 | | | 0 | 0 | | | | | 0 |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 42 | 4 | 4 | 0 | | 69 | | 0 | 7 | | 1 | 0 |
| Queuing Penalty (veh) | 187 | 13 | 18 | 0 | | 35 | | 1 | 12 | | 1 | 0 |

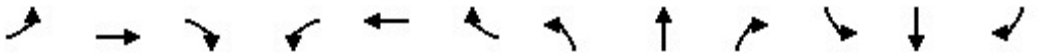
## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 172.3 | 111.3 |
| Average Queue (m) | 129.9 | 95.9 |
| 95th Queue (m) | 310.0 | 153.1 |
| Link Distance (m) | 231.2 | |
| Upstream Blk Time (%) | 44 | |
| Queuing Penalty (veh) | 0 | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | 1 | 67 |
| Queuing Penalty (veh) | 2 | 59 |

## Network Summary

Network wide Queuing Penalty: 328

# Option 2
# 2037



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1514 | 1729 | 3505 | | 1758 | 3372 | | 1752 | 3560 | 1522 |
| Flt Permitted | 0.13 | 1.00 | 1.00 | 0.36 | 1.00 | | 0.50 | 1.00 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | 246 | 3574 | 1514 | 650 | 3505 | | 932 | 3372 | | 1144 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 728 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 202 | 0 | 7 | 0 | 0 | 28 | 0 | 0 | 0 | 256 |
| Lane Group Flow (vph) | 303 | 728 | 153 | 41 | 921 | 0 | 267 | 182 | 0 | 113 | 144 | 47 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 53.1 | 44.1 | 44.1 | 40.1 | 36.1 | | 37.1 | 21.3 | | 26.8 | 16.0 | 16.0 |
| Effective Green, g (s) | 53.1 | 44.1 | 44.1 | 40.1 | 36.1 | | 37.1 | 21.3 | | 26.8 | 16.0 | 16.0 |
| Actuated g/C Ratio | 0.52 | 0.43 | 0.43 | 0.39 | 0.35 | | 0.36 | 0.21 | | 0.26 | 0.16 | 0.16 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 308 | 1542 | 653 | 297 | 1238 | | 468 | 702 | | 364 | 557 | 238 |
| v/s Ratio Prot | c0.12 | 0.20 | | 0.01 | 0.26 | | c0.09 | 0.05 | | 0.03 | 0.04 | |
| v/s Ratio Perm | c0.39 | | 0.10 | 0.05 | | | c0.12 | | | 0.05 | | 0.03 |
| v/c Ratio | 0.98 | 0.47 | 0.23 | 0.14 | 0.74 | | 0.57 | 0.26 | | 0.31 | 0.26 | 0.20 |
| Uniform Delay, d1 | 24.1 | 20.7 | 18.4 | 19.3 | 29.0 | | 24.6 | 33.8 | | 29.7 | 37.9 | 37.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 46.5 | 1.0 | 0.8 | 0.2 | 4.1 | | 2.0 | 0.2 | | 0.7 | 0.2 | 0.4 |
| Delay (s) | 70.6 | 21.8 | 19.2 | 19.5 | 33.1 | | 26.6 | 34.0 | | 30.4 | 38.1 | 37.9 |
| Level of Service | E | C | B | B | C | | C | C | | C | D | D |
| Approach Delay (s) | | 31.8 | | | 32.5 | | | 29.9 | | | 36.5 | |
| Approach LOS | | C | | | C | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 32.5 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 102.2 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 94.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 17 | 40 | 23 | 33 | 17 | 40 | 23 | 33 |
| Maximum Split (%) | 15.0% | 35.4% | 20.4% | 29.2% | 15.0% | 35.4% | 20.4% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 17 | 57 | 80 | 0 | 17 | 57 | 80 |
| End Time (s) | 17 | 57 | 80 | 0 | 17 | 57 | 80 | 0 |
| Yield/Force Off (s) | 12 | 51 | 75 | 107 | 12 | 51 | 75 | 107 |
| Yield/Force Off 170(s) | 12 | 39 | 75 | 107 | 12 | 39 | 75 | 107 |
| Local Start Time (s) | 96 | 0 | 40 | 63 | 96 | 0 | 40 | 63 |
| Local Yield (s) | 108 | 34 | 58 | 90 | 108 | 34 | 58 | 90 |
| Local Yield 170(s) | 108 | 22 | 58 | 90 | 108 | 22 | 58 | 90 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

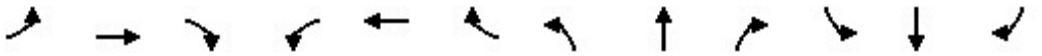
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 86.3 | 105.8 | 96.8 | 56.5 | 80.8 | 148.0 | 139.8 | 81.7 | 34.2 | 36.2 | 38.6 | 32.1 |
| Average Queue (m) | 48.9 | 50.7 | 41.9 | 14.7 | 16.0 | 90.8 | 84.3 | 38.1 | 14.8 | 15.0 | 13.9 | 17.3 |
| 95th Queue (m) | 78.6 | 84.4 | 71.7 | 35.1 | 58.6 | 136.8 | 130.7 | 63.9 | 27.6 | 29.1 | 30.1 | 30.5 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 7 | 3 | 1 | | | 46 | | 1 | | | 0 | |
| Queuing Penalty (veh) | 23 | 10 | 5 | | | 19 | | 1 | | | 0 | |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 24.8 | 66.7 |
| Average Queue (m) | 8.1 | 30.9 |
| 95th Queue (m) | 20.1 | 55.7 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Network Summary

Network wide Queuing Penalty: 58



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1786 | 3574 | 1519 | 1730 | 3506 | | 1754 | 3373 | | 1753 | 3560 | 1525 |
| Flt Permitted | 0.16 | 1.00 | 1.00 | 0.35 | 1.00 | | 0.66 | 1.00 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | 298 | 3574 | 1519 | 639 | 3506 | | 1220 | 3373 | | 1144 | 3560 | 1525 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 728 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 195 | 0 | 8 | 0 | 0 | 34 | 0 | 0 | 0 | 172 |
| Lane Group Flow (vph) | 303 | 728 | 160 | 41 | 920 | 0 | 267 | 176 | 0 | 113 | 144 | 131 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 50.1 | 41.5 | 41.5 | 39.7 | 36.1 | | 25.2 | 17.2 | | 25.2 | 17.2 | 17.2 |
| Effective Green, g (s) | 50.1 | 41.5 | 41.5 | 39.7 | 36.1 | | 25.2 | 17.2 | | 25.2 | 17.2 | 17.2 |
| Actuated g/C Ratio | 0.54 | 0.45 | 0.45 | 0.43 | 0.39 | | 0.27 | 0.19 | | 0.27 | 0.19 | 0.19 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 306 | 1606 | 682 | 317 | 1371 | | 379 | 628 | | 365 | 663 | 284 |
| v/s Ratio Prot | c0.10 | 0.20 | | 0.01 | 0.26 | | c0.06 | 0.05 | | 0.03 | 0.04 | |
| v/s Ratio Perm | c0.44 | | 0.11 | 0.05 | | | c0.13 | | | 0.06 | | 0.09 |
| v/c Ratio | 0.99 | 0.45 | 0.23 | 0.13 | 0.67 | | 0.70 | 0.28 | | 0.31 | 0.22 | 0.46 |
| Uniform Delay, d1 | 16.5 | 17.6 | 15.6 | 15.4 | 23.2 | | 29.0 | 32.2 | | 26.1 | 31.8 | 33.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 48.6 | 0.9 | 0.8 | 0.1 | 2.6 | | 6.3 | 0.2 | | 0.7 | 0.2 | 1.2 |
| Delay (s) | 65.1 | 18.5 | 16.4 | 15.5 | 25.8 | | 35.3 | 32.5 | | 26.7 | 32.0 | 34.6 |
| Level of Service | E | B | B | B | C | | D | C | | C | C | C |
| Approach Delay (s) | | 28.2 | | | 25.4 | | | 34.1 | | | 32.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

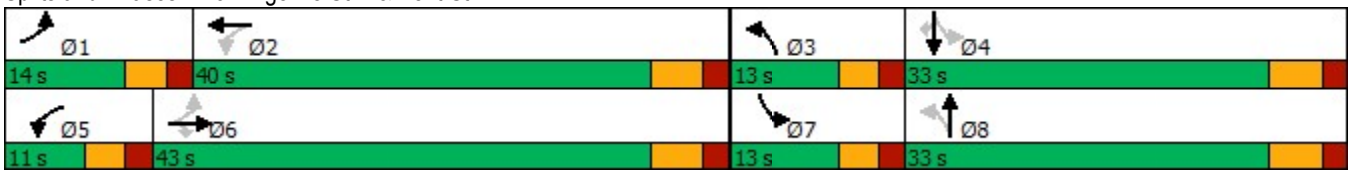
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 28.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 92.3 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 94.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 14 | 40 | 13 | 33 | 11 | 43 | 13 | 33 |
| Maximum Split (%) | 14.0% | 40.0% | 13.0% | 33.0% | 11.0% | 43.0% | 13.0% | 33.0% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 14 | 54 | 67 | 0 | 11 | 54 | 67 |
| End Time (s) | 14 | 54 | 67 | 0 | 11 | 54 | 67 | 0 |
| Yield/Force Off (s) | 9 | 48 | 62 | 94 | 6 | 48 | 62 | 94 |
| Yield/Force Off 170(s) | 9 | 36 | 62 | 94 | 6 | 36 | 62 | 94 |
| Local Start Time (s) | 86 | 0 | 40 | 53 | 86 | 97 | 40 | 53 |
| Local Yield (s) | 95 | 34 | 48 | 80 | 92 | 34 | 48 | 80 |
| Local Yield 170(s) | 95 | 22 | 48 | 80 | 92 | 22 | 48 | 80 |

| Intersection Summary | |
|---|---|
| Cycle Length | 100 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W



## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 88.3 | 112.6 | 85.6 | 30.7 | 80.8 | 128.4 | 122.0 | 87.1 | 72.8 | 36.4 | 39.6 | 31.7 |
| Average Queue (m) | 53.0 | 51.8 | 39.0 | 15.1 | 13.0 | 75.2 | 65.6 | 42.6 | 20.6 | 16.6 | 15.3 | 15.6 |
| 95th Queue (m) | 88.2 | 97.7 | 74.6 | 27.2 | 49.2 | 115.9 | 109.0 | 71.8 | 43.8 | 32.2 | 29.6 | 29.5 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 13 | 2 | 1 | | | 30 | | 5 | 0 | | | |
| Queuing Penalty (veh) | 46 | 7 | 4 | | | 12 | | 4 | 0 | | | |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 20.7 | 78.4 |
| Average Queue (m) | 6.9 | 32.5 |
| 95th Queue (m) | 17.3 | 57.8 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 1 |
| Queuing Penalty (veh) | | 1 |

## Network Summary

Network wide Queuing Penalty: 74

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Future Volume (vph) | 297 | 713 | 348 | 40 | 817 | 92 | 262 | 156 | 50 | 111 | 141 | 297 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1786 | 3574 | 1514 | 1729 | 3505 | | 1753 | 3372 | | 1752 | 3560 | 1522 |
| Flt Permitted | 0.16 | 1.00 | 1.00 | 0.38 | 1.00 | | 0.66 | 1.00 | | 0.62 | 1.00 | 1.00 |
| Satd. Flow (perm) | 292 | 3574 | 1514 | 682 | 3505 | | 1219 | 3372 | | 1144 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 303 | 728 | 355 | 41 | 834 | 94 | 267 | 159 | 51 | 113 | 144 | 303 |
| RTOR Reduction (vph) | 0 | 0 | 173 | 0 | 7 | 0 | 0 | 30 | 0 | 0 | 0 | 255 |
| Lane Group Flow (vph) | 303 | 728 | 182 | 41 | 921 | 0 | 267 | 180 | 0 | 113 | 144 | 48 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 60.3 | 51.8 | 51.8 | 43.0 | 39.5 | | 24.0 | 16.0 | | 24.0 | 16.0 | 16.0 |
| Effective Green, g (s) | 60.3 | 51.8 | 51.8 | 43.0 | 39.5 | | 24.0 | 16.0 | | 24.0 | 16.0 | 16.0 |
| Actuated g/C Ratio | 0.60 | 0.51 | 0.51 | 0.42 | 0.39 | | 0.24 | 0.16 | | 0.24 | 0.16 | 0.16 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 406 | 1827 | 774 | 325 | 1366 | | 330 | 532 | | 319 | 562 | 240 |
| v/s Ratio Prot | c0.12 | 0.20 | | 0.00 | 0.26 | | c0.06 | 0.05 | | 0.03 | 0.04 | |
| v/s Ratio Perm | c0.33 | | 0.12 | 0.05 | | | c0.13 | | | 0.06 | | 0.03 |
| v/c Ratio | 0.75 | 0.40 | 0.23 | 0.13 | 0.67 | | 0.81 | 0.34 | | 0.35 | 0.26 | 0.20 |
| Uniform Delay, d1 | 15.8 | 15.2 | 13.7 | 17.2 | 25.6 | | 35.3 | 37.9 | | 31.5 | 37.4 | 37.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | 0.7 | 0.7 | 0.1 | 2.7 | | 14.3 | 0.4 | | 0.9 | 0.2 | 0.4 |
| Delay (s) | 22.7 | 15.8 | 14.5 | 17.3 | 28.3 | | 49.6 | 38.3 | | 32.5 | 37.7 | 37.5 |
| Level of Service | C | B | B | B | C | | D | D | | C | D | D |
| Approach Delay (s) | | 17.0 | | | 27.8 | | | 44.6 | | | 36.5 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.2 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 101.3 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 94.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 24 | 43 | 13 | 33 | 11 | 56 | 13 | 33 |
| Maximum Split (%) | 21.2% | 38.1% | 11.5% | 29.2% | 9.7% | 49.6% | 11.5% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 24 | 67 | 80 | 0 | 11 | 67 | 80 |
| End Time (s) | 24 | 67 | 80 | 0 | 11 | 67 | 80 | 0 |
| Yield/Force Off (s) | 19 | 61 | 75 | 107 | 6 | 61 | 75 | 107 |
| Yield/Force Off 170(s) | 19 | 49 | 75 | 107 | 6 | 49 | 75 | 107 |
| Local Start Time (s) | 89 | 0 | 43 | 56 | 89 | 100 | 43 | 56 |
| Local Yield (s) | 108 | 37 | 51 | 83 | 95 | 37 | 51 | 83 |
| Local Yield 170(s) | 108 | 25 | 51 | 83 | 95 | 25 | 51 | 83 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 100 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 70.2 | 73.5 | 61.3 | 41.6 | 80.7 | 112.3 | 102.0 | 85.9 | 85.3 | 46.5 | 42.3 | 37.9 |
| Average Queue (m) | 38.1 | 38.8 | 30.3 | 12.7 | 9.0 | 68.2 | 62.5 | 43.7 | 19.6 | 18.2 | 15.6 | 16.3 |
| 95th Queue (m) | 63.3 | 60.6 | 52.5 | 27.2 | 35.6 | 100.6 | 94.4 | 74.0 | 46.2 | 35.6 | 32.1 | 31.4 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 1 | 0 | 0 | | | 24 | | 6 | 0 | | 0 | 0 |
| Queuing Penalty (veh) | 5 | 1 | 0 | | | 9 | | 4 | 0 | | 0 | 0 |

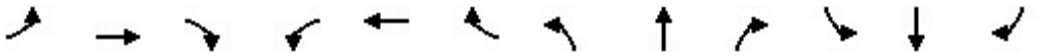
## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 28.9 | 55.4 |
| Average Queue (m) | 7.7 | 27.9 |
| 95th Queue (m) | 19.3 | 47.5 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Network Summary

Network wide Queuing Penalty: 20

# Option 2
# 2051



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1513 | 1733 | 3505 | | 1759 | 3373 | | 1753 | 3560 | 1521 |
| Flt Permitted | 0.10 | 1.00 | 1.00 | 0.22 | 1.00 | | 0.50 | 1.00 | | 0.59 | 1.00 | 1.00 |
| Satd. Flow (perm) | 188 | 3574 | 1513 | 401 | 3505 | | 929 | 3373 | | 1088 | 3560 | 1521 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 217 | 0 | 7 | 0 | 0 | 27 | 0 | 0 | 0 | 228 |
| Lane Group Flow (vph) | 379 | 909 | 227 | 51 | 1151 | 0 | 335 | 235 | 0 | 142 | 180 | 151 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 52.1 | 41.5 | 41.5 | 40.7 | 35.1 | | 40.7 | 23.8 | | 30.3 | 18.4 | 18.4 |
| Effective Green, g (s) | 52.1 | 41.5 | 41.5 | 40.7 | 35.1 | | 40.7 | 23.8 | | 30.3 | 18.4 | 18.4 |
| Actuated g/C Ratio | 0.50 | 0.40 | 0.40 | 0.39 | 0.33 | | 0.39 | 0.23 | | 0.29 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 276 | 1415 | 599 | 226 | 1173 | | 497 | 766 | | 390 | 625 | 267 |
| v/s Ratio Prot | c0.16 | 0.25 | | 0.01 | 0.33 | | c0.11 | 0.07 | | 0.04 | 0.05 | |
| v/s Ratio Perm | c0.53 | | 0.15 | 0.08 | | | c0.15 | | | 0.06 | | 0.10 |
| v/c Ratio | 1.37 | 0.64 | 0.38 | 0.23 | 0.98 | | 0.67 | 0.31 | | 0.36 | 0.29 | 0.57 |
| Uniform Delay, d1 | 30.4 | 25.6 | 22.5 | 20.8 | 34.5 | | 24.4 | 33.6 | | 28.8 | 37.5 | 39.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 189.2 | 2.3 | 1.8 | 0.4 | 22.1 | | 3.9 | 0.2 | | 0.8 | 0.3 | 2.8 |
| Delay (s) | 219.6 | 27.9 | 24.3 | 21.1 | 56.6 | | 28.3 | 33.9 | | 29.6 | 37.8 | 42.3 |
| Level of Service | F | C | C | C | E | | C | C | | C | D | D |
| Approach Delay (s) | | 68.9 | | | 55.1 | | | 30.8 | | | 38.6 | |
| Approach LOS | | E | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 54.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 104.8 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 106.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 17 | 40 | 23 | 33 | 17 | 40 | 23 | 33 |
| Maximum Split (%) | 15.0% | 35.4% | 20.4% | 29.2% | 15.0% | 35.4% | 20.4% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 17 | 57 | 80 | 0 | 17 | 57 | 80 |
| End Time (s) | 17 | 57 | 80 | 0 | 17 | 57 | 80 | 0 |
| Yield/Force Off (s) | 12 | 51 | 75 | 107 | 12 | 51 | 75 | 107 |
| Yield/Force Off 170(s) | 12 | 39 | 75 | 107 | 12 | 39 | 75 | 107 |
| Local Start Time (s) | 96 | 0 | 40 | 63 | 96 | 0 | 40 | 63 |
| Local Yield (s) | 108 | 34 | 58 | 90 | 108 | 34 | 58 | 90 |
| Local Yield 170(s) | 108 | 22 | 58 | 90 | 108 | 22 | 58 | 90 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

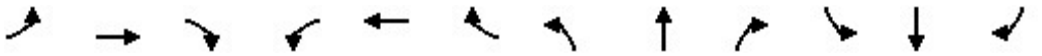
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 96.0 | 307.5 | 310.4 | 95.4 | 81.0 | 268.6 | 267.6 | 89.3 | 104.9 | 44.6 | 49.6 | 38.5 |
| Average Queue (m) | 95.0 | 276.7 | 270.5 | 31.1 | 38.7 | 259.0 | 258.2 | 50.8 | 27.2 | 21.5 | 17.4 | 22.6 |
| 95th Queue (m) | 102.3 | 371.3 | 378.8 | 76.9 | 99.5 | 263.3 | 265.9 | 81.9 | 67.4 | 39.1 | 35.7 | 37.3 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | 60 | 31 | | | 87 | 80 | | | | | |
| Queuing Penalty (veh) | | 0 | 0 | | | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 88 | 3 | 9 | 0 | 0 | 74 | | 7 | 0 | | 0 | |
| Queuing Penalty (veh) | 393 | 11 | 40 | 2 | 2 | 37 | | 7 | 0 | | 0 | |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 30.7 | 74.2 |
| Average Queue (m) | 10.5 | 41.2 |
| 95th Queue (m) | 23.0 | 67.9 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 1 |
| Queuing Penalty (veh) | | 1 |

## Network Summary

Network wide Queuing Penalty: 493



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1514 | 1731 | 3505 | | 1754 | 3374 | | 1754 | 3560 | 1522 |
| Flt Permitted | 0.10 | 1.00 | 1.00 | 0.30 | 1.00 | | 0.64 | 1.00 | | 0.56 | 1.00 | 1.00 |
| Satd. Flow (perm) | 179 | 3574 | 1514 | 554 | 3505 | | 1178 | 3374 | | 1032 | 3560 | 1522 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 231 | 0 | 8 | 0 | 0 | 29 | 0 | 0 | 0 | 218 |
| Lane Group Flow (vph) | 379 | 909 | 213 | 51 | 1150 | 0 | 335 | 233 | 0 | 142 | 180 | 161 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 59.1 | 49.3 | 49.3 | 41.9 | 37.1 | | 26.7 | 18.7 | | 26.7 | 18.7 | 18.7 |
| Effective Green, g (s) | 59.1 | 49.3 | 49.3 | 41.9 | 37.1 | | 26.7 | 18.7 | | 26.7 | 18.7 | 18.7 |
| Actuated g/C Ratio | 0.57 | 0.48 | 0.48 | 0.41 | 0.36 | | 0.26 | 0.18 | | 0.26 | 0.18 | 0.18 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 368 | 1713 | 726 | 280 | 1264 | | 350 | 613 | | 324 | 647 | 276 |
| v/s Ratio Prot | c0.17 | 0.25 | | 0.01 | 0.33 | | c0.07 | 0.07 | | 0.03 | 0.05 | |
| v/s Ratio Perm | c0.42 | | 0.14 | 0.07 | | | c0.17 | | | 0.08 | | 0.11 |
| v/c Ratio | 1.03 | 0.53 | 0.29 | 0.18 | 0.91 | | 0.96 | 0.38 | | 0.44 | 0.28 | 0.58 |
| Uniform Delay, d1 | 31.6 | 18.7 | 16.2 | 18.6 | 31.3 | | 36.2 | 37.0 | | 30.7 | 36.2 | 38.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 54.8 | 1.2 | 1.0 | 0.2 | 11.3 | | 36.8 | 0.4 | | 1.3 | 0.2 | 3.1 |
| Delay (s) | 86.4 | 19.9 | 17.2 | 18.8 | 42.5 | | 73.0 | 37.3 | | 31.9 | 36.5 | 41.6 |
| Level of Service | F | B | B | B | D | | E | D | | C | D | D |
| Approach Delay (s) | | 33.7 | | | 41.5 | | | 57.3 | | | 38.3 | |
| Approach LOS | | C | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 40.0 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 102.8 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 106.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 22 | 42 | 13 | 33 | 11 | 53 | 13 | 33 |
| Maximum Split (%) | 20.0% | 38.2% | 11.8% | 30.0% | 10.0% | 48.2% | 11.8% | 30.0% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 22 | 64 | 77 | 0 | 11 | 64 | 77 |
| End Time (s) | 22 | 64 | 77 | 0 | 11 | 64 | 77 | 0 |
| Yield/Force Off (s) | 17 | 58 | 72 | 104 | 6 | 58 | 72 | 104 |
| Yield/Force Off 170(s) | 17 | 46 | 72 | 104 | 6 | 46 | 72 | 104 |
| Local Start Time (s) | 88 | 0 | 42 | 55 | 88 | 99 | 42 | 55 |
| Local Yield (s) | 105 | 36 | 50 | 82 | 94 | 36 | 50 | 82 |
| Local Yield 170(s) | 105 | 24 | 50 | 82 | 94 | 24 | 50 | 82 |

| Intersection Summary | |
|---|---|
| Cycle Length | 110 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

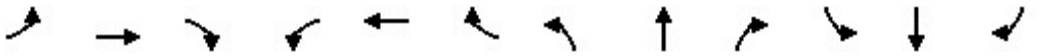
| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 96.0 | 233.4 | 228.1 | 79.2 | 80.8 | 267.6 | 262.5 | 95.7 | 165.2 | 152.8 | 47.8 | 42.6 |
| Average Queue (m) | 84.4 | 127.9 | 104.0 | 21.6 | 31.4 | 254.0 | 251.4 | 84.0 | 139.2 | 72.9 | 19.0 | 20.7 |
| 95th Queue (m) | 114.0 | 227.1 | 206.0 | 50.5 | 89.5 | 282.8 | 284.6 | 116.6 | 266.4 | 181.7 | 39.1 | 36.2 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | | | | | 76 | 65 | | 52 | 0 | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | 0 | 0 | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 56 | 4 | 4 | | | 71 | | 71 | 0 | | 0 | 0 |
| Queuing Penalty (veh) | 251 | 14 | 18 | | | 36 | | 69 | 0 | | 0 | 0 |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 32.2 | 83.9 |
| Average Queue (m) | 8.7 | 44.2 |
| 95th Queue (m) | 20.5 | 75.3 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 2 |
| Queuing Penalty (veh) | | 2 |

## Network Summary

Network wide Queuing Penalty: 390



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Future Volume (vph) | 371 | 891 | 435 | 50 | 1020 | 115 | 328 | 195 | 62 | 139 | 176 | 371 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1787 | 3574 | 1512 | 1731 | 3505 | | 1754 | 3373 | | 1754 | 3560 | 1521 |
| Flt Permitted | 0.09 | 1.00 | 1.00 | 0.31 | 1.00 | | 0.64 | 1.00 | | 0.55 | 1.00 | 1.00 |
| Satd. Flow (perm) | 175 | 3574 | 1512 | 572 | 3505 | | 1178 | 3373 | | 1016 | 3560 | 1521 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 379 | 909 | 444 | 51 | 1041 | 117 | 335 | 199 | 63 | 142 | 180 | 379 |
| RTOR Reduction (vph) | 0 | 0 | 224 | 0 | 7 | 0 | 0 | 29 | 0 | 0 | 0 | 239 |
| Lane Group Flow (vph) | 379 | 909 | 220 | 51 | 1151 | 0 | 335 | 233 | 0 | 142 | 180 | 140 |
| Confl. Peds. (#/hr) | 23 | | 36 | 36 | | 23 | 16 | | 12 | 12 | | 16 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 4% | 1% | 2% | 2% | 3% | 1% | 2% | 1% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 6 | | 6 | 2 | | | 8 | | | 4 | | 4 |
| Actuated Green, G (s) | 62.1 | 52.3 | 52.3 | 42.9 | 38.1 | | 26.4 | 18.4 | | 26.4 | 18.4 | 18.4 |
| Effective Green, g (s) | 62.1 | 52.3 | 52.3 | 42.9 | 38.1 | | 26.4 | 18.4 | | 26.4 | 18.4 | 18.4 |
| Actuated g/C Ratio | 0.59 | 0.50 | 0.50 | 0.41 | 0.36 | | 0.25 | 0.17 | | 0.25 | 0.17 | 0.17 |
| Clearance Time (s) | 5.0 | 6.0 | 6.0 | 5.0 | 6.0 | | 5.0 | 6.0 | | 5.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.5 | 0.2 | 0.2 | 2.5 | 0.2 | | 4.0 | 3.0 | | 4.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 393 | 1771 | 749 | 285 | 1265 | | 338 | 588 | | 310 | 620 | 265 |
| v/s Ratio Prot | c0.17 | 0.25 | | 0.01 | 0.33 | | c0.08 | 0.07 | | 0.03 | 0.05 | |
| v/s Ratio Perm | c0.39 | | 0.15 | 0.06 | | | c0.17 | | | 0.08 | | 0.09 |
| v/c Ratio | 0.96 | 0.51 | 0.29 | 0.18 | 0.91 | | 0.99 | 0.40 | | 0.46 | 0.29 | 0.53 |
| Uniform Delay, d1 | 32.1 | 18.0 | 15.7 | 19.1 | 32.1 | | 38.2 | 38.6 | | 32.3 | 37.9 | 39.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 35.9 | 1.1 | 1.0 | 0.2 | 11.2 | | 46.4 | 0.4 | | 1.5 | 0.3 | 1.9 |
| Delay (s) | 67.9 | 19.1 | 16.7 | 19.4 | 43.3 | | 84.7 | 39.1 | | 33.7 | 38.1 | 41.5 |
| Level of Service | E | B | B | B | D | | F | D | | C | D | D |
| Approach Delay (s) | | 29.1 | | | 42.3 | | | 64.6 | | | 39.1 | |
| Approach LOS | | C | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 39.5 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.00 | | |
| Actuated Cycle Length (s) | 105.5 | Sum of lost time (s) | 22.0 |
| Intersection Capacity Utilization | 106.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Phase Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Movement | EBL | WBTL | NBL | SBTL | WBL | EBTL | SBL | NBTL |
| Lead/Lag | Lead | Lag | Lead | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | Max | None | Min | None | Max | None | Min |
| Maximum Split (s) | 24 | 43 | 13 | 33 | 11 | 56 | 13 | 33 |
| Maximum Split (%) | 21.2% | 38.1% | 11.5% | 29.2% | 9.7% | 49.6% | 11.5% | 29.2% |
| Minimum Split (s) | 11 | 40 | 13 | 33 | 11 | 40 | 13 | 33 |
| Yellow Time (s) | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 |
| All-Red Time (s) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Minimum Initial (s) | 6 | 34 | 8 | 16 | 6 | 34 | 8 | 16 |
| Vehicle Extension (s) | 2.5 | 0.2 | 4 | 3 | 2.5 | 0.2 | 4 | 3 |
| Minimum Gap (s) | 2.5 | 0.2 | 3 | 3 | 2.5 | 0.2 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 22 | | 17 | | 22 | | 17 |
| Flash Dont Walk (s) | | 12 | | 10 | | 12 | | 10 |
| Dual Entry | No | Yes | No | Yes | No | Yes | No | Yes |
| Inhibit Max | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Start Time (s) | 0 | 24 | 67 | 80 | 0 | 11 | 67 | 80 |
| End Time (s) | 24 | 67 | 80 | 0 | 11 | 67 | 80 | 0 |
| Yield/Force Off (s) | 19 | 61 | 75 | 107 | 6 | 61 | 75 | 107 |
| Yield/Force Off 170(s) | 19 | 49 | 75 | 107 | 6 | 49 | 75 | 107 |
| Local Start Time (s) | 89 | 0 | 43 | 56 | 89 | 100 | 43 | 56 |
| Local Yield (s) | 108 | 37 | 51 | 83 | 95 | 37 | 51 | 83 |
| Local Yield 170(s) | 108 | 25 | 51 | 83 | 95 | 25 | 51 | 83 |

| Intersection Summary | |
|---|---|
| Cycle Length | 113 |
| Control Type | Actuated-Uncoordinated |
| Natural Cycle | 110 |

Splits and Phases: 3: Angeline St N & Kent St W

## Intersection: 3: Angeline St N & Kent St W

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | TR | L | T |
| Maximum Queue (m) | 95.8 | 153.9 | 145.5 | 72.4 | 80.9 | 262.0 | 262.5 | 96.0 | 194.3 | 172.5 | 45.2 | 53.0 |
| Average Queue (m) | 68.8 | 72.5 | 58.1 | 21.5 | 29.3 | 234.9 | 229.1 | 89.9 | 142.5 | 79.6 | 17.7 | 21.9 |
| 95th Queue (m) | 103.9 | 130.4 | 108.6 | 45.9 | 87.5 | 291.8 | 295.3 | 111.3 | 250.7 | 182.2 | 35.8 | 39.3 |
| Link Distance (m) | | 294.8 | 294.8 | | | 253.5 | 253.5 | | 190.4 | 190.4 | | 231.5 |
| Upstream Blk Time (%) | | | | | | 41 | 34 | | 36 | | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | 0 | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 45.0 | | | 60.0 | | | 50.0 | |
| Storage Blk Time (%) | 26 | 4 | 3 | 0 | | 69 | | 82 | 0 | | 0 | 0 |
| Queuing Penalty (veh) | 116 | 14 | 12 | 0 | | 35 | | 79 | 0 | | 0 | 0 |

## Intersection: 3: Angeline St N & Kent St W

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (m) | 70.8 | 99.8 |
| Average Queue (m) | 11.2 | 44.5 |
| 95th Queue (m) | 37.9 | 75.3 |
| Link Distance (m) | 231.5 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 70.0 |
| Storage Blk Time (%) | | 4 |
| Queuing Penalty (veh) | | 3 |

## Network Summary

Network wide Queuing Penalty: 261

# Tree Inventory and Assessment

## Angeline Street North
## Colborne Street West to Kent Street

Prepared For:

City of Kawartha Lakes

April 2019

CREATING QUALITY SOLUTIONS TOGETHER

# TREE INVENTORY AND ASSESSMENT

for

Angeline Street North
from Colborne Street West to Kent Street
City of Kawartha Lakes

Prepared by Ainley Group

April 2019

Prepared By:

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Environmental Planner
Ainley Group

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Senior Environmental Planner
Ainley Group

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## 1.0 INTRODUCTION

Ainley Group was retained by the City of Kawartha Lakes to complete a Schedule B Class EA including detailed design for the proposed reconstruction of Angeline Street North from north of Colborne Street West to Roosevelt Street in the Town of Lindsay. The assessment includes a tree survey of roadside trees, including general ratings of health and hazards.

## 2.0 PURPOSE OF THE REPORT AND SCOPE OF WORK

The report and scope of work has been based on City approved methods, and includes the following scope of work for all inventoried trees:

- Road Chainage (station);
- Setback from curb;
- Species identification;
- Measurement of the diameter at breast height (DBH);
- General health assessment; and,
- General hazard assessment.

It should be noted that the tree inventory on the subject property was intended to provide a general inventory and assessment of trees within the project limits.

### 2.1 DATA COLLECTION METHODOLOGY

Field data collection for the tree inventory and assessment was completed on October 26, 2018. A measuring wheel was used to record the distance of trees from a known surveyed feature. The wheel was also used to measure offset distance from curb to the trunk. Distances were then converted to stations (chainage).

Trees with a diameter at breast height (DBH) equal to or greater than 0.15 m and within 8 metres from Edge of Pavement were included in the inventory. Each tree was given a tree identification code, identified to species level, if possible, measured for DBH and photographed. The characteristics of each tree was recorded in a field note book and located on aerial imagery. For those trees with multiple stems, the DBH of each individual stem was recorded.

In addition to the above information, a general assessment of health and hazard level associated with the tree were recorded. The health assessment utilized a four-stage ranking system (good, fair, poor, dead) and was based on non-invasive *in situ* observations of the tree. Characteristics used in the health assessment included such things as wounds/callusing, dieback, fungal growth, decay, breakage, etc.

The hazard rating for each tree incorporated the general health assessment as well as the morphology of the tree and included both potential and actual hazards. Conditions used to rate hazard levels included lean, crown balance, extent of disease, dead branches, cracks, cavities, broken branches, target (objects or areas toward which the tree could fall), etc. The hazard rating also utilized a four-stage ranking system (none, low, moderate, high).

## 3.0 INVENTORY AND ASSESSMENT RESULTS

A total of 95 trees representing 17 species were recorded, including 47 conifers and 48 deciduous trees **(Table 1).** Trees of all health levels were observed within the project limits. Sixty-five percent of the trees were considered to exhibit good health, while 21 % exhibited fair health. Only 6% exhibited poor/fair health and 4% were in poor health.

The majority of trees (82%) were considered to be of no hazard. 8% were considered at low to low/moderate hazard levels, while 10% exhibited moderate to high hazard levels. Photos typical of each health rating are shown in **Appendix A**.

Higher hazard ratings were given to trees that exhibited certain conditions including advanced age, damage, disease, uneven pruning, significant lean, etc.

**18545-2 - Tree Inventory**
**Angeline Street North**
**City of Kawartha Lakes**

| Tree ID | Common Name | Latin Name | DBH (m) | Station | Offset | | Offset to Dripline | Condition | | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | East | West | | Rating [1] | Hazard Potential [2] | |
| A005 | Norway Maple | *Acer platanoides* | 0.52 | 18+881 | | 4.01 | | Fair | Low/Moderate | Trimmed; Leaning Toward House |
| A004 | Norway Maple | *Acer platanoides* | 0.58 | 18+875 | | 5 | | Fair | None | Branch Dieback; Trimmed from Utility |
| A003 | Blue Spruce | *Picea pungens* | 0.38 | 18+865 | | 7.05 | | Fair | None | Branch Dieback |
| A002 | Norway Maple | *Acer platanoides* | 0.61 | 18+859 | | 5.05 | | Good | None | Trimmed from Utility |
| A009 | Scots Pine | *Pinus sylvestris* | 0.38, 0.21 | 18+847 | 7.8 | | | Fair | Low/Moderate | 2 Trunks; Smaller Trunk Dead |
| A008 | Scots Pine | *Pinus sylvestris* | 0.23 | 18+846 | 9.1 | | | Fair | None | Minimal Branching |
| A007 | Scots Pine | *Pinus sylvestris* | 0.52 | 18+846 | 5.0 | | | Good | None | |
| A006 | Scots Pine | *Pinus sylvestris* | 0.39 | 18+840 | 7.0 | | | Good | None | Sign on Tree |
| A001 | Flowering Crabapple | *Malus* sp. | 0.29, 0.22, 0.21 | 18+837 | | 4 | | Good | None | Multistem |
| A076 | Scots Pine | *Pinus sylvestris* | 0.30, 0.28 | 18+808 | 6.7 | | | Good | None | Split at 1.17m |
| A077 | Silver Maple | *Acer saccharinum* | 0.65 | 18+796 | 5.9 | | | Fair/Poor | Moderate/High | Peeling Bark, Dieback |
| A010 | Sugar Maple | *Acer saccharum* | 0.6 | 18+787 | | 16.2 | 8.7 | Good | None | Broad Crown |
| A078 | Sugar Maple | *Acer saccharum* | 0.26 | 18+769 | 9.2 | | 6.6 | Good | None | |
| A011 | Red Pine | *Pinus resinosa* | 0.42 | 18+754 | | 7 | | Good | Low | Heavy Branching |
| A012 | Red Pine | *Pinus resinosa* | 0.44 | 18+752 | | 10.12 | | Good | Low | Heavy Lean to South |
| A013 | Red Pine | *Pinus resinosa* | 0.35 | 18+750 | | 5.07 | | Good | None | |
| A016 | White Spruce | *Picea glauca* | 0.28 | 18+508 | | 12.5 | 10.6 | Good | None | Adjacent to Chain link Fence |
| A015 | White Spruce | *Picea glauca* | 0.25 | 18+508 | | 8.6 | | Good | None | Adjacent to Chain link Fence |
| A014 | Eastern White Cedar | *Thuja occidentalis* | 0.15 | 18+508 | | 6.3 | | Good | None | Adjacent to Chain link Fence |
| A017 | Norway Maple | *Acer platanoides* | 0.4 | 18+494 | | 7.62 | | Good | None | Trimmed from Utility |
| A018 | Sugar Maple | *Acer saccharum* | 0.22 | 18+481 | | 7.62 | | Good | None | Multiple Branches at Breast Height |
| A019 | Eastern White Cedar | *Thuja occidentalis* | 0.26 | 18+456 | | 9.7 | | Good | None | |
| A020 | Eastern White Cedar | *Thuja occidentalis* | 0.3 | 18+453 | | 9.7 | | Fair/Poor | Moderate | Thin Branching'; Callused Wound at 4m |
| A079 | White Spruce | *Picea glauca* | 0.28 | 18+429 | 7.9 | | | Good | None | |
| A021 | Norway Maple | *Acer platanoides* | 0.8 | 18+422 | | 9.5 | 4.1 | Fair | None | Some Branch Dieback |
| A080 | Norway Maple | *Acer platanoides* | 0.18 | 18+419 | 5.5 | | | Good | None | Yellow Leaves |
| A081 | Norway Maple | *Acer platanoides* | 0.18 | 18+410 | 5.5 | | | Good | None | Yellow Leaves |
| A082 | Norway Maple | *Acer platanoides* | 0.18 | 18+400 | 5.5 | | | Good | None | Yellow Leaves |
| A022 | Norway Maple | *Acer platanoides* | 0.8 | 18+400 | | 9.8 | 5.8 | Good | None | Broad Crown |
| A023 | Red Maple | *Acer rubrum* | 0.2 | 18+364 | | 10.3 | | Poor | Moderate/High | Multiple Dead Branches |
| A024 | Silver Maple | *Acer saccharinum* | 0.85 | 18+353 | | 9.95 | 4.6 | Good | None | Trimmed from Utility |
| A083 | Blue Spruce | *Picea pungens* | 0.25 | 18+346 | 8.9 | | 6.9 | Good | None | |
| A025 | White Birch | *Betula papyrifera* | 0.27 | 18+340 | | 10.5 | | Fair/Poor | Moderate | Callused Wounds |
| A026 | Norway Maple | *Acer platanoides* | 0.71 | 18+315 | | 10.2 | 4.4 | Good | None | Trimmed from Utility |
| A027 | Scots Pine | *Pinus sylvestris* | 0.41 | 18+296 | | 10.65 | 6.3 | Good | None | |
| A028 | Crabapple | *Malus* sp. | 0.28 | 18+282 | | 5.25 | | Fair | Low | Callused Wounds; Lean to South |
| A029 | Crabapple | *Malus* sp. | 0.28, 0.28 | 18+281 | | 5.4 | | Fair/Poor | Low/Moderate | Multistem; One Trunk Broken |
| A030 | Red Maple | *Acer rubrum* | 0.33 | 18+276 | | 10.8 | 6.9 | Fair | None | Some Branch Dieback |
| A084 | Norway Maple | *Acer platanoides* | 0.19 | 18+271 | 8.3 | | 6.1 | Good | None | Green Leaves |
| A031 | Red Maple | *Acer rubrum* | 0.48 | 18+261 | | 10.9 | 5.3 | Good | None | |
| A032 | Green Ash | *Fraxinus pennsylvanica* | 0.3 | 18+254 | | 10.6 | 4.3 | Good | Low | Slight Lean to Road |
| A085 | Norway Maple | *Acer platanoides* | 0.18 | 18+252 | 9.2 | | 7.7 | Good | None | Yellow Leaves |
| A033 | Norway Maple | *Acer platanoides* | 0.24 | 18+251 | | 6.6 | | Fair | None | Lightening Strike |
| A086 | Scots Pine | *Pinus sylvestris* | 0.24 | 18+250 | 7.0 | | | Good | None | |
| A088 | Scots Pine | *Pinus sylvestris* | 0.45 | 18+244 | 6.9 | | | Good | None | |
| A087 | Scots Pine | *Pinus sylvestris* | 0.32 | 18+244 | 3.1 | | | Good | None | |
| A089 | Scots Pine | *Pinus sylvestris* | 0.22 | 18+239 | 7.6 | | | Good | None | |
| A090 | Norway Maple | *Acer platanoides* | 0.22 | 18+237 | 5.3 | | | Good | None | Yellow Leaves |
| A034 | White Spruce | *Picea glauca* | 0.26 | 18+232 | | 5.22 | | Fair | None | Trimmed from Utility |
| A091 | Norway Maple | *Acer platanoides* | 0.21 | 18+229 | 5.8 | | | Good | None | Yellow Leaves |
| A035 | White Spruce | *Picea glauca* | 0.29 | 18+229 | | 5.2 | | Fair | None | Trimmed from Utility |
| A092 | Norway Maple | *Acer platanoides* | 0.22 | 18+220 | 5.6 | | | Good | None | Yellow Leaves |
| A037 | Norway Maple | *Acer platanoides* | 0.6 | 18+219 | | 9.3 | 5.2 | Fair/Good | None | Trimmed from Utility |
| A036 | White Spruce | *Picea glauca* | 0.23 | 18+219 | | 5 | | Fair | None | Trimmed from Utility |
| A038 | White Spruce | *Picea glauca* | 0.32 | 18+212 | | 5.03 | | Fair | None | Trimmed from Utility |
| A093 | Flowering Crabapple | *Malus* sp. | 0.16 | 18+211 | 7.8 | | | Good | None | |
| A039 | White Spruce | *Picea glauca* | 0.32 | 18+209 | | 5.03 | | Fair | None | |
| A040 | White Spruce | *Picea glauca* | 0.35 | 18+207 | | 5.03 | | Fair | None | |
| A041 | White Spruce | *Picea glauca* | 0.25 | 18+204 | | 5.03 | | Fair | None | |
| A094 | Flowering Crabapple | *Malus* sp. | 0.17 | 18+203 | 7.2 | | | Good | None | |
| A042 | White Spruce | *Picea glauca* | 0.4 | 18+202 | | 5.03 | | Good | None | |
| A043 | Blue Spruce | *Picea pungens* | 0.48 | 18+199 | | 8.3 | | Good | None | |
| A044 | Blue Spruce | *Picea pungens* | 0.45 | 18+198 | | 9.9 | 7.9 | Good | None | |
| A095 | Green Ash | *Fraxinus pennsylvanica* | 0.2 | 18+196 | 7.0 | | | Fair | None | Callused Wound |
| A045 | Norway Maple | *Acer platanoides* | 0.16 | 18+195 | | 7.8 | | Good | Low | Reds Leaves, Growth Around Old Staking Wire |
| A096 | Green Ash | *Fraxinus pennsylvanica* | 0.16 | 18+190 | 6.5 | | | Good | None | |
| A053 | Norway Spruce | *Picea abies* | 0.37 | 18+127 | | 6.1 | | Poor | Moderate/High | Branch Dieback, Dead Leader |
| A054 | Norway Spruce | *Picea abies* | 0.41 | 18+121 | | 6.2 | | Poor | Moderate/High | Leader / Branch Dieback |
| A061 | Siberian elm | *Ulmus pumila* | 0.22 | 18+119 | 11.9 | | 6.6 | Good | None | |
| A062 | Manitoba Maple | *Acer negundo* | 0.12 to 0.18 | 18+116 | 11.9 | | 6.6 | Fair | None | 5 Stems |
| A055 | Manitoba Maple | *Acer negundo* | 0.39 | 18+104 | | 6.75 | | Fair | None | Squirrel Nest, Trimmed From Utility |
| A056 | Manitoba Maple | *Acer negundo* | 0.33 | 18+104 | | 7.5 | | Fair | None | Fence line -Slight Lean Towards Building |
| A063 | Norway Spruce | *Picea abies* | 0.55 | 18+096 | 8.6 | | 4.3 | Good | None | |
| A057 | Scots Pine | *Pinus sylvestris* | 0.43 | 18+084 | | 5.57 | | Good | None | |
| A065 | Scots Pine | *Pinus sylvestris* | 0.23 | 18+071 | 6.7 | | | Good | None | |
| A064 | Scots Pine | *Pinus sylvestris* | 0.33 | 18+071 | 5.5 | | | Good | None | |
| A066 | Scots Pine | *Pinus sylvestris* | 0.24 | 18+070 | 5.5 | | | Good | None | |
| A067 | Scots Pine | *Pinus sylvestris* | 0.3 | 18+069 | 7.9 | | | Good | None | |
| A068 | Scots Pine | *Pinus sylvestris* | 0.34 | 18+066 | 5.9 | | | Good | None | |
| A069 | Scots Pine | *Pinus sylvestris* | 0.4 | 18+059 | 4.7 | | | Good | None | |
| A070 | Scots Pine | *Pinus sylvestris* | 0.24 | 18+057 | 4.9 | | | Good | None | |
| A058 | Norway Maple | *Acer platanoides* | 0.28 | 18+057 | | 6.3 | | Fair | None | Green Leaves |
| A071 | Scots Pine | *Pinus sylvestris* | 0.25 | 18+053 | 4.9 | | | Good | None | |
| A072 | Scots Pine | *Pinus sylvestris* | 0.3 | 18+051 | 5.1 | | | Good | None | |
| A059 | Sugar Maple | *Acer saccharum* | 0.67 | 18+051 | | 6.2 | | Fair/Poor | Moderate | Dieback, Trimmed |
| A073 | Scots Pine | *Pinus sylvestris* | 0.39 | 18+049 | 5.2 | | | Good | None | |
| A060 | Sugar Maple | *Acer saccharum* | 1.04 | 18+041 | | 6.3 | | Good | None | Minor Trimming From Utility |
| A074 | Sugar Maple | *Acer saccharum* | 0.51 | 18+037 | 4.8 | | | Good | None | |
| A052 | Green Ash | *Fraxinus pennsylvanica* | 0.53 | 20+055 (Kent St.) | 4.9 | | | Fair | None | South, Broken Branches |
| A047 | Norway Maple | *Acer platanoides* | 0.77 | 20+058 (Kent St.) | 14.6 | | 5.8 | Good | None | North, Red Leaves |
| A051` | Norway Maple | *Acer platanoides* | 0.4 | 20+064 (Kent St.) | 7.5 | | | Fair/Good | None | South, Red Leaves |
| A050 | Black Walnut | *Juglans nigra* | 0.55 | 20+073 (Kent St.) | 6.4 | | | Good | None | South |
| A046 | Norway Maple | *Acer platanoides* | 0.25 | 20+084 (Kent St.) | 9.4 | | 6.9 | Good | None | North |
| A049 | Silver Maple | *Acer saccharinum* | 0.58 | 20+102 (Kent St.) | 16.7 | | 6.9 | Fair/Poor | Moderate | South, Dead Stems |
| A048 | Silver Maple | *Acer saccharinum* | 0.72 | 20+107 (Kent St.) | 15.5 | | 6.7 | Good | None | South |
| A075 | White Spruce | *Picea glauca* | 0.28 | 20+196 (Kent St.) | 8.7 | | | Poor | High | South - Dead |

[1] Good/Fair/Poor/Dead

[2] None/Low/Moderate/High

# 4.0 CONCLUSIONS AND RECOMMENDATIONS

## 4.1 Conclusions

A total of 95 trees were inventoried and assessed within the project limits. During the assessment seventeen (17) species were identified, of which eleven (11) were deciduous and five (6) were coniferous. Sixty-five percent of the assessed trees were considered to be in good health. Another 21% exhibited fair health. Only 6% exhibited poor/fair health and 4% were in poor health.

Eight trees, or 8% exhibited moderate to moderate/high hazard levels based on the condition of the tree including age, size, extent of disease and/or damage, etc. Only one (1) tree (dead White Spruce) was considered to be at a high hazard level. Most trees (82%) were considered to be of no hazard.

No species at risk trees were identified. Some large diameter trees were observed during the survey that may be considered higher valued trees by the City and preservation of these trees in particular may be desired.

In general, the footprint of road improvements is proposed to be similar to the existing configuration of street features and direct removal of street trees is not scheduled. However, proposed construction may impact some trees through unavoidable disturbance of roots within critical root zones. The critical root zone may be defined as the radius of land surrounding the tree trunk at a minimum distance of 12 inches per inch of tree trunk radius measured at DBH (137 cm or 4.5 feet)(Municipality of Port Hope, 2016). Zones may differ depending on tree species, soil conditions, etc.

In addition, consideration by the City of Kawartha Lakes, in consultation with the landowner, to remove some existing trees that exhibit a moderate/high to high hazard may also be warranted.

## 4.2 Recommendations

A summary of the general health and hazard levels of trees observed during the assessment has been provided. This report may be used as a general guide to identify trees that may be impacted during street improvements or in order to reduce potential hazards. Typical tree mitigation measures are recommended for those trees that are to be preserved. Tree protection measures may include perimeter fencing at the critical root zone, proper storage of machinery and equipment away from the tree during construction as well as use of permeable final treatments over the critical root zones of trees (Municipality of Port Hope, 2016).

Replacements with new, native tree species may also be desired.

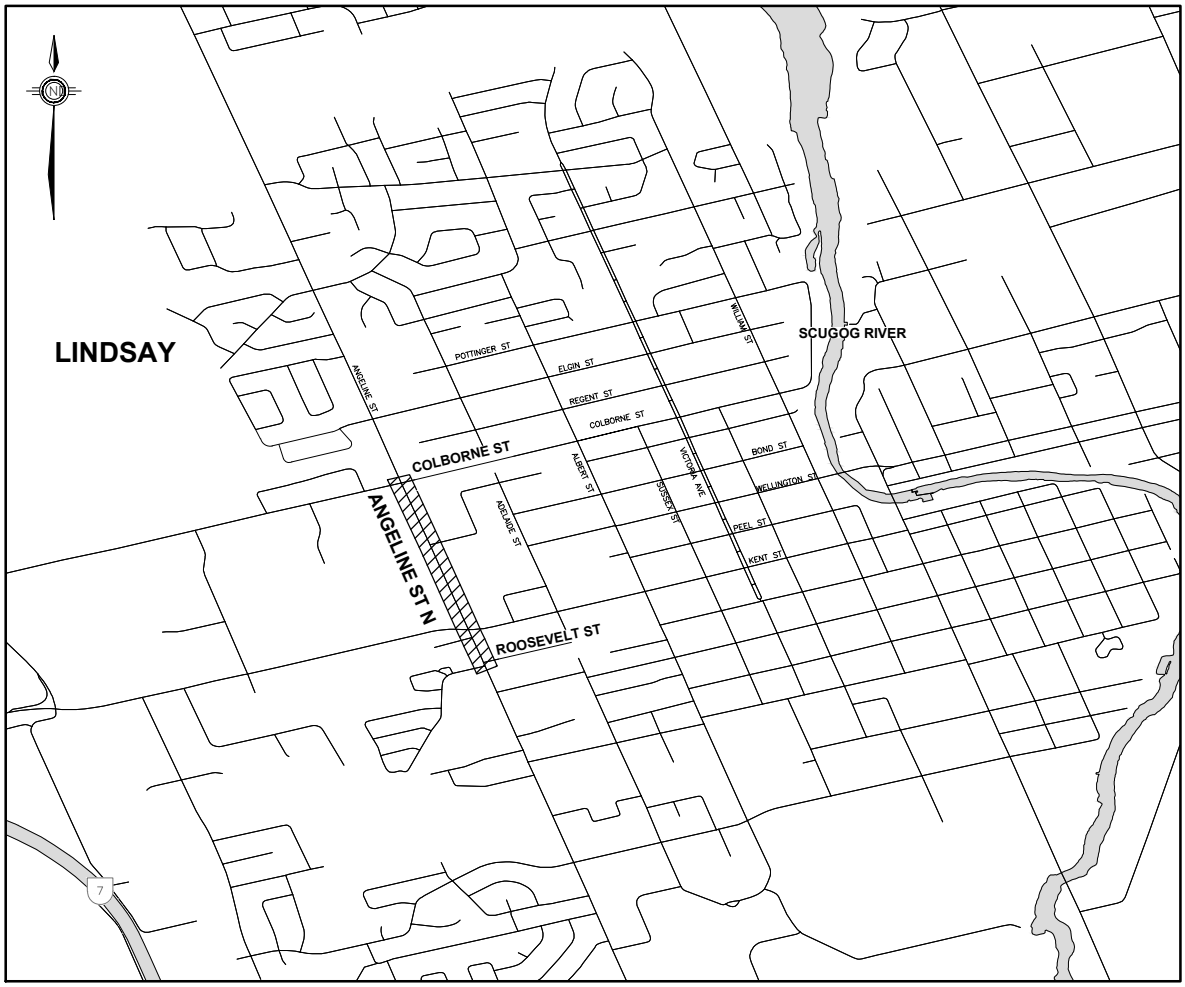
## 5.0 CLOSURE

Ainley Group has prepared this Tree Inventory and Assessment report per the scope as outlined in **Section 2.0** in an effort to provide a general inventory of trees on the subject property and an assessment of their health and hazard rating.

## 6.0 References

2016. Municipality of Port Hope Tree Planting and Protection Policy. Municipality of Port Hope.

# FIGURES




PROJECT AREA
N.T.S.

**Legend**

- TREE LOCATIONS

METRIC

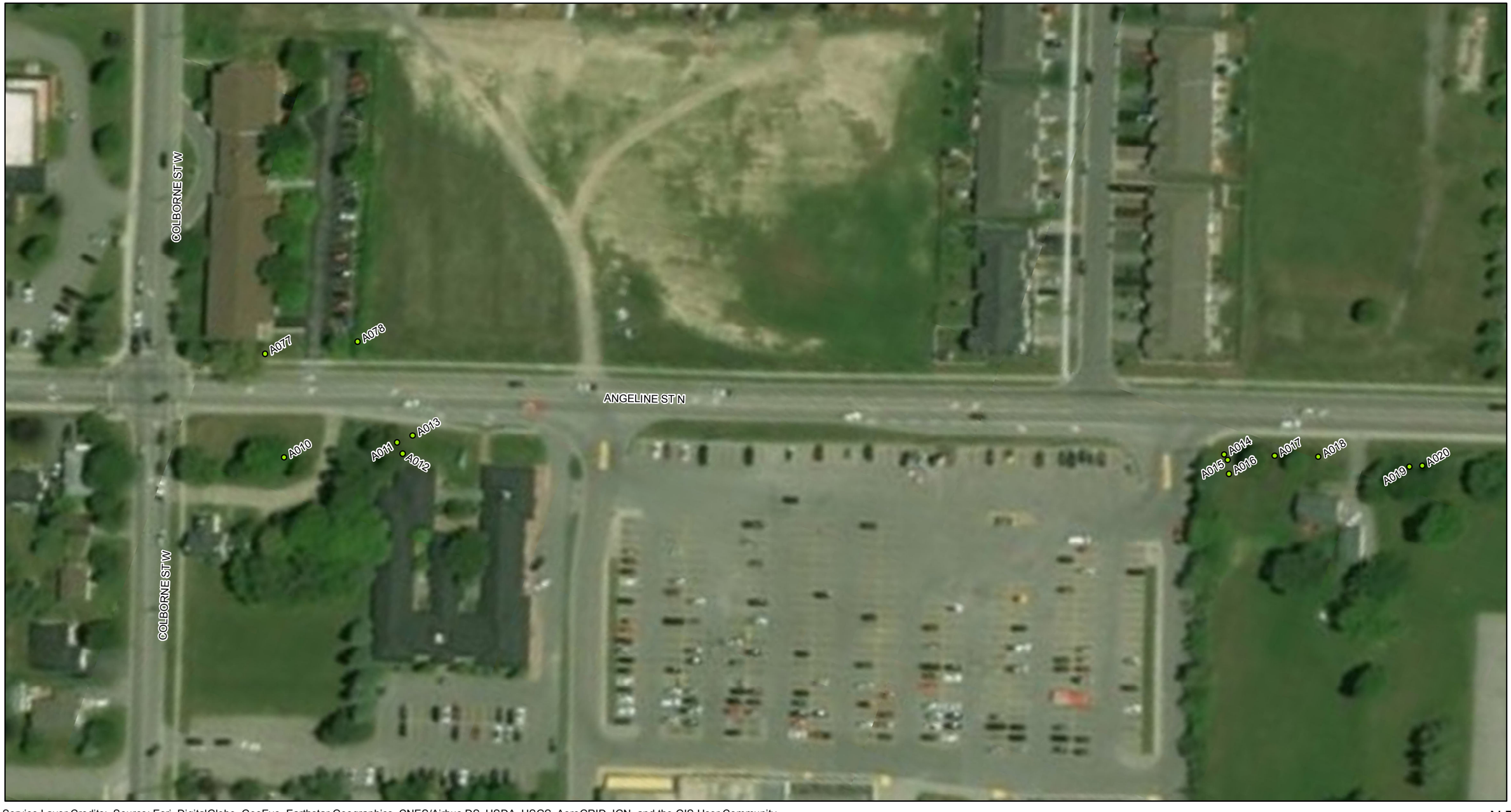
DIMENSIONS ARE IN METRES
AND/OR MILLIMETERS
UNLESS OTHERWISE SHOWN

ANGELINE MCEA

Ainley GROUP CONSULTING ENGINEERS PLANNERS

FIGURE 1

TREE INVENTORY




Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Source: Land Information Ontario (MNRF)

N.T.S

**Legend**

- TREE LOCATIONS

METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETERS
UNLESS OTHERWISE SHOWN

ANGELINE MCEA

Ainley GROUP CONSULTING ENGINEERS PLANNERS

FIGURE 2

TREE INVENTORY

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Source: Land Information Ontario (MN F)

N.T.S

# APPENDIX A
# Photographic Log

Photograph 1. Typical healthy Norway Maple – November 26, 2018.

Photograph 2. Typical Norway Maple in fair health – November 26, 2018.

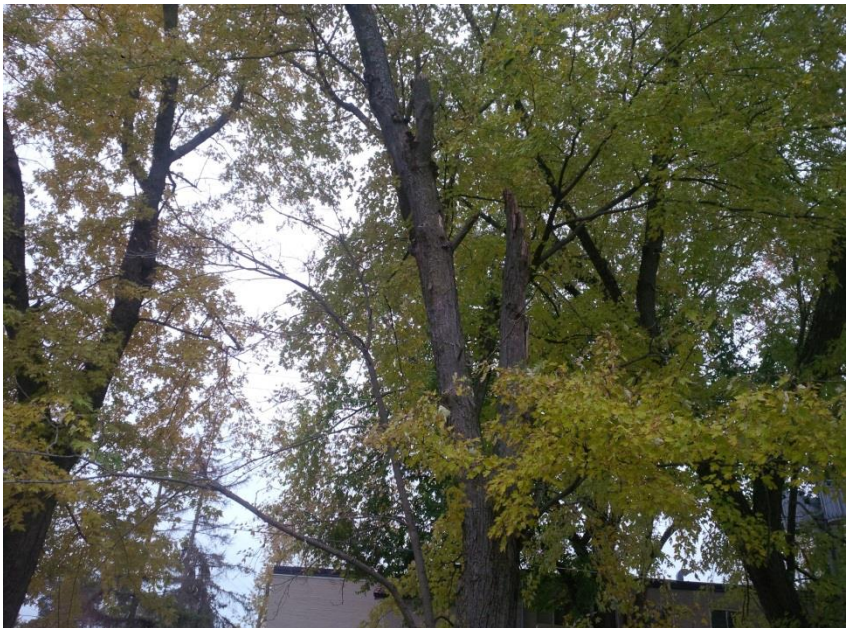
Photograph 3. Typical healthy Scots Pine – November 26, 2018.

Photograph 4. Typical Scots Pine in fair health – November 26, 2018.

Photograph 5. Typical healthy White Spruce – November 26, 2018.

Photograph 6. Typical White Spruce in fair health – November 26, 2018.

Photograph 7. Silver Maple in good health – November 26, 2018.



Photograph 8. Silver Maple in poor to fair health – November 26, 2018.

Photograph 9. Red Maple exhibiting no hazard – November 26, 2018.

Photograph 10. Red Maple exhibiting moderate/high hazard potential – November 26, 2018.

Photograph 11. Sugar Maple exhibiting moderate hazard potential – November 26, 2018.

Photograph 12. Norway Spruce exhibiting moderate/high hazard potential – November 26, 2018.

Photograph 13. Silver Maple exhibiting moderate/high hazard potential – November 26, 2018.

Photograph 14. White Birch exhibiting moderate hazard potential – November 26, 2018.

Ainley Graham & Associates Limited
45 South Front Street, Belleville, ON, K8N 2Y5
Tel: (613) 966-4243 ▪ Fax: (613) 966-1168
E-mail belleville@ainleygroup.com

February XX, 2019 18545-1

AGENCY
ADDRESS
ADDRESS
ADDRESS

Attn: **AGENCY**

Ref: **Notice of Study Commencement and PIC, Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

To AGENCY:

The City of Kawartha Lakes has retained Ainley Group to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for improvements to Angeline Street North in Lindsay.

Proposed improvements are located between Colborne Street West and Roosevelt Street, and include intersection improvements and the evaluation for potential widening up to four (4) lanes to address future traffic demands. The location of the study is shown on the attached project location plan.

**The Process**

The preliminary and detail design activities for Angeline Street North and the intersection improvements are being initiated as a Schedule 'B' undertaking in accordance with the MCEA. The MCEA applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the Environmental Assessment process. Two Public Information Centres (PICs) will be held to provide project related information to the public and to answer any questions.

PIC #1 will be held on **February 28, 2019 from 4:30 to 6:30 in the Community Room at the Lindsay Recreation Complex, 133 Adelaide Street South, Lindsay, Ontario**. The PIC will consist of a drop-in style format with displays showing project background information.

Staff from the City and Project Lead Consultant will be on hand to answer any questions. The date, time, and location of PIC #2 will be provided in future correspondence and will also be advertised in a newspaper notice in advance.

Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

**Comments**

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.


**Ms. Elizabeth Bonucchi, P.Eng**.
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive,
Kingston, Ontario
K7M 8N2

Phone: (343) 266-0002 ext. 207
Fax: (343) 266-0028
Email: bonucchi@ainleygroup.com

**Mr. Corby Purdy, C.E.T.**
Supervisor, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, Ontario
K9V 5R8

Phone: (705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

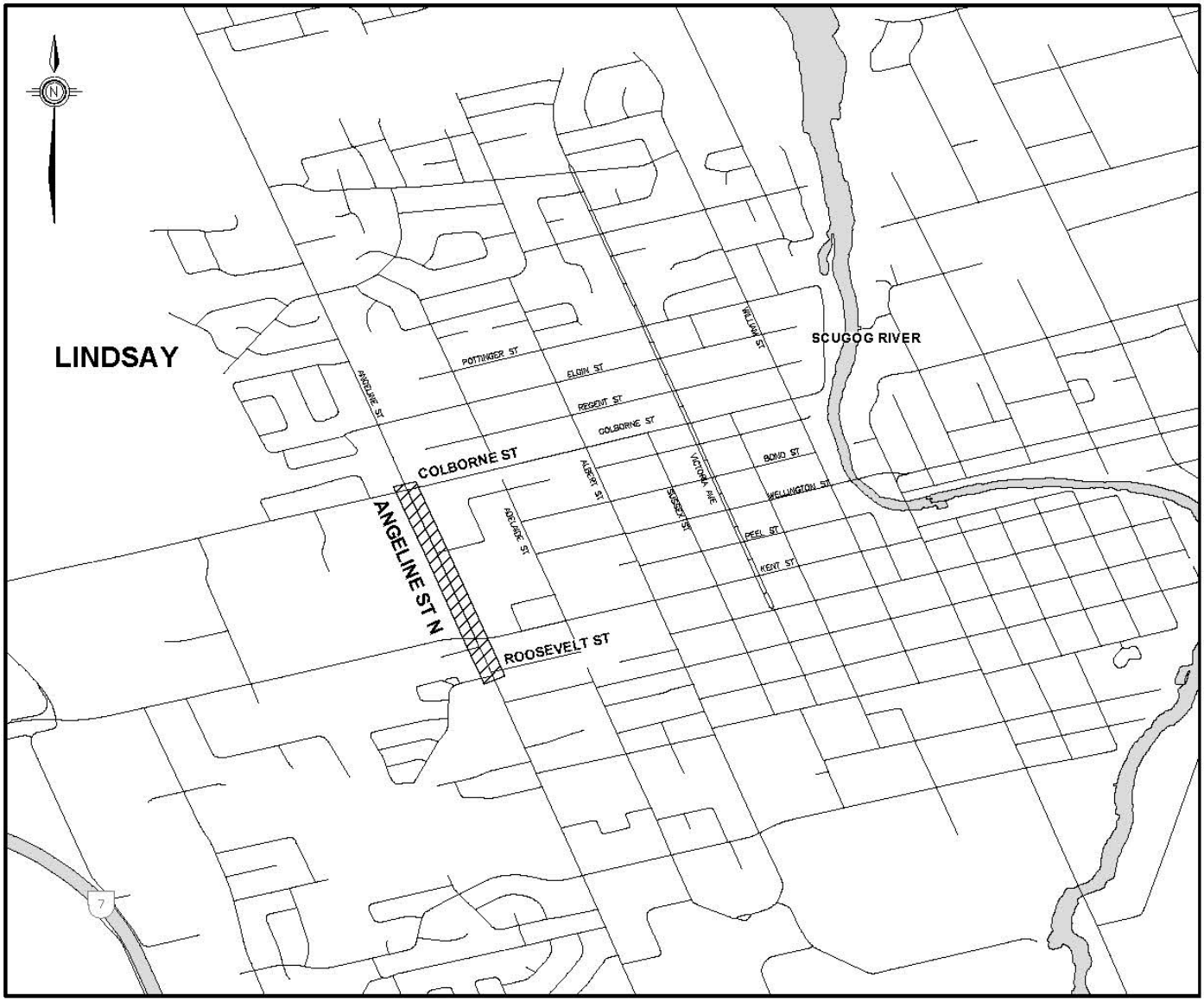

These comments will be maintained on file for use during the study in accordance with the *Freedom of Information and Protection of Privacy Act.* With the exception of personal information, all comments will become part of the public record. If you have any accommodation requirements in order to participate in this project please contact one of the project team members listed above.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Consultant Environmental Planner

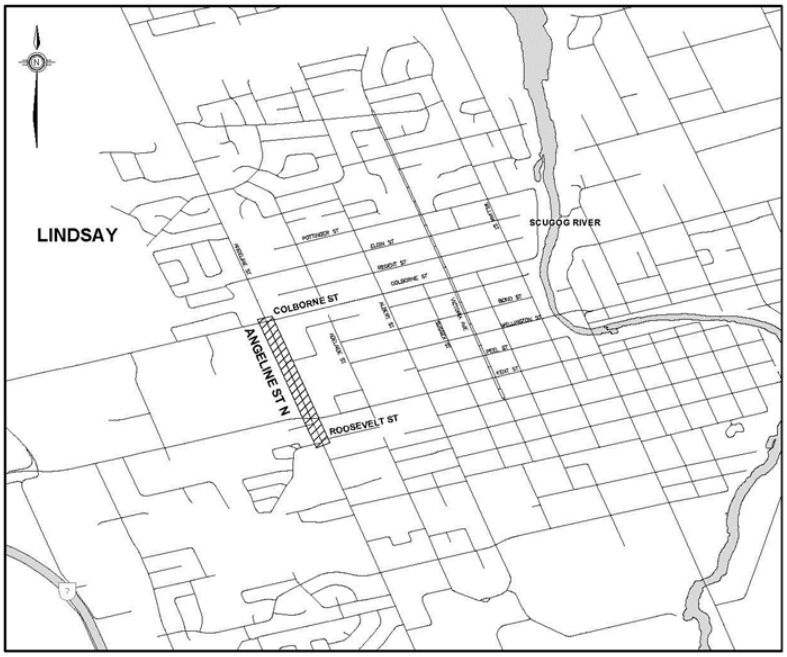
cc. Elizabeth Bonucchi, P.Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Supervisor, Infrastructure Design and Construction – City of Kawartha Lakes

**Project Location Plan**
**(not to scale)**



**Notice of Study Commencement and PIC**
**City of Kawartha Lakes**
**Municipal Class Environmental Assessment and Design**
**for the Reconstruction of Angeline Street North**

The City of Kawartha Lakes has retained Ainley Group to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for intersection improvements and reconstruction and potential widening of Angeline Street North. The section of Angeline Street North to be improved is between Colborne Street West and Roosevelt Street, and is proposed to be widened to four (4) lanes.

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Public and agency consultation is an important component of the MCEA process. Two Public Information Centres (PICs) will be held to provide information to the public regarding the project and to answer any questions.

PIC #1 will be held on **February 28, 2019 from 4:30 to 6:30 in the Community Room at the Lindsay Recreation Complex, 133 Adelaide Street South, Lindsay, Ontario**. The PIC will consist of a drop-in style format with displays providing information about the project.

Staff from the City and Project Lead Consultant will be on hand to answer any questions. The date, time, and location of PIC #2 will be provided in future correspondence and will also be advertised in a newspaper notice in advance. Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

If you are interested in providing comments or receiving further information on this project, please contact the following individuals:

**Ms. Elizabeth Bonucchi, P.Eng.**
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2

Phone: (343) 266-0002 ext. 207
Fax: (343) 266-0028
Email: bonucchi@ainleygroup.com

**Mr. Corby Purdy, C.E.T.**
Supervisor, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8

Phone: (705) 324-9411 x 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. These comments will be maintained on file for use during the study in accordance with the *Freedom of Information and Protection of Privacy Act.* All comments, with the exception of personal information, will become part of the public record. If you have any accommodation requirements in order to participate in this project please contact one of the project team members listed above.

AINLEY GRAHAM & ASSOCIATES LIMITED
139 Front Street, Unit 100, Belleville, ON K8N 2Y6
Tel: (613) 966-4243 • www.ainleygroup.com

April XX, 2024 File No. 18545-2

AGENCY
ADDRESS
ADDRESS
ADDRESS

**Attn: CONTACT Name**

**Ref: Notice of Second Public Information Centre, Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

Dear AGENCY Contact:

The City of Kawartha Lakes has retained Ainley Group to complete design activities and to undertake the Municipal Class Environmental Assessment (MCEA) process for the proposed reconstruction of Angeline Street North within the City of Lindsay.

The section of Angeline Street North to be reconstructed is between Colborne Street West and Roosevelt Street, and includes intersection improvements at Angeline Street North and Kent Street, and Angeline Street North and Colborne Street, and the evaluation for potential widening up to four (4) lanes to address future traffic demands. The location of the study is shown on the attached project location plan.

**The Process**

The preliminary and detailed design activities for Angeline Street North and the intersection improvements are being completed in accordance with the MCEA. The MCEA applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the Environmental Assessment process. The first of two (2) Public Information Centres (PICs) was held on February 28, 2019 to provide information from background studies and the alternative solutions, and to answer questions regarding the project. A second PIC is being held to provide information regarding the preliminary recommended alternative for the project.

PIC #2 will be held on **May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, Ontario, K9V 5R8**. The PIC will consist of a drop-in type format with displays showing project background information, the alternatives, and the

preliminary recommended alternative. Information presented at the PIC will also be available on the City of Kawartha Lakes website at: www.kawarthalakes.ca/majorprojects.

Staff from the City of Kawartha Lakes and Project Lead Consultant (Ainley Group) will be on hand to answer any questions. Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

**Comments**

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.


**Mr. Alexander Wilkinson, P.Eng**.
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive,
Kingston, ON
K7M 8N2

Phone: (343) 266-0002 ext. 204
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy**
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, Ontario
K9V 5R8

Phone: (705) 324-9411 ext. 1155
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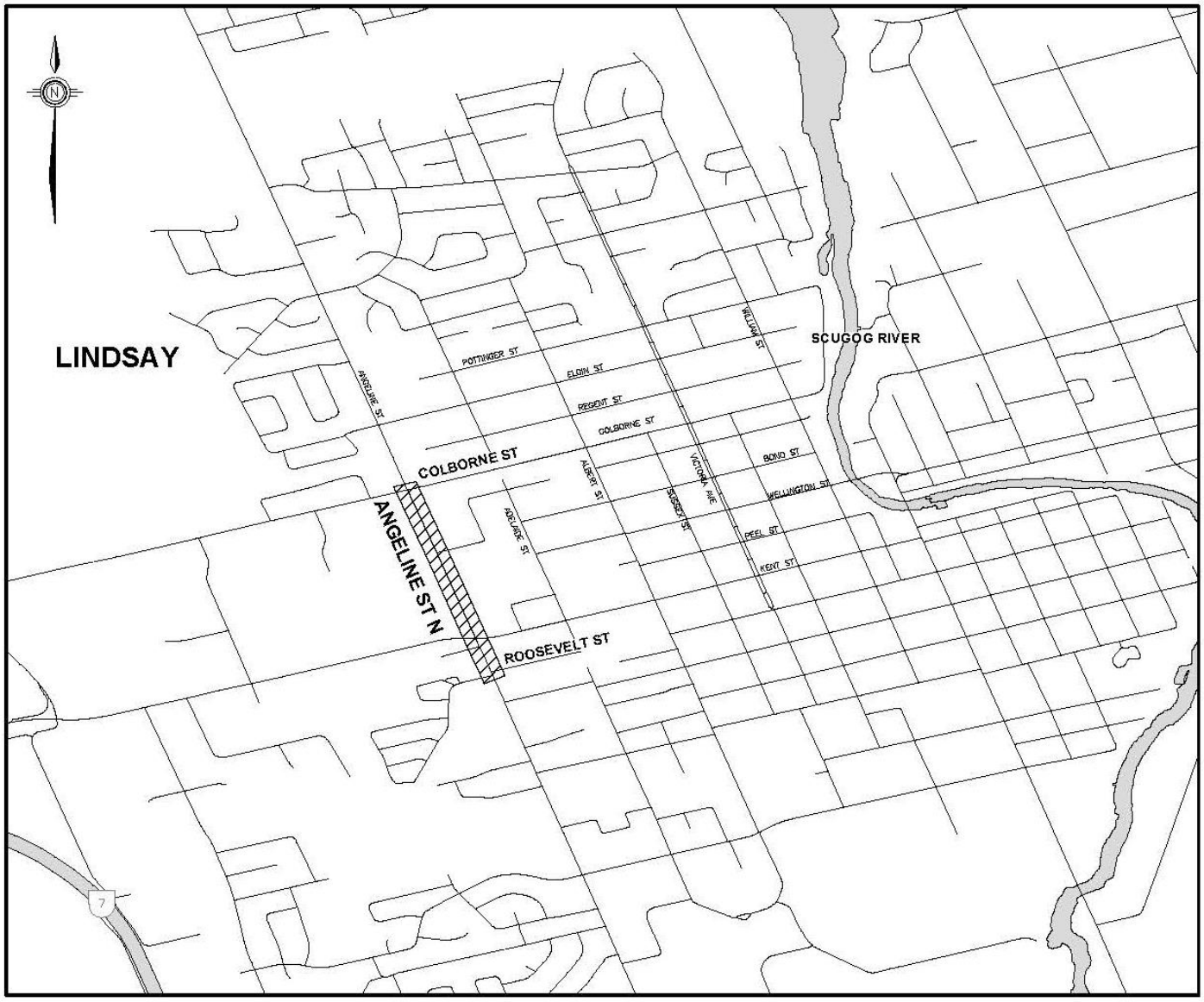
Sincerely,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Scott Reynolds, B.Sc. (Env), EP
Consultant Environmental Planner

cc. Alex Wilkinson, P. Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Manager, Infrastructure Design and Construction – City of Kawartha Lakes

**Project Location Plan**
**(not to scale)**



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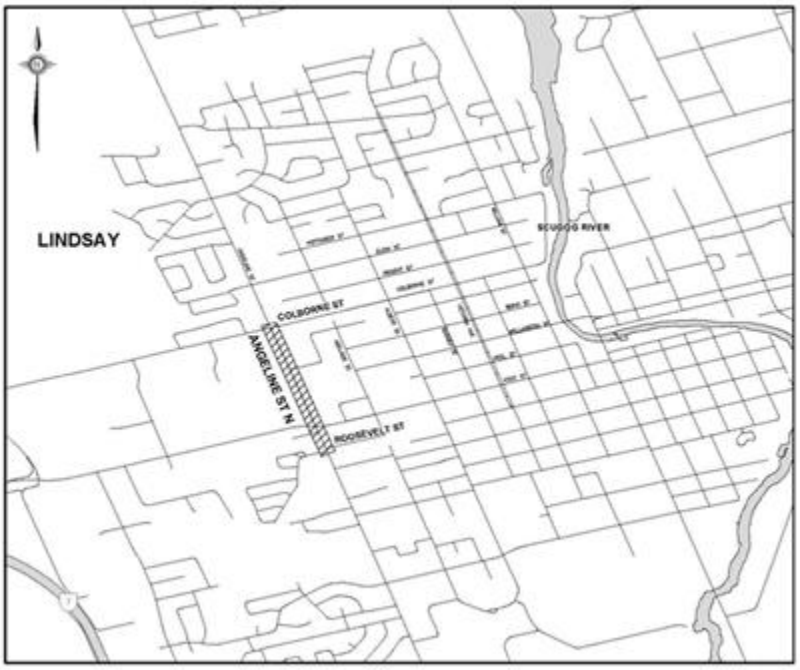


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Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 ext. 204
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy**
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 x 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.on.ca

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

March 17, 2025 File No. 18545-2

Nation Huronne-Wendat
255 Place Chef Michel Laveau
Wendake, QC
G0A 4V0

Attn: **Benjamin Labbé, M. Sc**

Ref: **Archaeological Assessments**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Benjamin:

Please find the Stage I and II Archaeological Assessments provided via the temporary file sharing link provided in the email accompanying this letter for your reference.

As noted in previous correspondence, the Stage I Archaeological Assessment was completed to provide a baseline level of data on known and potential cultural heritage resources within the project limits and to delineate the archaeological potential of the area. The findings of the Stage I Archaeological Assessment warranted the undertaking of a Stage II Archaeological Assessment which conducted a test pit survey in order to determine the presence or absence of archaeological materials within the project limits.

The Archaeological Assessments were completed in accordance with the *Ontario Heritage Act* and, ultimately, cleared the project site of any archaeological concerns. The Archaeological Assessments have been submitted and accepted by the Ontario Ministry of Citizenship and Multi-Culturalism.

As the project lands have been cleared of archaeological concerns, and the proposed use of the project lands is consistent with its current one (a roadway), the impact to heritage and cultural aspects is expected to be minimal.

**We request that Huron-Wendat consider the clearance of the project site of any archaeological concerns, and confirm if review efforts are still believed to be appropriate/warranted.**

Regards,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

## David Davison

**From:** Benjamin Labbe <Benjamin.Labbe@wendake.ca>
**Sent:** October 30, 2024 10:32 AM
**To:** Katrina Fingland
**Cc:** Alexander Wilkinson; Scott Reynolds; cpurdy@kawarthalakes.ca
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project
**Attachments:** 20241030 AA review quote HWN Angeline St N reconstruction.pdf

Certaines personnes qui ont reçu cet e-mail ne reçoivent pas souvent de e-mail de la part de benjamin.labbe@wendake.ca. Pourquoi c'est important

Kwe Katrina,

Thank you for your letter. The Huron-Wendat Nation is interested in reviewing the reports to ensure that our heritage is protected. Can capacity funding be made available to allow us to undertake this review? I have attached a cost estimate for this work. Please return it signed if these fees are accepted. Also, would it be possible to send the reports again via mail since I do not see the link?

Tiawenhk,

NATION HURONNE-WENDAT
Bureau du Nionwentsio

Benjamin Labbé, M. Sc
Conseiller en gestion du territoire

255, place Chef Michel Laveau
Wendake (QC) G0A 4V0
T : 418 843-3767
@ Benjamin.Labbe@wendake.ca

WENDAKE.CA

**De :** Katrina Fingland <katrina.fingland@ainleygroup.com>
**Envoyé :** 22 octobre 2024 09:01
**À :** consultations <consultations@wendake.ca>
**Cc :** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>; Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca
**Objet :** 18545-2 - Angeline St. N. Reconstruction Project

il from katrina.fingland@ainleygroup.com. Learn why this is important

Good morning,

Please see attached response letter.

Thanks,

Katrina Fingland

Project Technician

Ainley Graham & Associates Limited
139 Front Street, Unit 100
Belleville, Ontario, K8N 2Y6
Tel: (613) 966-4243
katrina.fingland@ainleygroup.com
**WWW.AINLEYGROUP.COM**

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

## David Davison

**From:** Alexander Wilkinson
**Sent:** April 24, 2025 8:00 AM
**To:** 'Julie Kapyrka'
**Cc:** Scott Reynolds; 'Corby Purdy'; 'John Innes'
**Subject:** RE: Angeline St North Reconstruction
**Attachments:** P248-0398-2021_1June2022_RE - Stage 2.pdf

Good Morning Dr. Kapyrka,

Thank you for identifying this – I believe that it's a typo/holdover from a previous document that was used as a template for the current assessment.

When I look back on the draft version of this Stage 2 Report (attached), I see mention of the same "Oshawa Windfields Connection Project" in the first paragraph of Section 2.0. However, that instance was corrected to reflect the current title in the final report.

The typo has been noted – please disregard it during your review and assume it's meant to reflect the subject project's name.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

**From:** Julie Kapyrka <jkapyrka@alderville.ca>
**Sent:** April 19, 2025 3:16 PM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>; John Innes <jinnes@kawarthalakes.ca>
**Subject:** RE: Angeline St North Reconstruction

Aaniin Alexander,

Apologies for the delay in responding – the ice storm was devastating in this area and it set us back a few weeks.

Thank you for your e-mail. We have received the filing fee – thank you.

I have reviewed the materials and have the following comments:

Page 33 of the Stage 2 Archaeological Report states:
3.0 ANALYSIS AND CONCLUSIONS
*The Stage 2 archaeological assessment for Oshawa Windfields Connection Project did not recover any archaeological or cultural materials.*

Can you please advise on the Oshawa Windfields Connection Project? What is this referring to?

Miigwech.
All the best,

Dr. Julie Kapyrka
Consultation Manager

Alderville First Nation
Administration Office
11696 Second Line Rd.
Roseneath, ON K0K 2X0
Office: 905-352-2662
jkapyrka@alderville.ca

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** April 2, 2025 10:52 AM
**To:** Julie Kapyrka <jkapyrka@alderville.ca>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>; John Innes <jinnes@kawarthalakes.ca>
**Subject:** RE: Angeline St North Reconstruction

Good Morning Dr. Kapyrka,

I've directed our administrative staff to issue a cheque to Alderville First Nation for the $300 filing fee. Please let me know when it's received in the mail.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

**From:** Julie Kapyrka <jkapyrka@alderville.ca>
**Sent:** March 24, 2025 12:38 PM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>; John Innes <jinnes@kawarthalakes.ca>
**Subject:** RE: Angeline St North Reconstruction

Aaniin Alex,

Thank you for your e-mail.
Yes – we will require the $300 filing fee. This allows me to open a file for this project and begin a review of the documents you have provided. It would also cover an initial meeting if needed. The special consultation process (if required) will be determined after I review the information you have provided – and to begin that process we must receive the fee.

Miigwech.
All the best,

Dr. Julie Kapyrka
Consultation Manager
Alderville First Nation
Administration Office
11696 Second Line Rd.
Roseneath, ON K0K 2X0
Office: 905-352-2662
jkapyrka@alderville.ca

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** March 17, 2025 7:48 AM
**To:** Julie Kapyrka <jkapyrka@alderville.ca>
**Cc:** Julie Kapyrka <jkapyrka@alderville.ca>; Scott Reynolds <scott.reynolds@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>; John Innes <jinnes@kawarthalakes.ca>
**Subject:** RE: Angeline St North Reconstruction

Hi Dr. Kapyrka,

Please find our response letter attached via this email. The link mentioned therein is as follows:
https://www.dropbox.com/scl/fo/pmbaqbaslydkawve804s/ALPnHPORGG1f1FrTBS4FZXY?rlkey=x7za7q8stlle51fqfxd31lk...
t3&st=zulw9l6q&dl=0

As discussed in the letter, the impacts to typical areas of concern are believed to be relatively limited and appropriately mitigated; especially given the site's historical anthropogenic disturbance, clearance of archaeological significance,

current land use, and separation from the natural environment. In light of this, we are requesting confirmation that a File Fee and special consultation process are still believed to be appropriate/warranted.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**From:** Julie Kapyrka <jkapyrka@alderville.ca>
**Sent:** Monday, June 17, 2024 8:33 AM
**To:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Cc:** Taynar Simpson <tsimpson@alderville.ca>
**Subject:** Angeline St North Reconstruction

Aaniin Corby,

Please see attached correspondence. Apologies, it was sent last week, but had a typo in your contact information and had bounced back. Re-sending.

Miigwech.
All the best,

Dr. Julie Kapyrka
Consultation Coordinator

Alderville First Nation
Administration Office
11696 Second Line Rd.
Roseneath, ON K0K 2X0
Office: 905-352-2662
jkapyrka@alderville.ca

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1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

March 17, 2025 File No. 18545-2

Alderville First Nation
11696 2nd Line Road
P.O. Box 46
Alderville, ON
K0K 2X0

Attn: **Taynar Simpson**
**Chief**

Re: **Notice of Request to Consult**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Chief Simpson:

As identified through previous notices, Ainley Group (AG) and the City of Kawartha Lakes (CKL) are completing a Municipal Class Environmental Assessment (MCEA) process in support of reconstruction of Angeline Street North in Lindsay, ON.

The project proposes the reconstruction of Angline Street North, generally from Roosevelt Street to Colborne Street West, to accommodate projected traffic volumes along the corridor. The project is being completed as a Schedule 'B' activity through the MCEA process. Public Information Centre (PIC) #2 for the project was conducted on May 9, 2024, which presented a Preliminary Preferred Alternative for the roadway's reconstruction. The presentation materials from PIC #2 provide a comprehensive summary of the project and progress to date with respect to the MCEA process. Alderville First Nation's (AFN) review of the presentation materials is requested to establish a foundational understanding of the project and better facilitate consultation efforts. The PIC #2 presentation materials are provided via a temporary file-sharing link within the email accompanying this letter, and are also publicly available through the following web address:

https://www.kawarthalakes.ca/en/municipal-services/major-projects.aspx

Submission of the MCEA's Project File Report to CKL's City Council is planned for Spring 2025, and timely correspondence to help us achieve this timeline would sincerely be appreciated.

A summary of how the project will address aspects that may be of interest to AFN, is provided on the following page.

**Drinking Water** – A portion of the project site is located within Intake Protection Zone 2 (IPZ-2) of the Lindsay municipal drinking water system, as confirmed by Kawartha Conservation. However, the activities associated with the project are not anticipated to constitute a 'significant' drinking water threat, per the Ministry of the Environment, Conservation and Parks' *2017-2018 Table of Drinking Water Threats*. Furthermore, the design of the proposed drainage infrastructure will be subject to approval through the CKL's *Consolidated Linear Infrastructure Environmental Compliance Approval* which prescribes stormwater quality treatment objectives in protection of downstream natural environments. During construction, caution will be exercised in the prevention of any fuel/oil spills; an emergency fuel/oil spill procedure will be established to mitigate the impacts of any spills, should they occur.

**Wildlife and Lands** – The project site is currently developed as a two-lane urban road cross-section having a shared left-turn centre lane. Resultingly, the project lands are not considered to contribute significantly to the natural environment. Based on the level of previous anthropogenic disturbance, and the project site's current use, the potential impact to fish, game, endangered species and lands, is believed to be relatively minimal. Kawartha Conservation has not identified a need for further natural environment studies to support the planned reconstruction.

**Indigenous Heritage and Cultural Values** – Stage I and II Archaeological Assessments were completed for the Angeline Street North corridor in 2021 and 2023, respectively. Ultimately, the Archaeological Assessments concluded that the project area be cleared of archaeological concerns. Digital versions of the Stage I and II Archaeological Assessment documents are provided to AFN via a temporary file-sharing link within the email accompanying this letter. As the project lands have been cleared of archaeological concerns, and the proposed use of the project lands is consistent with its current one, it is expected that the impact to Indigenous heritage and cultural values is limited. Should excavation unearth bones, remains or other such evidence of a native burial site or any other archaeological findings, AFN would be notified without delay.

In response to the notice for PIC #2, AFN identified a potential requirement to establish a special consultation process for this project as well as a $300.00 File Fee. It's noted that these requirements were identified prior to AFN being provided with the information of the above summary. Overall, the impacts to typical areas of concern are believed to be relatively limited and appropriately mitigated; especially given the site's historical anthropogenic disturbance, current land use, and separation from the natural environment.

**We request that AFN review the provided summary and PIC #2 presentation materials, and confirm if the File Fee and special consultation process are still believed to be appropriate/warranted.**

The following AG and CKL staff members will serve as the main contacts for this project:

**Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 ext. 207
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Corby Purdy, C.E.T.**
**City of Kawartha Lakes**
322 Kent Street, PO Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Please also copy the following Ainley Group and CKL staff member on any electronic correspondence:

**Scott Reynolds, B.Sc.(Env), EP**
**Ainley Graham & Associates Limited**
Email: scott.reynolds@ainleygroup.com

**Emily Turner**
**City of Kawartha Lakes**
Email: cpurdy@kawarthalakes.ca

If you require further information at this time, please contact the CKL and AG staff members noted above. AG and CKL staff will await confirmation on the most appropriate approach to progress the consultation process.

If you have any questions or require further assistance with this matter, please feel free to contact the undersigned.

Regards,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

# ALDERVILLE FIRST NATION

**11696 Second Line Road**
**Roseneath, Ontario K0K 2X0**
**Phone: (905) 352-2011**
**Fax: (905) 352-3242**
**www.alderville.ca**

**Chief: Taynar Simpson**
**Councillor: Dawn Marie Kelly**
**Councillor: Lisa McDonald**
**Councillor: Nora Sawyer**
**Councillor: Jason Marsden**

VIA E-MAIL

June 12, 2024

Mr. Corby Purdy
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street, Lindsay, Ontario K9V 5R8
cpurdy@kawarthalakes.ca

Dear Corby Purdy,

**RE: Angeline Street North Reconstruction**
**Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

I would like to acknowledge receipt of your correspondence, which was received May 1st, 2024, regarding the above noted project.

As you may be aware, the area in which this project is proposed is situated within the Traditional Territory of Alderville First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and was the subject of a claim under Canada's Specific Claims Policy, which has now been settled. All 7 First Nations within the Williams Treaties have had their harvesting rights legally re-affirmed and recognized through this settlement (2018).

In addition to Aboriginal title, Alderville First Nation rights in its Reserve and Traditional Territory and/or Treaty Territory include rights to hunt, fish and trap, to harvest plants for food and medicine, to protect and honour burial sites and other significant sites, to sustain and strengthen its spiritual and cultural connection to the land, to protect the Environment that supports its survival, to govern itself, sustain itself and prosper including deriving revenues from its lands and resources, and to participate in all governance and operational decisions about how the land and resources will be managed, used and protected.

Alderville First Nation is requiring a File Fee for this project in the amount of $300.00. This Fee includes administration, an initial meeting, project updates as well as review of standard material and project overviews. Depending on the number of documents to be reviewed by the Consultation Department, additional fees may apply. **Please make this payment to Alderville First Nation and please indicate the project name or number on the cheque.** If you do not have a copy of Alderville First Nation's Consultation Protocol, it is available at: alderville.ca/wp-content/uploads/2017/02/AFNProtocol2.pdf.

Please note that the mapping in this document needs updating to reflect the Williams Treaties First Nations Settlement Agreement 2018.

In order to assist us in providing you with timely input, please provide us with a Notice of Request to Consult containing relevant information and material facts in sufficient form and detail to assist Alderville First Nation to understand the matter in order to prepare a meaningful response. Guidance for giving notice can be found on pages 11-12 of our Consultation Protocol. Based on the information that you have provided us with respect to the notice of the **Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design, City of Kawartha Lakes,** Alderville First Nation may require a mutual agreement to establish a special consultation process for this project. After the information is reviewed it is expected that you or a representative will be in contact to discuss this matter in more detail and possibly set up a date and time to meet with Alderville First Nation in person or virtually.

Although we have not conducted exhaustive research nor do we have the resources to do so, there may be the presence of burial or archaeological sites in your proposed project area. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the *Cemeteries Act* to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

Furthermore, Alderville First Nation also has available, trained Archaeological Liaisons who can actively participate in the archaeological assessment process as a member of a field crew, the cost of which shall be borne by the proponent. Alderville First Nation expects engagement at Stage 1 of an archaeological assessment, so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Archaeological Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys, to full excavation.

Although we may not always have representation at all stakeholders' and rights holders' meetings, it is our wish to be kept apprised throughout all phases of this project.

Should you have further questions or if you wish to hire a liaison for a project, please feel free to contact Julie Kapyrka, Consultation Coordinator, at 905-352-2662 or via email at jkapyrka@alderville.ca .

Yours sincerely,

Chief Taynar Simpson
Alderville First Nation

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**VIA EMAIL**

May 9, 2025 File No. 18545-2

Curve Lake First Nation
22 Winookeeda Road
Curve Lake, ON
K0L 1R0

**Attn: Lois Taylor**
**Consultation Lead – Resources and Relationships**

**Re: Response to Curve Lake First Nation Letter**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Lois:

Thank you for your letter dated March 26th, 2025; the concerns outlined therein have been documented. Through the discussion provided by this response letter, we hope to address them to your satisfaction. To aid in the discussion, the Problem and Opportunity Statements for the Angeline Street North Reconstruction Municipal Class Environmental assessment are re-stated below:

**Problem Statement:** *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 EA studies for these intersections provided preferred intersection improvements which will be considered as part of this study for the Angeline Street North corridor.*

**Opportunity Statement:** *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.*

The concerns identified by Curve Lake First Nation's (CLFN) letter are discussed individually below:

- **Air Pollution –** An Air Quality Assessment was completed to investigate the potential impact of the Preliminary Preferred Alternative's (PPA) configuration on the air quality adjacent to a "Sensitive Receiver" at the northeast corner of the Kent Street West and Angeline Street North intersection (Ross Memorial Hospital property). The study included an assessment for a variety of contaminants including those identified in CLFN's letter. The Air Quality Assessment concluded that construction of the PPA improved the overall air quality impacts to the Sensitive Receiver in comparison to a "No Build" condition (i.e., maintaining existing conditions). The improved conditions were attributed to reduced congestion and idling periods.

- **Noise Pollution –** As outlined by the Problem and Opportunity Statements, the traffic demands are projected to increase by 2031 and the MCEA intends to determine a PPA to accommodate them; i.e., the improvements of the PPA are not proposed in order to increase traffic demands. Therefore, the traffic noise is expected to increase with traffic demand, regardless of the proposed design alternatives. Generally speaking, the PPA is anticipated to provide for reduced congestion and idling periods, as noted above. Additionally, the local ecosystem along the corridor is not believed to be significant given the previous level of anthropogenic disturbance and current land use along the corridor.

- **Tree Removal –** The degree of vegetation removal necessary to support reconstruction was a criterion considered in the evaluation of design alternatives, alongside other transportation, social, economic, natural, cultural and financial factors, to determine the PPA. Furthermore, it's a typical practice of the City of Kawartha Lakes to replace any removed tree with a new one, generally within the same location.

- **More Impervious Surfaces –** The relationship identified between the increase in impervious surfaces and increase in stormwater runoff is correct. The proposed reconstruction of Angeline Street North will include the design and installation of drainage infrastructure to address stormwater management (SWM) requirements related to quantity (peak flows and volumes) and quality (sediment removal) objectives, ensuring that downstream conditions are not worsened by the proposed reconstruction. Ultimately, an Environmental Compliance Approval will be obtained to support the drainage infrastructure per the *Ontario Water Resources Act* and *Environmental Protection Act.*

- **Spread of Invasive Species –** The risk for invasive species is generally limited to the construction stage when the soil is disturbed, and the introduction of equipment to a project site. Given that the project site is centrally located within an urban center, the existing presence of invasive species is considered to be generally limited; however, through the preparation of contract documents, inclusion of specifications to limit the spread of invasives will be reviewed and included where appropriate. Provisions in this regard may include management of soil movement, and clean equipment standards for entering and working at the site.

We trust that the discussion provided above addresses the concerns identified by CLFN in their previous letter as it relates the Angeline Street North Reconstruction project's MCEA process.

If you have any questions or further comments to provide, please don't hesitate to contact the undersigned.

Regards,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

## David Davison

**From:** Jaimi O'hara <jaimi@francischua.com>
**Sent:** April 15, 2025 2:38 PM
**To:** consultationlead@curvelake.ca; Alexander Wilkinson; Archaeological Program Admin
**Cc:** Scott Reynolds; cpurdy@kawarthalakes.ca; Katrina Fingland; Paige Williams; consultationlead@curvelake.ca; Francis M. Chua; Mindy Knott; Kayla Wright
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

Hello Alexander,

Further to Lois' comments, please find below Curve Lake First Nation's comments regarding the Stage 1 and 2 Archaeological Assessments related to this project.

Curve Lake First Nation reviewed the Stage 1 and 2 Archaeological Assessments and concurred with the recommendations. Nevertheless, as a condition of all archaeological investigations in Ontario, should cultural material and/or ancestral remains be uncovered during construction activities, work in the vicinity cease immediately and *Section 5.0 Advice on Compliance with Legislation* of the Stage 2 archaeological assessment report should be consulted. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay.

In the case of a burial site, Council reminds you of your obligations under the *Cemeteries Act* to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. The regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

We encourage the proponent and/or contractors of the proponent to remind their staff of these conditions prior to the commencement of construction and reiterate them during regular planning and/or health and safety meetings. We recommend this information be displayed in a prominent area such as the location of the Ontario Occupational Health & Safety Act and Regulations (i.e., The Green Book).

Furthermore, Curve Lake First Nation has adopted an Archaeological Protocol, which we expect to be followed within our Territory. We also have available, trained Cultural Heritage Liaisons and qualified staff who can actively participate in any future archaeological assessment process as a member of a field crew, the cost of which will be borne by the proponent. **Curve Lake First Nation expects engagement at Stage 1 of an archaeological assessment** so that we may include Indigenous Knowledge of the land in the process. We insist that our Cultural Heritage Liaisons be invited to participate in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys to full excavation.

Should you have any additional questions or concerns, please do not hesitate to reach out.

Thank you,
Jaimi O'Hara
Support to Curve Lake First Nation

Project Manager
Consultant to Francis Chua Consulting Inc.

Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0

Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

March 26th, 2025

Alex Wilkinson
Ainley Group

Re: 18545-2 - Angeline St. N. Reconstruction Project

I am writing to formally address the Angeline St. N. Reconstruction Project, which was presented to Curve Lake First Nation by the Ainley Group. We have reviewed the Public Information Centre materials, Stage 1 Archaeological Assessment, and Stage 2 Property Survey reports associated with the project.

We would like to emphasize that the area proposed for disturbance lies within the Traditional and Treaty territories of Curve Lake First Nation, as well as the territories of the seven signatory Nations of the Williams Treaties. As stewards of these lands, a responsibility passed down through generations, it is our duty to ensure their protection.

Given the current stage of the project, we would like to emphasize the following concerns regarding the cumulative impacts it may bring:

- Air Pollution: more traffic results in higher emissions of pollutants such as carbon monoxide, nitrogen oxides, and particulate matter. This will worsen air quality.
- Noise Pollution: Traffic noise will increase. This can disrupt local ecosystems, particularly for animals that rely on quieter environments.
- Tree removal: Expanding the road will require tree removal and loss of some (small) urbanized green areas.
- More Impervious Surfaces: the increase of impervious surfaces will increase the stormwater runoff and thus overload drainage systems but also increase the amount of pollutants entering these systems.
- Spread of Invasive Plants: Road construction and expansion can introduce invasive plant species, which may spread into surrounding areas.

All of these impacts mentioned are particularly concerning given that Lindsay's population is expected to increase by 33% by 2031 compared to 2011. It's important to assess and mitigate all the potential cumulative impacts associated with this population growth.

Government Services Building
22 Winookeedaa Road
Curve Lake, Ontario K0L1R0

Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

We appreciate your attention to these concerns and look forward to receiving the relevant reports in the future.

Miigwetch, and we look forward to working with you going forward.

Lois Taylor
Consultation Lead – Resources and Relationships

**From:** Consultation Lead <ConsultationLead@curvelake.ca>
**Sent:** April 7, 2025 4:30 PM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>; Archaeological Program Admin <APAdmin@curvelake.ca>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>; Paige Williams <paigew@curvelake.ca>; consultationlead@curvelake.ca; Francis M. Chua <francis@francischua.com>; Mindy Knott <MindyK@curvelake.ca>; Kayla Wright <kayla@francischua.com>; Jaimi O'hara <jaimi@francischua.com>
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

Aaniin Alexander,

Miigwetch for providing us with the information regarding the Angeline St. N. Reconstruction Project in Lindsay. Please find attached response from Curve Lake First Nation.

If you'd like to discuss further, please feel free to reach out to me.

Miigwetch,

Lois Taylor
Consultation Lead – Resources & Relationships
Indian Registry Administrator
Curve Lake First Nation Government Services Building
22 Winookeedaa Road, Curve Lake, ON K0L 1R0
P: 705.657.8045 EXT 239 F: 705.657.8708
W: www.curvelakefirstnation.ca
E: ConsultationLead@curvelake.ca

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** March 17, 2025 7:49 AM
**To:** Archaeological Program Admin <APAdmin@curvelake.ca>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>; Paige Williams <PaigeW@curvelake.ca>; Consultation Lead <ConsultationLead@curvelake.ca>; Francis M. Chua <francis@francischua.com>; Mindy Knott <MindyK@curvelake.ca>; Kayla Wright <kayla@francischua.com>; Jaimi O'hara <jaimi@francischua.com>
**Subject:** [EXTERNAL]RE: 18545-2 - Angeline St. N. Reconstruction Project

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naanaagdawaab'ndan ezhibii'igaadeg e-aawid aw gaa-waasmo-maajiibii'ged. Giishpin gyakwendanzwan, Gdaa-gnoonaa aw gaa-maajiibii'ged aabjitooyen biiwaabkoons-giig'dowin maage ggwejim aw ewezhtood waasmo-zhibiigew-aabjichganan (aasnaa@curvelake.ca).

Hi Derek,

I'm happy to hear you may already be familiar with the Stage 1 and 2 Archaeological Assessments. Thank you for introducing the CLFN team members' roles – were you able to meet last week?

Ainley Group does not have staff members with the dedicated titles mentioned, but I believe we've put together a project team that's capable of addressing the consultation needs of CLFN. The relevant contacts from Ainley Group and City staff for this project are provided in the attached letter, which is also available in the Dropbox link sent on March 5th.

From the engineering consultant side, I'm managing the project and working with Scott Reynolds to complete the Environmental Assessment and consultation activities for this project. From the City, Corby Purdy is my counterpart, and Emily Turner is assisting with consultation activities.

Please let us know what comes of your team's discussions.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**From:** Archaeological Program Admin <APAdmin@curvelake.ca>
**Sent:** March 6, 2025 9:24 AM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>; Archaeological Program Admin <APAdmin@curvelake.ca>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>; Paige Williams <PaigeW@curvelake.ca>; Consultation Lead <ConsultationLead@curvelake.ca>; Francis M. Chua <francis@francischua.com>; Mindy Knott <MindyK@curvelake.ca>; Kayla Wright <kayla@francischua.com>; Jaimi O'hara <jaimi@francischua.com>
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project
**Importance:** High

Aaniin Alex,

Thank you for your follow-up email. In reference to engagement, consultation, and the review process, this is handled directly by Lois, who is the Consultation Lead for Resources and Relations. Her email is consultationlead@curvelake.ca, which you have cc'd. Francis Chua and Kayla Wright assist her. Francis' email is francis@francischua.com, also cc'd, and Kayla's email is kayla@francischua.com. I have added her to this email string. Unfortunately, we are working away from one another today, so there may be further delay in our response, but I will add it to this Monday's team coordination meeting to see where we are at with the commencement of discussions. Does Ainley Group have an Indigenous Relations or First Nations Relations person? If so, can you provide me with their contact information?

Thank you for your patience, Alex. You can continue to contact me until Lois, Francis, and/or Kayla reach out to you and you make a connection. If you require consultation or engagement specifically for archaeology and culture on other projects or you are having difficulty reaching my colleagues for any other projects, please don't hesitate to contact me. I understand that I participated in and authored a portion of the Stage 1 and Stage 2 archaeological assessment report specifically for the Angeline Street North project and I will debrief my colleagues on that aspect of the consultation process.

Chi-Miigwech and have a great day!

Derek

Derek Paauw
Consultation Lead - Archaeology
Curve Lake First Nation Government Services Building
22 Winookeeda Road, Curve Lake, ON K0L 1R0
P: 705.657.8045 ext. 237 F: 705.657.8708
W: www.curvelakefirstnation.ca
E: APAdmin@curvelake.ca

- *Our team is currently immersed in many great iniatives, which may delay my response. If you're needing a follow up from me about something, and you haven't heard from me in awhile, please do check in with me. Thank you for your understanding.* -

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**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** March 5, 2025 3:46 PM
**To:** Consultation Email <Consultation@curvelake.ca>; Archaeological Program Admin <APAdmin@curvelake.ca>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>; Paige Williams <PaigeW@curvelake.ca>; Consultation Lead <ConsultationLead@curvelake.ca>; Francis M. Chua <francis@francischua.com>; Mindy Knott <MindyK@curvelake.ca>; Missy Knott <MissyK@curvelake.ca>
**Subject:** [EXTERNAL]RE: [EXTERNAL]RE: 18545-2 - Angeline St. N. Reconstruction Project

Some people who received this message don't often get email from alexander.wilkinson@ainleygroup.com. Learn why this is important

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Good Afternoon Derek and team,

Has CLFN had an opportunity to review the letter submitted in last month's emails (and reattached to this one)?

Ultimately, we would request a written correspondence response for our records, but please don't hesitate to contact me directly in advance with any questions you might have via email or a call.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**From:** Consultation Email <Consultation@curvelake.ca>
**Sent:** February 12, 2025 9:42 AM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>; Consultation Email <Consultation@curvelake.ca>; kaitlinh@curvelake.ca
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>; Paige Williams <PaigeW@curvelake.ca>; Consultation Lead <ConsultationLead@curvelake.ca>; Francis M. Chua <francis@francischua.com>; Mindy Knott <MindyK@curvelake.ca>; Missy Knott <MissyK@curvelake.ca>
**Subject:** RE: [EXTERNAL]RE: 18545-2 - Angeline St. N. Reconstruction Project

Aaniin Alex,

Thank you for your email. I am currently monitoring the Consultation inbox, so my apologies if you have not received a reply in the past. Kaitlinh@curvelake.ca is no longer with the department. In the future, I recommend,

in addition to the Consultation email for now, to include Paige Williams, Consultation Department Manager and Lois Taylor, Consultation Lead for Resources and Relations. Their emails are copied to this response. Please don't hesitate to reach out to me if you are not receiving a response. My email is APAdmin@curvelake.ca.

I want to take a moment to thank you and your team for reaching out to Curve Lake First Nation and including us in the engagement and consultation process. If you have any questions, please do not hesitate to reach out.

Have a wonderful day.

Derek

Derek Paauw
Consultation Lead - Archaeology
Curve Lake First Nation Government Services Building
22 Winookeeda Road, Curve Lake, ON K0L 1R0
P: 705.657.8045 ext. 237 F: 705.657.8708
W: www.curvelakefirstnation.ca
E: APAdmin@curvelake.ca

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**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** February 11, 2025 2:45 PM
**To:** Consultation Email <Consultation@curvelake.ca>; kaitlinh@curvelake.ca
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca; Katrina Fingland <katrina.fingland@ainleygroup.com>
**Subject:** [EXTERNAL]RE: 18545-2 - Angeline St. N. Reconstruction Project

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gyakwendanzwan, Gdaa-gnoonaa aw gaa-maajiibii'ged aabjitooyen biiwaabkoons-giig'dowin maage ggwejim aw ewezhtood waasmo-zhibiigew-aabjichganan (aasnaa@curvelake.ca).

Good Afternoon,

Ainley Group and the City of Kawartha Lakes are continuing efforts to progress the Municipal Class Environmental Assessment process for the Angeline Street North Reconstruction project in Lindsay.

Can you please confirm receipt of our latest correspondence (attached and originally sent via the October 22, 2024 email below) and, if possible, provide a response by the end of this month?

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**From:** Katrina Fingland <katrina.fingland@ainleygroup.com>
**Sent:** October 22, 2024 9:14 AM
**To:** Consultation@curvelake.ca; kaitlinh@curvelake.ca
**Cc:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>; Scott Reynolds <scott.reynolds@ainleygroup.com>; cpurdy@kawarthalakes.ca
**Subject:** 18545-2 - Angeline St. N. Reconstruction Project

Good morning,

Please see attached response letter.

Thanks,

Katrina Fingland
Project Technician

Ainley Graham & Associates Limited
139 Front Street, Unit 100
Belleville, Ontario, K8N 2Y6
Tel: (613) 966-4243
katrina.fingland@ainleygroup.com

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**VIA EMAIL**

October 22, 2024 File No. 18545-2

Curve Lake First Nation
22 Winookeeda Road
Curve Lake, Ontario
K0L 1R0

Attn: **Chief Keith Knott**

Ref: **Notice of Request to Consult**
**Angeline Street North Reconstruction**
**Lindsay, ON**

Dear Chief Knott:

As identified through previous correspondence and notices, Ainley Group the City of Kawartha Lakes (CKL) are completing a Municipal Class Environmental Assessment (MCEA) process in support of reconstruction of Angeline Street North in Lindsay, ON.

The project proposes the reconstruction of Angeline Street North, generally from Roosevelt Street to Colborne Street West, to accommodate projected traffic volumes along the corridor. The project is being completed as a Schedule 'B' activity through the MCEA process. Public Information Centre (PIC) #2 for the project was conducted on May 9, 2024, which presented a Preliminary Preferred Alternative for the roadway's reconstruction. The presentation materials from PIC #2 provide a comprehensive summary of the project and progress to date with respect to the MCEA process. Curve Lake First Nations' (CLFN) review of the presentation materials is requested to establish a foundational understanding of the project and better facilitate consultation efforts. The PIC #2 presentation materials are enclosed and also publicly available through the following web address:

https://www.kawarthalakes.ca/en/municipal-services/major-projects.aspx

Additionally, a summary indicating how the project will address specific areas of concern to CLFN within their Traditional and Treaty Territory, is provided below and as requested in their letter dated March 20, 2019.

**Possible Environmental Impact to Drinking Water** – A portion of the project site is located within Intake Protection Zone 2 (IPZ-2) of the Lindsay municipal drinking water system, as confirmed by Kawartha Conservation. However, the activities associated with the project are not anticipated to constitute a 'significant' drinking water threat, per the Ministry of the Environment, Conservation and Parks' *2017-2018 Table of Drinking Water Threats*. Furthermore, the design of the proposed

drainage infrastructure will be subject to approval through the CKL's *Consolidated Linear Infrastructure Environmental Compliance Approval* which prescribes stormwater quality treatment objectives in protection of downstream natural environments. During construction, caution will be exercised in the prevention of any fuel/oil spills; an emergency fuel/oil spill procedure will be established to mitigate the impacts of any spills, should they occur.

**Endangerment to Fish and Wild Games/Impact on Endangered Species, Lands, Savannas, etc.** – The project site is currently developed with a two-lane urban road cross-section having a shared left-turn centre lane. The project lands are not considered to contribute significantly to the natural environment. Based on the level of previous anthropogenic disturbance, and the project site's current use, the potential impact to fish and wild games, and endangered species, lands and savannas, is believed to be relatively minimal. Kawartha Conservation has not identified a need for further natural environment studies to support the planned reconstruction.

**Impact on Aboriginal Heritage and Cultural Values** – As noted in previous correspondence, Stage I and II Archaeological Assessments were completed along the Angeline Street North corridor. Ultimately, the Archaeological Assessments concluded that the project area be cleared of archaeological concerns. Digital versions of the Stage I and II Archaeological Assessment documents were previously provided to CLFN via a temporary file sharing link. As the project lands have been cleared of archaeological concerns, and the proposed use of the project lands is consistent with its current one, it is expected that the impact on Aboriginal Heritage and Cultural Values is limited.

In response to a previous notice for PIC #1, CLFN identified a requirement to complete consultation efforts through the Special Consultation Framework (SCF) specified by their Consultation and Accommodation Standards, which has been reviewed by Ainley Group and City of Kawartha Lakes staff, as well as a $250.00 File Fee.

It's noted that the requirements to complete the SCF were identified over five years ago, and prior to the CFLN being provided with the information of the above summary. Overall, the impacts to the identified areas of concern are believed to be relatively limited and appropriately mitigated; especially given the site's historical anthropogenic disturbance, current land use, and separation from the natural environment.

**We request that CLFN review the summary and PIC #2 presentation materials (link above) provided herein, and confirm if the SCF is still believed to be appropriate/warranted, given the project's relation to the identified areas of concern.**

The following Ainley Group and CKL staff members will serve as the main contacts for this project:

**Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 ext. 207
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Corby Purdy, C.E.T.**
**City of Kawartha Lakes**
322 Kent Street, PO Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Please also copy the following Ainley Group and CKL staff member on any electronic correspondence:

**Scott Reynolds, B.Sc.(Env), EP**
**Ainley Graham & Associates Limited**
Email: scott.reynolds@ainleygroup.com

**Emily Turner**
**City of Kawartha Lakes**
Email: cpurdy@kawarthalakes.ca

If you require further information at this time, please contact the CKL and Ainley Group staff members noted above. Ainley Group and CKL staff will await confirmation on the most appropriate approach to progress the consultation process.

Sincerely,

Alex Wilkinson, P.Eng.
Consultant Project Manager

Enclosure
cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

[redacted]

**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project
**Importance:** High

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PN 3119 – EA

Good Morning Joseph,

Thank you for the response and update.

[redacted] please see response below in regards to the median matter.

Best Regards,

[redacted]

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[redacted] TF: 1-855-771-7266

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**From:** Joseph Kelly <jkelly@kawarthalakes.ca>
**Sent:** April 7, 2025 10:26 AM
[redacted]
**Cc:** John Innes <jinnes@kawarthalakes.ca>; Scott Reynolds <scott.reynolds@ainlevgroup.com>; 'Alexander Wilkinson' <alexander.wilkinson@ainlevgroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

[redacted]

Joseph Kelly, CET
Traffic Management Supervisor, Engineering & Corporate Assets – Technical Services
City of Kawartha Lakes
705-324-9411 ext. 1168
www.kawarthalakes.ca

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** Monday, April 7, 2025 9:53 AM
**To:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Cc:** John Innes <jinnes@kawarthalakes.ca>; Joseph Kelly <jkelly@kawarthalakes.ca>; Scott Reynolds <scott.reynolds@ainleygroup.com>
**Subject:** FW: 18545-2 - Angeline St. N. Reconstruction Project

Hi Corby,

Please see the email below. Would your group be able to provide an update to GWD Planners, please?

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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[redacted]

Sent: April 7, 2025 9:47 AM
To: Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
[redacted]
**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

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PN 3119 – EA

Good Morning Alexander,

Hope all is well. Given Ainley Group's ongoing discussion with City staff, is there anything that can be reported on the matter of the median?

Best Regards,

[redacted]

GWD Gagnon Walker Domes PROFESSIONAL PLANNERS 30 YEARS

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**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** March 19, 2025 11:44 AM
[redacted]

[redacted]

**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

[redacted]

Ainley Group and City staff have been discussing this matter over the last week and are still considering the best approach. A response will be provided once a decision has been made.

Thanks for your patience,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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[redacted]

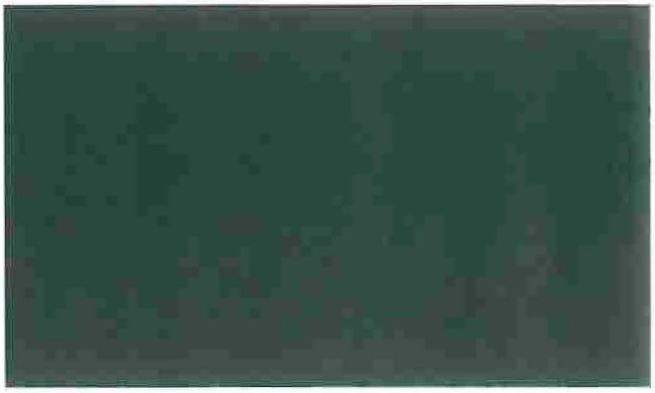
**Sent:** March 19, 2025 10:04 AM

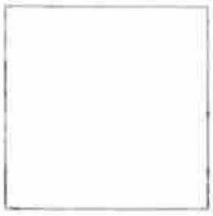
[redacted]

**Subject:** Re: 18545-2 - Angeline St. N. Reconstruction Project

[redacted]

I counted 7 professionals on this email from the city and the consulting firm combined. And today is the 8th business day from your initial email. I am sure they will respond to you with this third request. Thanks





On Wed, Mar 19, 2025 at 9:46 AM [redacted] wrote:

Hello, following up again.

**GAGNON WALKER DOMES LTD.**

**7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4**

[redacted]

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[redacted]

**Sent:** March 13, 2025 9:43 AM

[redacted]

**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

PN 3119 – EA

Morning again,

If you could contact us to advise of what is currently contemplated through the EA in terms of the median matter below it would be greatly appreciated.

[redacted]

**GAGNON WALKER DOMES LTD.**

**7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4**

[redacted]

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[redacted]

**Sent:** March 10, 2025 11:25 AM

[redacted]

**Subject:** RE: 18545-2 - Angeline St. N. Reconstruction Project

PN 3119 – EA

Good morning folks at Ainley Group:

We have received municipal circulation comments on the Site Plan Application resubmission for the commercial development proposed by Sunray Group at the southeast quadrant of Colborne St. & Angeline St. N in the Town of Lindsay (CKL) – City File NoD19-2023-005. Through these comments the City's transportation peer reviewer indicates that:

> As noted above, the Angeline Street North Environmental Assessment (EA) i ongoing. A centre median restricting the driveways to the Town & Country C property at 65 Angeline Street North is being explored by the City. Should th confirmed, the northerly driveway can remain in its currently proposed locatio porkchop can be removed. Please contact the EA team for further details.

Accordingly, I am reaching out to seek available information on the EA's review of potential median restrictions along Angeline St. N., south of Colborne St.

[redacted]

GAGNON WALKER DOMES LTD.

7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4

[redacted]

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**From:** [redacted]
**Sent:** December 4, 2023 12:55 PM
**To:** Alexander Wilkinson
**Cc:** [redacted]
**Subject:** RE: Angeline Street North EA/ Site Plan Application D19-2023-005

PN 3119 – EA

Hi Alex,

Could you kindly advise on the below email regarding the Angeline Street EA?

Regards,

[redacted]

GWD 30+ YEARS
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PROFESSIONAL PLANNERS

[redacted] 855-771-7266
W: www.gwdplanners.com

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[redacted]
**Sent:** Tuesday, November 28, 2023 4:09 PM
**To:** 'Alexander Wilkinson' <alexander.wilkinson@ainleygroup.com>
[redacted]
**Subject:** RE: Angeline Street North EA/ Site Plan Application D19-2023-005

PN 3119 – EA

Alex,

Following up on my below email, could you please advise on updates regarding the Angeline Street EA, the preferred alternative and materials released for public review.

Please also let us know about any upcoming PIC meetings.

Thank you,

[redacted]

[redacted]
855-771-7266
W: www.gwdplanners.com

7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4

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[redacted]

**Sent:** Monday, November 13, 2023 2:31 PM
**To:** 'Alexander Wilkinson' <alexander.wilkinson@ainleygroup.com>
[redacted]
**Subject:** RE: Angeline Street North EA/ Site Plan Application D19-2023-005

PN 3119 – EA

Hi Alex,

Just wanted to circle back on the Angeline Street EA.

Is there any update on the preferred alternative and have any new materials been released for public review?

Additionally, can you kindly advise on when the next PIC will be held?

Thank you,

[redacted]
855-771-7266
W: www.gwdplanners.com

7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4

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**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** Friday, August 11, 2023 3:08 PM
[redacted]

[redacted]

**Subject:** RE: Angeline Street North EA/ Site Plan Application D19-2023-005

Hi Nikhail,

Thank you for reaching out to Ainley Group regarding the Angeline Street EA. We have recorded your contact information so that you are circulated on notices for future Public Information Centres (PIC) and other publicly available documents.

PIC #1 for this EA was conducted in February 2019 and the presentation materials for it can be accessed via the Dropbox link below. In reviewing these materials, it should be understood that a Preferred Alternative is yet to be identified.

https://www.dropbox.com/sh/4ywzs1wwbdvq7ws/AADe3m_4j4Pu8eKJHPVpx6s-a?dl=0

Since PIC#1, the process has been delayed due to COVID among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC.

As further materials become available, we will provide them to GWD Planners. In the meantime, if you have any questions about the materials provided via this email, feel free to call me.

Thank you,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
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[redacted]

**Sent:** August 9, 2023 11:06 AM
**To:** Brian Paquin <brian.paquin@ainleygroup.com>; Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>

[redacted]

**Subject:** Angeline Street North EA/ Site Plan Application D19-2023-005

PN 3119 – EA

Brian and Alexander,

Gagnon Walker Domes Ltd. represents [redacted] the owners of the site municipally known as [redacted] in the City of Kawartha Lakes (Town of Lindsay). My client is currently processing a Site Plan Application for a commercial development on the lands [redacted]

We recently received Site Plan Application circulation comments from the City of Kawartha Lakes which stated the following: *"The revised plans shall be forwarded to consultants administering EA for Angeline St. N. improvements to assess if/how it changes considered alternative solutions. It is encouraged that the applicant participate in any further Public Meeting related to the Angeline St. N. improvement project."*

Based on the above comment, we wanted to reach out to you to seek information on the Angeline Street North EA improvements between Colborne Street West and Kent Street West (i.e., drawings/plans), the current status of the EA and to be provided with notice of future Public Meetings pertaining to the EA.

Looking forward to hearing from you.

Kind regards,

[redacted]
GWD 30+
Gagnon Walker Domes
PROFESSIONAL PLANNERS
YEARS
[redacted] 1-855-771-7266
W: www.gwdplanners.com

****NEW GWD OFFICE ALERT**: 7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4**

Note: The content of this e-mail message should be treated as confidential and is the property of Gagnon Walker Domes Ltd. (GWD) This e-mail message is for the sole use of the intended recipient and may not be copied, modified, distributed, or used without the express permission of GWD. If you are not the intended recipient, please destroy all copies of this e-mail and notify GWD immediately. Information related to this e-mail is automatically monitored and recorded and the content may be required to be disclosed by GWD to a third party in certain circumstances.

Ainley GROUP CONSULTING ENGINEERS PLANNERS

# MINUTES

Ainley Graham & Associates Limited
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • Fax: (343) 266-0028
Email: kingston@ainleygroup.com

## MINUTES OF MEETING

| | |
|---|---|
| **PROJECT:** | Angeline Street North<br>Ainley Group File: 18545-2 |
| **DATE:** | Friday, November 4, 2022 |
| **DATE / TIME OF MEETING:** | Thursday, November 3, 2022 @ 12:00 noon |
| **LOCATION:** | City of Kawartha Lakes Office<br>322 Kent Street West<br>Lindsay, ON |
| **MEETING No:** | Kent Street Stakeholder Meeting |
| **PRESENT:** | City of Kawartha Lakes (CKL):<br>• Juan Rojas, Director of Eng. and Corporate Assets; jrojas@kawarthalakes.ca<br>• Joseph Kelly, Sr. Eng. Tech., Eng. & Corporate Assets; jkelly@kawarthalakes.ca<br>• Corby Purdy, Mgr, Infrastructure Design and Const.; cpurdy@kawarthalakes.ca<br>Dentistry on Kent:<br>[redacted]<br>Ross Memorial Hospital:<br>• Veronica Nelson, Vice President & Chief Operating Officer; vnelson@rmh.org<br>• Mark Zahra, Director of Facilities; mzahra@rmh.org<br>Ambassador Apartments:<br>[redacted]<br>Ainley Group:<br>• Alex Wilkinson, Project Engineer; alexander.wilkinson@ainleygroup.com<br>• Scott Reynolds, Mgr. of Enviro. Planning; scott.reynolds@ainleygroup.com |
| **DISTRIBUTION:** | • All Ainley Group and City of Kawartha Lakes Staff present<br>Ainley Group:<br>• Lois-Ann Hayes, Vice Pres. and Branch Mgr.;lois-ann.hayes@ainleygroup.com<br>• Brian Paquin, Executive Vice President; brian.paquin@ainleygroup.com |

| ITEM | DETAILS | ACTION BY |
|---|---|---|
| | The purpose of this meeting with several stakeholders that abut the Kent Street and Angeline Street intersection, was to deepen our understanding of the site-specific constraints and opportunities associated with each of the alternatives. Information was collected at the meeting to assist in furthering the EA process, with the ultimate goal of selecting a preliminary preferred alternative ahead of Public Information Centre (PIC) #2 (date to be determined). The meeting was discretionary and informal.<br><br>A separate on-site informal meeting between the Ambassador Apartment party, Ainley Group staff, and Corby Purdy occurred immediately following the initial meeting. Information from that meeting has also been incorporated into these minutes. | Info |
| **1.0** | **AMBASSADOR APARTMENT** | |
| 1.1 | The owner noted that they were not in attendance at PIC #1. A hardcopy of the presentation materials from PIC #1 was provided at the meeting. | |
| 1.1 | It was determined that the existing underground parking extends northerly and easterly beyond the building's above-grade footprint. The below-grade extents of the underground parking were not known to CKL or Ainley Group staff prior to this meeting. The extents of the underground parking will need to be reviewed in consideration of the design alternatives considered thus far. **The underground parking appears to be significant constraint to the available footprint in the south leg of the intersection.** | Info |
| 1.2 | CKL will attempt to locate plans from their Building Department to help confirm the exact extent of underground parking. The building is believed to have been constructed in the 1970s so the information available may be limited. | **CKL** |
| 1.3 | Owner noted that the vibration associated with previous widening efforts at this intersection (estimated to have occurred > 20 years ago), is believed to have contributed to water ingress in the northwest corner of the underground parking. CKL noted that vibration can be monitored during construction to ensure no worsening of the issue. | Info |
| 1.4 | Under existing conditions, vehicular access to the rear of the site is from Angeline Street. The access is a steep paved ramp that makes an immediate lefthand turn at its bottom where a keyed entry pedestal grants access to the underground parking. The underground parking entrance is located at the garage door closest to Angeline Street; the other garage doors are standalone garage/ storage units. The entrance, from Angeline Street to the parking entrance, is heated. | Info |

| ITEM | DETAILS | ACTION BY |
|---|---|---|
| 1.5 | Concern with relocated entrance: considerations for the location and orientation of the keyed entry pedestal would be necessary to accommodate an alternative direction of entry. | **Info** |
| 1.6 | Concern with relocated entrance: potential loss of overflow parking. Currently, overflow parking is provided along the banked perimeter of the rear paved area without conflict to the underground parking. A loss of these parking spaces to accommodate access to the underground parking from a relocated entrance is anticipated. | Info |
| 1.7 | Concerns with relocated entrance: snow removal. The heated entrance is believed to be essential to the site's snow removal operations. The owner would like to maintain a heated vehicle path between the site's vehicular point of entry and the underground parking entrance (as under existing conditions). Furthermore, the current direction of entry allows for snow storage by plow at the east end of the rear paved area, away from the underground parking entrance. There is concern for how a snow storage area could be established based on a revised direction of entry in relation to the access route to the underground parking. | Info |
| 1.8 | Concern with relocated entrance: garbage collection. Currently, garbage is collected in a shed at the west side of the property near the underground parking entrance, and then moved to Angeline Street by the building's superintendent. The owner was currently considering placing a dumpster on site which they believe the current configuration can accommodate. The immediate concern is how garbage would be collected with the relocated entrance. Long term, the concern is that the relocated entrance may limit the possibility of accommodating a dumpster on site. | Info |
| 1.9 | Concerns with relocated entrance: access/ egress for large vehicles. Currently, moving trucks (22' to 24' in size) utilize the existing entrance. The relocated entrance would need to accommodate large vehicles such as moving trucks and garbage trucks (Item 1.8) | Info |
| 1.10 | Reportedly, drainage for the existing rear paved area is provided via two inlet structures that outlet to the mechanical room within the building. Runoff is then pumped to municipal sanitary sewer. Drainage would need to be considered as part of the development of a new access to the rear of the building. | Info |
| **2.0** | **ROSS MEMORIAL HOSPITAL** | |
| 2.1 | It was determined that the existing ventilation structures provide air supply to the entirety of the hospital (previously believed to be exhaust vents). The working alternative would require relocation of these ventilation structures. | Info |

| ITEM | DETAILS | ACTION BY |
|---|---|---|
| 2.2 | Concern with relocated ventilated structures: quality of air supply. As identified by the stakeholder, the increase in traffic associated with the additional lanes, and the elimination of horizontal separation between the roadway and the structures, could potentially negatively impact the air supply from a quality perspective. The possibility of an improved filter system was noted. **This was identified as a major concern by the stakeholder.** | Info |
| 2.3 | Concern with relocated ventilated structures: protection from overweight vehicles during construction. In the past, special consideration has been required for the traversing of the underground ventilation structures by overweight vehicles (example given was a crane). | Info |
| 2.4 | Concern with access at Angeline Street: currently, vehicles can egress to Angeline Street via a righthand or lefthand turn. An increased number of lanes and a more defined median (painted or concrete) are expected to eliminate the possibility of lefthand turns. | Info |
| 2.5 | Concern with expanded curb radius at corner: impact to fire truck access. Currently, the hospital's fire plan includes maintaining one-way travel easterly along the southside of the building and turning northerly along the westside of the building. The reconfiguration of site parking/ driving areas would need to maintain this access by firetrucks. **This was identified as a major concern by the stakeholder.** The loss of a small number of parking spaces as a result of the curb radius modification was not considered to be of concern as parking was available elsewhere on hospital owned lands to the north of the facility. | Info |
| 2.6 | Concern with construction process: protection of existing fibre optic service (eHealth line). The existing fibre optic service is extremely imperative to the daily operation of the hospital and special care should be taken for its protection during construction. **This was identified as a major concern by the stakeholder.** | Info |
| 2.7 | Concern with construction process: access to hospital. To support hospital operations, the stakeholder requests that one lane be maintained for both directions (northbound and southbound) during construction. Access is to be provided at all times during construction for EMS vehicles. | Info |
| 2.8 | Concern with construction process: timing with hospital development. The hospital is planned to be extended northerly within the relatively near future (< 5 years). Phasing of the Angeline Street construction may need to account for this planned development to avoid conflict between the projects. | Info |

| ITEM | DETAILS | ACTION BY |
|---|---|---|
| 2.9 | The stakeholder identified their interest in a signalled-controlled pedestrian crossing of Angeline Street adjacent to their long-term parking and in consideration of the community care centre being constructed on the opposite side of the street. Frequent pedestrian use is expected to result from the operation of the community care centre. CKL noted that they are currently investigating the inclusion of a pedestrian crossing along the corridor as a result of a separate process. The potential location of the crossing was discussed between the shopping complex and the new community care centre to maximize spacing from the Angeline / Kent intersection, and to provide service for those wishing to cross Angeline near the shopping complex and the community care centre. | Info |
| **3.0** | **DENTISTRY ON KENT** | |
| 3.1 | Stakeholder is not concerned with loss of vegetation along the east side of their site. | Info |
| 3.2 | Concern for vehicle access: maintaining access from Angeline Street. **This was identified as a major concern by the stakeholder**, but it is expected to be achievable by the working alternative. | Info |
| 3.3 | Concern for parking spaces: limiting the reduction in parking spaces to accommodate new entrance. **This was identified as a major concern by the stakeholder,** but it is expected to be mitigated by the working alternative. | Info |
| 3.4 | Concern for building access: maintaining the pedestrian walkway along the east side of their building. **This was identified as a major concern by the stakeholder**, but it is expected to be achievable by the working alternative. The stakeholder was informed that it is believed to be achievable by reconfiguring the walkway to abut the building and be separated from the municipal sidewalk by a retaining wall complete with handrail; stakeholder was very receptive to this approach if completed with consideration for the aesthetics of the wall. No building entrance exists on the east side of the dentistry practice. | Info |
| **4.0** | **TIMELINE CONSIDERATIONS** | |
| 4.1 | CKL informed the stakeholders the reconstruction of Angeline Street is expected to require two construction seasons to complete. | Info |
| 4.2 | CKL informed the stakeholders that PIC #2 is expected to be held in 3 to 4 months (pending the incorporation of the information from the meeting). | Info |
| **5.0** | **OTHER BUSINESS (BETWEEN CKL AND AINLEY GROUP STAFF)** | |
| 5.1 | CKL will obtain the site plan drawings for the community care site being constructed across from the hospital. | **CKL** |

| ITEM | DETAILS | ACTION BY |
|---|---|---|
| 5.2 | The possibility of eliminating select lanes from the working alternative's configuration of the Kent Street intersection to address concerns of the stakeholders was briefly discussed (e.g., removing the second northbound lefthand turn lane). It was reiterated that traffic evaluation and modelling is not included within the project's current scope of work. **Further discussion of potential additional alternatives is anticipated.** | Info |
| 5.3 | CKL will continue their assessment of a possible pedestrian crossing (Item 2.9) with consideration for the information obtained during the meeting. | **CKL** |

Any errors and/or omissions in these Minutes should be reported to the undersigned as soon as possible.

Minutes prepared by:

Alex Wilkinson, P.Eng.
Project Engineer
Ainley Graham & Associates Limited

**From:** [redacted]
**Sent:** December 4, 2024 3:24 PM
**To:** Alexander Wilkinson
**Subject:** RE: Angeline expansion

Thank you Alex, I appreciate you staying in contact.
[redacted]

**From:** Alexander Wilkinson [mailto:alexander.wilkinson@ainleygroup.com]
**Sent:** December 4, 2024 3:10 PM
[redacted]
**Subject:** RE: Angeline expansion

[redacted]

Firstly, I wanted to note that we appreciate your continued input and that it will be recorded as part of the process.

I can confirm that Corby's description of the project's process and next steps are accurate. We can provide further information as it becomes available.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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**From:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Sent:** November 13, 2024 9:30 AM
**To:** [redacted]
**Subject:** RE: Angeline expansion

[redacted]

Thanks for your email. I have copied our engineering consultant to confirm my understanding of the process.
Although a preferred solution was shown at the last PIC, it is my understanding that the EA process has not been finalized. Once the EA has been finalized and council approves the preferred solution, the consultant can start working on detailed design which will look at items such as curb medians. We expect the EA to go to council for endorsement in the first half of 2025.

Corby

[redacted]
**Sent:** Tuesday, November 12, 2024 1:15 PM
**To:** Corby Purdy <cpurdy@kawarthalakes.ca>
[redacted]
**Subject:** Angeline expansion

Good afternoon Corby

Re: Angeline Expansion and it's affect on [redacted]
Just wondering where the town is wrt the Angeline expansion. With the latest maps provided it didn't look like the island was going to stretch all the way to our Angeline parking lot access. In a follow up letter to my daughter [redacted] you did say that the intention is to extend the island beyond our driveway entrance.
I have to express concerns here, in that this will cause hardship for our patients in gaining access to our office.
Please clarify this issue and provide a new drawing for what has been accepted, and when it may get started.
Regards
[redacted]

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s).

The City of Kawartha Lakes is currently investigating the potential addition of a pedestrian crossing of Angeline Street North within the project limits. As the EA and design progresses, we will continue to seek public input with respect to concerns such as these.

Thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s).

The City of Kawartha Lakes is currently completing an Active Transportation Master Plan (ATMP) which encompasses the subject corridor of Angeline Street North. In congruency with the ATMP, the Angeline Street North Reconstruction EA will consider the recommendations of the ATMP for implementation, where possible. It is encouraged that any further comments you may have regarding active transportation also be submitted as part of that separate ATMP process.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s).

As the Preferred Alternative and final reconstruction design have not yet been finalized, the configuration of the entrances and tree removal requirements at the northeast corner of the Angeline Street North/Colborne Street West intersection have not been finalized. However, we will continue to seek your input during the EA and design processes to ensure that the Preferred Alternative accommodates your objectives as much as is feasible.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s).

The close proximity of the two entrances is recognized, and we noted that relocation of the mall's north entrance would be subject to consultation/coordination with the corresponding landowner and consideration for potential impacts to their current site's operational layout. Ainley Group will coordinate with the City of Kawartha Lakes to review the potential opportunities to investigate improved vehicular and pedestrian safety at the sites' entrances.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Additionally, thank you for attending the Angeline Street/Kent Street stakeholder meeting held on November 3, 2022.

Through these consultation efforts, it is understood that your primary concerns are the potential impacts to your property's vehicular access and parking availability, as well as pedestrian access to the building.

After temporary delays to the EA process due to the global pandemic, among other factors, we are currently undergoing efforts to determine a Preferred Alternative, which will be discussed at a forthcoming PIC. We will continue to seek your input throughout the EA and design processes.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

As the Preferred Alternative and final reconstruction design have not yet determined, we cannot say with certainty whether the entrance will be maintained exactly as under existing conditions; however, the existing entrance locations are not planned to be altered by any of the design alternatives being evaluated. As the EA and design progresses, we will continue to seek your input to ensure that your concerns are addressed as much as is feasible.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

In response to your first comment regarding your concern for a potential increase in accidents at the intersection of Roosevelt Street and Broad Street, it is the City of Kawartha Lakes and Ainley Group's objective to provide a reconstruction design that adheres to all safety regulations and provides a safe environment for all motorists and pedestrians.

To address your second comment regarding your concern for the potential impacts to the visibility from your driveway through the removal of your garden wall: as the Preferred Alternative and final reconstruction design have yet to be determined, we cannot say with certainty whether removal of the garden wall will be required; however, we will continue to seek your input during the EA and design processes to ensure that your concerns are being addressed as much as is feasible.

To address your third comment that the proposed plan is based on future traffic volumes and that the current traffic levels do not support immediate change: the Transportation Master Plan (TMP), previously completed in 2012, identified sections of Angeline Street North that would not adequately accommodate the anticipated 2031 traffic demands. Although the TMP considers future traffic volumes, it is important to continuously update and improve the roadway network to plan for them prior to its capacity being exceeded. It should be noted, however, that the City of Kawartha Lakes

is currently undertaking efforts to update its TMP to consider 2051 traffic volumes. It is encouraged that your input also be submitted to that separate TMP process and the consultation opportunities it provides.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

The extent and limits of construction of the Preferred Alternative and detailed design have not yet been finalized. As a result, we cannot say with certainty the limit to which the four-lane cross-section of the reconstructed Angeline Street North roadway will extend northerly from its intersection with Colborne Street.

We thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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April 24, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

The City of Kawartha Lakes is currently completing an Active Transportation Master Plan (ATMP) which encompasses the subject corridor of Angeline Street North. In congruency with the ATMP, the Angeline Street North Reconstruction EA will consider the recommendations of the ATMP for implementation, where possible. It is encouraged that any further comments you may have regarding active transportation also be submitted as part of that separate ATMP process.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
139 Front Street, Unit 100, Belleville, ON K8N 2Y6
Tel: (613) 966-4243 • www.ainleygroup.com

**VIA EMAIL**

April 24, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

The City of Kawartha Lakes is currently completing an Active Transportation Master Plan (ATMP) which encompasses the subject corridor of Angeline Street North. In congruency with the ATMP, the Angeline Street North Reconstruction EA will consider the recommendations of the ATMP for implementation, where possible. It is encouraged that any further comments you may have regarding active transportation also be submitted as part of that separate ATMP process.

The close proximity of the two entrances is recognized, and we noted that relocation of the mall's north entrance would be subject to consultation/coordination with the corresponding landowner and consideration for potential impacts to their current site's operational layout. Ainley Group will coordinate with the City of Kawartha Lakes to review the potential opportunities to investigate improved vehicular and pedestrian safety at the sites' entrances.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC will be provided via public notice.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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VIA EMAIL

April 24, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

We would like to confirm that Ms. Sandy-McKenzie, the Williams Treaty First Nation Claims Coordinator, was previously contacted as part of the project consultation and PIC #1 activities.

Your response references the 'Special Consultation Framework' of the Consultation and Accommodation Standards. Ainley Group and the City of Kawartha Lakes will review its polices to ensure that our consultation efforts are completed in congruency with them. It is understood that a File Fee of $250.00 is required. Ainley Group will coordinate with the City of Kawartha Lakes for payment of this fee.

We will provide a statement indicating how the project will address the following identified areas of concern via a supplemental letter: possible environmental impact to our drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural value; and to endangered species; lands; savannas, etc.

As part of the EA process, our archaeological team conducted Stage I and II Archaeological Assessments within the subject section of Angeline Street North. The Stage I Archaeological Assessment was completed to provide a baseline level of data on known and potential cultural heritage resources within the project limits and to

delineate the archaeological potential of the area. The findings of the Stage I Archaeological Assessment warranted the undertaking of a Stage II Archaeological Assessment which conducted a test pit survey in order to determine the presence or absence of archaeological materials within the project limits. Ultimately, the Stage II Archaeological Assessment concluded that the project area be cleared of archaeological concerns. Both the Stage I and II Archaeological Assessment documents are provided via a temporary file sharing link provided in the email accompanying this letter.

If in the course of construction, excavation unearths bones, remains, or other such evidence of an Indigenous burial site or any other archeological findings, Curve Lake First Nation will be notified.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC are provided in the public notice attached to the email accompanying this letter.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

Mohawks of the Bay of Quinte
24 Meadow Drive
Tyendinaga Mohawk Territory, Ontario
K0K 1X0

Attn: **Mr. R. Donald Maracle, Chief**

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Chief Maracle:

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC. Please accept the following in response to your submitted comment(s):

As part of the EA process, our archaeological team has conducted Stage I and II Archaeological Assessments within the subject section of Angeline Street North. The Stage I Archaeological Assessment was completed to provide a baseline level of data on known and potential cultural heritage resources within the project limits and to delineate the archaeological potential of the area. The findings of the Stage I Archaeological Assessment warranted the undertaking of a Stage II Archaeological Assessment which conducted a test pit survey in order to determine the presence or absence of archaeological materials within the project limits. Ultimately, the Stage II Archaeological Assessment recommended that the project area be cleared of archaeological concerns. Both the Stage I and II Archaeological Assessment documents are provided via a temporary file sharing link provided in the email accompanying this letter.

The reconstruction of Angeline Street North will be conducted in compliance with all environmental laws and regulations in order to minimize environmental impacts. Mitigation measures will also be provided in the contract documents.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC are provided in the public notice attached to the email accompanying this letter.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

April 24, 2024 File No. 18545-2

Chippewas of Rama First Nation
5884 Rama Road, Suite 200
Rama, Ontario
L3V 6H6

Attn: **Community Consultation**

Ref: **Public Information Centre, February 28, 2019**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Community Consultation Team:

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #1 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on February 28, 2019. Since PIC #1, the project has been temporarily delayed due to the global pandemic among other factors; however, efforts are currently being undertaken to determine a Preferred Alternative that will be presented at a future PIC.

In response to comments provided, we would also like to confirm that Hiawatha First Nation, Curve Lake First Nation and the Mississaugas of Scogog Island First Nation, were all previously contacted as part of the project consultation and PIC #1 activities.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA. Further details about the forthcoming PIC are provided in the public notice attached to the email accompanying this letter.

Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Manager of Environmental Planning

cc. Alex Wilkinson, P.Eng.; Consultant Project Manager – Ainley Group
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

**VIA EMAIL**

October 22, 2024 File No. 18545-2

Curve Lake First Nation
22 Winookeeda Road
Curve Lake, Ontario
K0L 1R0

Attn: **Chief Keith Knott**

Ref: **Notice of Request to Consult**
**Angeline Street North Reconstruction**
**Lindsay, ON**

Dear Chief Knott:

As identified through previous correspondence and notices, Ainley Group the City of Kawartha Lakes (CKL) are completing a Municipal Class Environmental Assessment (MCEA) process in support of reconstruction of Angeline Street North in Lindsay, ON.

The project proposes the reconstruction of Angeline Street North, generally from Roosevelt Street to Colborne Street West, to accommodate projected traffic volumes along the corridor. The project is being completed as a Schedule 'B' activity through the MCEA process. Public Information Centre (PIC) #2 for the project was conducted on May 9, 2024, which presented a Preliminary Preferred Alternative for the roadway's reconstruction. The presentation materials from PIC #2 provide a comprehensive summary of the project and progress to date with respect to the MCEA process. Curve Lake First Nations' (CLFN) review of the presentation materials is requested to establish a foundational understanding of the project and better facilitate consultation efforts. The PIC #2 presentation materials are enclosed and also publicly available through the following web address:

https://www.kawarthalakes.ca/en/municipal-services/major-projects.aspx

Additionally, a summary indicating how the project will address specific areas of concern to CLFN within their Traditional and Treaty Territory, is provided below and as requested in their letter dated March 20, 2019.

**Possible Environmental Impact to Drinking Water** – A portion of the project site is located within Intake Protection Zone 2 (IPZ-2) of the Lindsay municipal drinking water system, as confirmed by Kawartha Conservation. However, the activities associated with the project are not anticipated to constitute a 'significant' drinking water threat, per the Ministry of the Environment, Conservation and Parks' *2017-2018 Table of Drinking Water Threats*. Furthermore, the design of the proposed

drainage infrastructure will be subject to approval through the CKL's *Consolidated Linear Infrastructure Environmental Compliance Approval* which prescribes stormwater quality treatment objectives in protection of downstream natural environments. During construction, caution will be exercised in the prevention of any fuel/oil spills; an emergency fuel/oil spill procedure will be established to mitigate the impacts of any spills, should they occur.

**Endangerment to Fish and Wild Games/Impact on Endangered Species, Lands, Savannas, etc.** – The project site is currently developed with a two-lane urban road cross-section having a shared left-turn centre lane. The project lands are not considered to contribute significantly to the natural environment. Based on the level of previous anthropogenic disturbance, and the project site's current use, the potential impact to fish and wild games, and endangered species, lands and savannas, is believed to be relatively minimal. Kawartha Conservation has not identified a need for further natural environment studies to support the planned reconstruction.

**Impact on Aboriginal Heritage and Cultural Values** – As noted in previous correspondence, Stage I and II Archaeological Assessments were completed along the Angeline Street North corridor. Ultimately, the Archaeological Assessments concluded that the project area be cleared of archaeological concerns. Digital versions of the Stage I and II Archaeological Assessment documents were previously provided to CLFN via a temporary file sharing link. As the project lands have been cleared of archaeological concerns, and the proposed use of the project lands is consistent with its current one, it is expected that the impact on Aboriginal Heritage and Cultural Values is limited.

In response to a previous notice for PIC #1, CLFN identified a requirement to complete consultation efforts through the Special Consultation Framework (SCF) specified by their Consultation and Accommodation Standards, which has been reviewed by Ainley Group and City of Kawartha Lakes staff, as well as a $250.00 File Fee.

It's noted that the requirements to complete the SCF were identified over five years ago, and prior to the CFLN being provided with the information of the above summary. Overall, the impacts to the identified areas of concern are believed to be relatively limited and appropriately mitigated; especially given the site's historical anthropogenic disturbance, current land use, and separation from the natural environment.

**We request that CLFN review the summary and PIC #2 presentation materials (link above) provided herein, and confirm if the SCF is still believed to be appropriate/warranted, given the project's relation to the identified areas of concern.**

The following Ainley Group and CKL staff members will serve as the main contacts for this project:

**Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone:(343) 266-0002 ext. 207
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Corby Purdy, C.E.T.**
**City of Kawartha Lakes**
322 Kent Street, PO Box 9000
Lindsay, ON K9V 5R8
Phone:(705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Please also copy the following Ainley Group and CKL staff member on any electronic correspondence:

**Scott Reynolds, B.Sc.(Env), EP**
**Ainley Graham & Associates Limited**
Email: scott.reynolds@ainleygroup.com

**Emily Turner**
**City of Kawartha Lakes**
Email: cpurdy@kawarthalakes.ca

If you require further information at this time, please contact the CKL and Ainley Group staff members noted above. Ainley Group and CKL staff will await confirmation on the most appropriate approach to progress the consultation process.

Sincerely,

Alex Wilkinson, P.Eng.
Consultant Project Manager

Enclosure
cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

**Vibrational and Structural Comments**

Your concern for the potential vibrational and structural impacts to the existing underground parking structure, as a result of the construction and the widened roadway, are noted and valid. As appropriate, the City of Kawartha Lakes (City) plans to complete ancillary site-specific vibrational and structural investigation efforts to address these concerns.

The initial stages of these investigations include efforts to establish a foundational understanding of the structure's existing/baseline conditions, and identify the potential impacts to it as a result of the roadway's construction and operation. The initial stages will identify if significant potential impacts are foreseen and, if warranted, further assessments to address them.

The field activities of the initial stages of the structural investigation (and topographic survey) were completed on September 19, 2024, and we appreciate your cooperation in completing it. A site visit for the vibrational investigation would be required to install monitoring devices on the inside and outside of the building; advance notice will be provided to coordinate this visit.

Concern for large vehicles was noted specifically within your comments. The existing and reconstructed roadway are expected/planned to accomodate large vehicle users (e.g., tractor-trailers and school buses). Please be aware, however, that the vibrational

and structural investigation efforts would consider the 'worst-case' loading associated with large vehicles, as appropriate.

**Site Design Comments**

The comments provided regarding the site's features and operations are greatly appreciated as it deepens our understanding of existing site features and operations that may be affected by the Preliminary Preferred Alternative.

Ultimately, City and Ainley Group staff are interested in exploring opportunities for the mitigation of these impacts. We believe these considerations, and any associated discussions, would be more productive if they were completed after the structural and vibrational investigations for the structure, and the detailed design of the reconstructed roadway, have been progressed. In doing so, the nature and severity of the impacts to the site, and the feasibility of potential mitigative solutions, can be better understood.

To begin progressing to that stage, a topographical survey of the site and underground parking structure was also completed during the previous site visit, to record features and elevations.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

May 9, 2025 File No. 18545-2

Curve Lake First Nation
22 Winookeeda Road
Curve Lake, ON
K0L 1R0

**Attn: Lois Taylor**
**Consultation Lead – Resources and Relationships**

**Re: Response to Curve Lake First Nation Letter**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

Dear Lois:

Thank you for your letter dated March 26th, 2025; the concerns outlined therein have been documented. Through the discussion provided by this response letter, we hope to address them to your satisfaction. To aid in the discussion, the Problem and Opportunity Statements for the Angeline Street North Reconstruction Municipal Class Environmental assessment are re-stated below:

**Problem Statement:** *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 EA studies for these intersections provided preferred intersection improvements which will be considered as part of this study for the Angeline Street North corridor.*

**Opportunity Statement:** *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.*

The concerns identified by Curve Lake First Nation's (CLFN) letter are discussed individually below:

- **Air Pollution** – An Air Quality Assessment was completed to investigate the potential impact of the Preliminary Preferred Alternative's (PPA) configuration on the air quality adjacent to a "Sensitive Receiver" at the northeast corner of the Kent Street West and Angeline Street North intersection (Ross Memorial Hospital property). The study included an assessment for a variety of contaminants including those identified in CLFN's letter. The Air Quality Assessment concluded that construction of the PPA improved the overall air quality impacts to the Sensitive Receiver in comparison to a "No Build" condition (i.e., maintaining existing conditions). The improved conditions were attributed to reduced congestion and idling periods.

- **Noise Pollution** – As outlined by the Problem and Opportunity Statements, the traffic demands are projected to increase by 2031 and the MCEA intends to determine a PPA to accommodate them; i.e., the improvements of the PPA are not proposed in order to increase traffic demands. Therefore, the traffic noise is expected to increase with traffic demand, regardless of the proposed design alternatives. Generally speaking, the PPA is anticipated to provide for reduced congestion and idling periods, as noted above. Additionally, the local ecosystem along the corridor is not believed to be significant given the previous level of anthropogenic disturbance and current land use along the corridor.

- **Tree Removal** – The degree of vegetation removal necessary to support reconstruction was a criterion considered in the evaluation of design alternatives, alongside other transportation, social, economic, natural, cultural and financial factors, to determine the PPA. Furthermore, it's a typical practice of the City of Kawartha Lakes to replace any removed tree with a new one, generally within the same location.

- **More Impervious Surfaces** – The relationship identified between the increase in impervious surfaces and increase in stormwater runoff is correct. The proposed reconstruction of Angeline Street North will include the design and installation of drainage infrastructure to address stormwater management (SWM) requirements related to quantity (peak flows and volumes) and quality (sediment removal) objectives, ensuring that downstream conditions are not worsened by the proposed reconstruction. Ultimately, an Environmental Compliance Approval will be obtained to support the drainage infrastructure per the *Ontario Water Resources Act* and *Environmental Protection Act.*

- **Spread of Invasive Species –** The risk for invasive species is generally limited to the construction stage when the soil is disturbed, and the introduction of equipment to a project site. Given that the project site is centrally located within an urban center, the existing presence of invasive species is considered to be generally limited; however, through the preparation of contract documents, inclusion of specifications to limit the spread of invasives will be reviewed and included where appropriate. Provisions in this regard may include management of soil movement, and clean equipment standards for entering and working at the site.

We trust that the discussion provided above addresses the concerns identified by CLFN in their previous letter as it relates the Angeline Street North Reconstruction project's MCEA process.

If you have any questions or further comments to provide, please don't hesitate to contact the undersigned.

Regards,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

**Vegetation Removal**

The degree of vegetation removal was considered as one of the criteria by which the Preliminary Preferred Alternative was evaluated. The impact to the natural environment was balanced wholistically alongside the benefits/impacts to other environments (e.g., technical, social/cultural, economic/financial).

The exact extent of vegetation removal within your property is not fully known at this preliminary stage. Based on the projected footprint of the Preliminary Preferred Alternative, and as presented at PIC #2, a portion of the existing hedge and the bush located next to it would appear to be impacted; no existing trees within the property appear to be impacted at this stage. A more comprehensive understanding of the impacts to on-site vegetation is anticipated during detailed design when the alignment and boulevard grading of the reconstructed roadway have been progressed.

The addition of vegetation within the right-of-way would increase its width requirements (i.e., increase the land required) in order to retain municipal ownership of them and facilitate their maintenance. The mitigation of site-specific impacts within your property can be discussed with City of Kawartha Lakes (City) and/or Ainley Group staff during a future site visit.

**Driveway Functionality**

The exact length of driveway to be removed, and the resulting grade of the remainder, is not fully known at this preliminary stage. The design of the Preliminary Preferred Alternative intends to achieve the driveway grading requirements of the City's

Infrastructure Guidelines: "a minimum 2.0% grade… up to a maximum of 8.0% on low volume local roads". A maximum grade of 6.0% would most likely be pursued for design purposes based on the traffic volume of Angeline Street South.

A more comprehensive understanding of the impacts to the driveway is anticipated during detailed design when the alignment and boulevard grading of the reconstructed roadway have been progressed. Additional topographical data has recently been obtained along the corridor to support detailed design efforts.

**Gas Service**

As is typical of road reconstruction projects, the City and Ainley Group will coordinate with all utility providers, including Enbridge, to identify and complete any required service relocations.

**Road and Roadside Safety**

The design of the reconstructed roadway will be completed in accordance with the Transportation Association of Canada's *Geometric Design Guide for Canadian Roads*, which provides design guidance in consideration of both on-road and roadside safety in general relation to speed limits. The posted speed limit along the Angeline Street corridor is not proposed to be increased through the Preliminary Preferred Alternative.

The purpose of the Preliminary Preferred Alternative's additional lanes is to improve the operating capacity of the Angeline Street corridor to better accommodate projected future traffic volumes (which are projected to occur regardless of any proposed reconstruction). By increasing its operating capacity, an improved efficiency for traffic movement through the corridor, and a reduction in congestion, is anticipated. Generally speaking, the "stop-and-go" nature of traffic congestion often leads to an increase in aggressive driving maneuvers. The proposed additional lanes would permit passing to the benefit of improved traffic flow, but not in excess of the posted speed limit, as traffic can navigate around vehicles travelling at excessively low speeds or turning into entrances.

As Preliminary Preferred Alternative proposes to maintain existing speed limits, help to mitigate traffic congestion, and implement the guidance of the preeminent source for road design guide, it is not associated with any significant impact to on-road and roadside safety.

**On-Site Meeting**

City and/or Ainley Group staff agree that an on-site meeting may be beneficial to discuss site-specific concerns and details. As noted above, the exact extents of some design aspects are not yet known; a more comprehensive understanding of the impacts is anticipated during detailed design. To ensure our discussions are productive, we propose scheduling this meeting for when we have progressed into the detailed design stage.

We are happy to have had this opportunity to provide an initial response to your comments, and look forward to addressing them further via our future on-site meeting. Thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

Gagnon Walker Domes Ltd. (GWD Planners)
7685 Hurontario St., Suite 501
Brampton, ON K9V 4R1

[redacted]

Ref: **Public Information Centre #2 Comments**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for providing comments with regard to Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA), and your patience through the resolution of the transmission error during the issuance of its public notice. We are pleased to confirm that the provided comments will still be formally recorded in the PIC's documentation. Please accept the following in response to your submitted comment(s).

It's our understanding that GWD Planners represents 2607226 Ontario Inc. (Sunray Group) with respect to their proposed development of the approximately 1.6 ha vacant property generally located across from the Town & Country Centre and Lindsay Professional Building. Based on the provided Site Plan (revised October 17, 2022), Two (2) entrances are proposed as part of the development to provide access/egress from subject property, generally in the following locations:

- South entrance – approximately 50 m to the north of Chadwin Drive
- North entrance – approximately 120 m to the south of Colborne Street West and opposite the existing entrance to the Lindsay Professional Building.

The MCEA process will consider the proposed commercial development, including its proposed access locations, in all future phases of the study. It should be noted that the design of the proposed entrances is beyond the current scope of the project and remains the responsibility of the developer.

We can also confirm that none of the alternatives evaluated by the MCEA considered road widening (i.e., property acquisition) of the Angeline Street North right-of-way along the frontage of the subject property.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Nikhail Dawan, B.E.S; Planning Associate – GWD Planners
Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

**AINLEY GRAHAM & ASSOCIATES LIMITED**
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

As part of the EA process, our archaeological team conducted Stage I and II Archaeological Assessments within the subject section of Angeline Street North. The Stage I Archaeological Assessment was completed to provide a baseline level of data on known and potential cultural heritage resources within the project limits and to delineate the archaeological potential of the area. The findings of the Stage I Archaeological Assessment warranted the undertaking of a Stage II Archaeological Assessment which conducted a test pit survey in order to determine the presence or absence of archaeological materials within the project limits. Ultimately, the Stage II Archaeological Assessment concluded that the project area be cleared of archaeological concerns. Both the Stage I and II Archaeological Assessment documents are provided via a temporary file sharing link provided in the email accompanying this letter.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

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**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

The concrete median of the north leg of the Angeline Street North and Kent Street West intersection, is planned to extend beyond the entrance location of the Dentistry on Kent property. In doing so, unsafe lefthand-turn movements into and out of the property are expected to be prevented.

The potential difficulties for patients turning right onto Angeline Street North from this entrance location and wishing to then turn left onto Kent Street West, can be appreciated. Unfortunately, given the entrance's proximity to the intersection, the feasibility of improving this movement through the roadway's design is considerably restricted; however, efforts will be taken to better facilitate it where possible.

For patients exiting via this entrance and wishing to travel the eastbound lanes of Kent Street West, the nearby Roosevelt Street is believed to provide some benefit. Roosevelt Street, located less than 150 m from the subject intersection, provides access to Adelaide Street which has a signalized intersection with Kent Street West

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

We acknowledge that the project site is located partially within the Intake Protection Zone 2 (IPZ-2) for the Lindsay municipal drinking water system. Consideration will be made in the design and planning of proposed works and their construction, as appropriate. At this time, the proposed works are not anticipated as constituting a Significant Drinking Water Threat (per the 2017-2018 Table).

An Erosion and Sediment Control Plan will be prepared as part of the detailed design stage to prevent sediment/turbid materials from entering the drainage waters within the IPZ-2 during construction. The proposed drainage infrastructure will be designed for acceptance through the City's Consolidated Linear Infrastructure Environmental Compliance Approval. As a result, the proposed works are expected to also achieve prescribed stormwater quality requirements, including sediment removal, prior to discharging to the drainage waters within the IPZ-2 after their construction (i.e., during normal operating conditions).

Caution is expected to be exercised by the Contractor during construction. Additionally, the typical Special Provisions of the City's tender contract documents include requirements for the reporting of the spills or discharges of pollutants or contaminants to the Contract Administrator.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
Tel: (343) 266-0002 • www.ainleygroup.com

**VIA EMAIL**

October 22, 2024 File No. 18545-2

[redacted]

[redacted]

Ref: **Public Information Centre #2, May 9, 2024**
**Angeline Street North Reconstruction, City of Kawartha Lakes**

[redacted]

Thank you for attending, and/or providing comments with regard to, Public Information Centre (PIC) #2 of the 'Angeline Street North Reconstruction' Municipal Class Environmental Assessment (EA) process held on May 9, 2024. Please accept the following in response to your submitted comment(s).

Comments were provided with respect to two properties located at the Angeline Street North and Colborne Street West intersection:

- Southeast Quadrant: Colborne Lodge (133 Colborne Street West); and,
- Northeast Quadrant: Fairview Baptist Church (130 Colborne Street West)

Firstly, we are pleased to inform you that representatives for each of the respective properties have been circulated on notices for the ongoing EA process; the most recent instance being the notice for PIC #2.

The comments you've provided generally pertain to the entrances along Angeline Street North for each of the above-noted properties. The concrete medians of the north and south legs of the Colborne Street West and Angeline Street North intersection are planned to extend beyond these entrance locations. In doing so, unsafe lefthand-turn movements into and out of the properties are expected to be prevented.

At this time, it can be confirmed that the existing entrance location for Colborne Lodge is planned to be maintained under proposed conditions as it provides the only access/egress for the main parking lot.

It's currently unknown if the subject entrance of the Fairview Baptist Church property will be maintained under proposed conditions. Although there is a preference for its continued use, if the entrance's proximity to the Colborne Street West and Angeline Street North intersection poses safety concerns to its users, it may warrant closure/removal. Access/egress for the parking area would still be provided via the other

existing entrance that is proposed to be maintained along Colborne Street West. If closure of the Fairview Baptist Church's Angeline Street North entrance is warranted, direct consultation with the affected parties would be completed to mitigate the impacts to the site's operations as much as feasible.

We trust that we have addressed your concerns at this time and thank you for your continued interest in the Angeline Street North Reconstruction EA.

Sincerely,

Alex Wilkinson, P.Eng.
Project Engineer

cc. Corby Purdy; Mgr., Infrastructure Design and Construction – City of Kawartha Lakes

**From:** Veronica Nelson <vnelson@rmh.org>
**Sent:** October 24, 2022 8:34 AM
**To:** Alexander Wilkinson
**Cc:** Brian Paquin; Corby Purdy; Mark Zahra; Veronica Nelson
**Subject:** RE: 18545-2 - Angeline Street - RMH Diesel Storage Tank

HI Alex
We reviewed the drawings. We would not want to depend on the drawings we have for what is in that area.

1. Our mechanical consultant is HH Angus. We would be happy to work with your team to investigate and anticipate these costs would be covered by your project.
2. Our main IT line from eHealth crosses Angeline St N – severing this would significantly impact hospital operations. We believe it is owned by Hydro and managed by Bell.
3. The hospital signs are also in this area – please let us know how they may be impacted.
4. It appears with the proposed median on Angeline St N, the exit from the hospital would need to become a one-way and we would expect changes to curbs/etc would be included in this project.

Regards,

Veronica

---

**From:** Veronica Nelson <vnelson@rmh.org>
**Sent:** October 11, 2022 8:26 AM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Cc:** Brian Paquin <brian.paquin@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>; Veronica Nelson <vnelson@rmh.org>; Mark Zahra <mzahra@rmh.org>
**Subject:** RE: 18545-2 - Angeline Street - RMH Diesel Storage Tank

Are you able to share your drawings so we can review before responding?

V

Veronica Nelson (she/her)
MMedRadSc, BASc, AC(R), MRT(R), CTIC

***Exceptional Care - Together***

VP & Chief Operating Officer
Ross Memorial Hospital
O. 705.328.6086 | M. 705.879.9632 |vnelson@rmh.org | www.rmh.org
10 Angeline St. N., Lindsay, Ontario K9V 4M8

---

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** October 7, 2022 3:31 PM
**To:** Veronica Nelson <vnelson@rmh.org>; Mark Zahra <mzahra@rmh.org>

**Cc:** Brian Paquin <brian.paquin@ainleygroup.com>; Corby Purdy <cpurdy@kawarthalakes.ca>
**Subject:** RE: 18545-2 - Angeline Street - RMH Diesel Storage Tank

Hi Veronica and Mark,

Thank you for the prompt response to my previous email – nice to meet you two virtually as well. We've added the provided documents to our record, and the sensitivities to the data/fibre lines are noted. I've copied Corby from the City on this email for his reference as well.

Would you have any additional information available for the existing ventilation structures? We are trying to understand their current use to assess how our design alternatives would impact them. If their openings to the surface were to be relocated easterly, broadly speaking, what would be the impacts to their operation/ implications to their configuration?

Additionally, the drawings appear to show some modifications within the parking area to bring the curb line westerly towards the ventilation structures. The most recent Streetview (June 2021) does not reflect the proposed conditions. Has the construction since been completed? If not, does RMH still intend to complete the modifications?

Much appreciated,

Alex Wilkinson, P.Eng.
Project Engineer

Ainley

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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---

**From:** Veronica Nelson <vnelson@rmh.org>
**Sent:** September 23, 2022 8:38 AM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Cc:** Brian Paquin <brian.paquin@ainleygroup.com>; Veronica Nelson <vnelson@rmh.org>; Mark Zahra <mzahra@rmh.org>
**Subject:** RE: 18545-2 - Angeline Street - RMH Diesel Storage Tank

HI Alexander,

Nice to meet you virtually. We have also had staffing changes. Mark Zahra is our new Director of Facilities (copied here). Please correspond with both of us.

We removed the underground diesel tanks and replaced them with one above ground tank. The satellite drawing also shows the location of where the underground tanks were. I have asked for a copy of the drawings from the diesel project which will show where the new tank and lines are – will send separately.

There are critical data/fibre lines to eHealth Ontario coming into the hospital along this side of Angeline St N. Cutting these, disconnects the hospital from everything. Unfortunately, we don't have any drawings of when these were put in,

but have shown the vicinity of these lines. We understand they are owned by Hydro One who contracts service maintenance to Bell. We have contacted our Bell rep to see if he has more information on the actual locations of the lines as these were recently cut/damaged – will send separately.

We appreciate being involved in this project.

Thanks,

Veronica Nelson (she/her)
MMedRadSc, BASc, AC(R), MRT(R), CTIC

***Exceptional Care - Together***

VP & Chief Operating Officer
Ross Memorial Hospital
O. 705.328.6086 | M. 705.879.9632 |vnelson@rmh.org | www.rmh.org
10 Angeline St. N., Lindsay, Ontario K9V 4M8

---

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** September 23, 2022 7:30 AM
**To:** Vic Tavaszi <vtavaszi@rmh.org>
**Cc:** Brian Paquin <brian.paquin@ainleygroup.com>; Veronica Nelson <vnelson@rmh.org>
**Subject:** 18545-2 - Angeline Street - RMH Diesel Storage Tank

Good Morning Vic,

Ainley Group is working with the City of Kawartha Lakes to advance the ongoing Environmental Assessment process for the widening of Angeline Street in Lindsay. You may recall last corresponding with our office in January 2019 through Elizabeth Bonucchi.

The process has been delayed due to COVID, among other factors, and the City of Kawartha Lakes, with the support of Ainley Group, plans to resume it this fall. Since 2019, there have been staffing changes within Ainley Group, and I have since assumed Elizabeth's previous role on this project. I look forward to working with RMH staff through the public consultation and design processes. At this time, I'm hoping to gather more information about the underground infrastructure located along the east property line immediately to the north of Kent Street intersection.

From the records I have available to me, it appears that you and Veronica Nelson had a call with Elizabeth on January 27, 2019 and discussed this matter. From what I infer, the underground infrastructure at the time consisted of diesel storage tank and ventilation structures. The diesel storage tank had been "red tagged" in November 2018, and RMH was in the midst of deciding how to address the matter with any necessary construction anticipated in Spring or Summer 2019.

Could RMH please provide any details (including drawings) related to what the chosen course of action ultimately was and whether it has been completed?

I recognize that a significant amount of time has passed since Ainley Group's last discussion with RMH staff, so if you're not the appropriate contact, could you please direct me to someone that could assist me?

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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**From:** Vic Tavaszi <vtavaszi@rmh.org>
**Sent:** January 24, 2019 12:21 PM
**To:** Elizabeth Bonucchi
**Subject:** RE: 18545 | Angeline Street North

**Flag Status:** Completed

Hi Elizabeth

Great, let's set the time then for 3pm. We will call you on the number you have listed below.

Thanks

Vic Tavaszi P.Eng
Director of Engineering and Maintenance
Ross Memorial Hospital
705-328-6135
vtavaszi@rmh.org

---

**From:** Elizabeth Bonucchi [mailto:bonucchi@ainleygroup.com]
**Sent:** January 24, 19 12:14 PM
**To:** Vic Tavaszi
**Subject:** RE: 18545 | Angeline Street North

Hi Vic,

Yes I am free until 4 pm today.

Regards,
Elizabeth Bonucchi, P.Eng.
Senior Engineer
Ainley Graham & Associates Limited
1-50 Grant Timmins Drive
Kingston, Ontario, K7M 8N2
Tel: (343) 266-0002 ext. 207
Fax: (343) 266-0028
bonucchi@ainleygroup.com

---

**From:** Vic Tavaszi <vtavaszi@rmh.org>
**Sent:** January-24-19 12:10 PM
**To:** Elizabeth Bonucchi <bonucchi@ainleygroup.com>
**Subject:** RE: 18545 | Angeline Street North

Hi Elizabeth

Would you be available for a quick call this afternoon with myself and my boss. She would like to get a better idea of what is being proposed.

Thanks

Vic Tavaszi P.Eng
Director of Engineering and Maintenance
Ross Memorial Hospital
705-328-6135
vtavaszi@rmh.org

---

**From:** Elizabeth Bonucchi [mailto:bonucchi@ainleygroup.com]
**Sent:** January 23, 19 1:51 PM
**To:** Vic Tavaszi
**Cc:** Corby Purdy
**Subject:** 18545 | Angeline Street North

Hi Vic,

Further to our conversation, Ainley Graham & Associates Limited (Ainley Group) has been retained by the City of Kawartha Lakes to undertake the Municipal Class Environmental Assessment and Design for the Angeline Street North corridor, between Kent Street and Colborne Street West. We are in the initial planning stages of the project and are reviewing various alternatives to widen the road in order to accommodate traffic demands.

We are interested in obtaining any information you can provide regarding the existing underground ventilation structures and access points located to the west of the hospital, please see highlighted image below. Any As-Built drawings that would indicate the size of the structures, their use, their limitations with respect to traffic loading, etc. would be greatly appreciated.

As a major stakeholder along the corridor, alternatives will be presented to Ross Memorial Hospital for comment. The first of two Public Information Centres is expected to be held at the end of February; notification will be provided.

Thanks in advance for your assistance, please let me know if you have any questions at this time.

Regards,
Elizabeth Bonucchi, P.Eng.
Senior Engineer

Ainley Graham & Associates Limited
1-50 Grant Timmins Drive
Kingston, Ontario, K7M 8N2
Tel: (343) 266-0002 ext. 207
Fax: (343) 266-0028
bonucchi@ainleygroup.com

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Tel: (343) 266-0002 • www.ainleygroup.com

# Meeting Minutes

**Project:** City of Kawartha Lakes
Angeline Street North Reconstructions
Project No. 18545-2

**Date:** Thursday, January 9, 2025

**Time:** 1:30 PM to 2:30 PM

**Location:** Virtual Meeting via Microsoft Teams

**Present:** See List Below

City of Kawartha Lakes (CKL):

- John Innes – Supervisor, Capital Projects; jinnes@kawarthalakes.ca

Ross Memorial Hospital (RMH):

- Andy Jacovou – Interim Director, Re-Development; ajacovou@rmh.org
- Christine Wood – Interim Director, Nutrition Services & Maint.; cwood@rmh.org

Ainley Group (AG):

- Alex Wilkinson – Project Engineer; alexander.wilkinson@ainleygroup.com
- Scott Reynolds – Mgr. of Enviro. Planning; scott.reynolds@ainleygroup.com
- Brian Paquin – Executive Vice President; brian.paquin@ainleygroup.com

Northern Applied Sciences (NAPSCI):

- Chris Scullion – Principal; scullion@napsci.io
- Stephen Kuchma – Principal; kuchma@napsci.io

**Distribution:** All Present + List Below

City of Kawartha Lakes (CKL):

- Corby Purdy – Mgr, Infrastructure Design and Const.; cpurdy@kawarthalakes.ca
- Juan Rojas – Director of Eng. and Corporate Assets; jrojas@kawarthalakes.ca
- Joseph Kelly – Sr. Eng. Tech., Eng. & Corporate Assets; jkelly@kawarthalakes.ca

## Background and Purpose of Meeting

In November 2022, a discretionary meeting was conducted with stakeholders located adjacent to the Angeline Street North and Kent Street West intersection. At that meeting, RMH staff (all of which have since been succeeded by those present at the current meeting) identified the hospital's on-site ventilation structures as being at-grade air intakes to the building. Amongst other comments, the quality of air received by the intake structures was identified as a primary concern of RMH staff.

In 2024, the CKL directed AG to engage NAPSCI to complete an air quality assessment for the identified structures. In NAPSCI contacted RMH staff seeking confirmation of the structures' purposes and operation. In response, RMH staff noted that they had other concerns with the project to share in addition to the air quality aspects. It was decided that a meeting between the attending parties would be beneficial to receive these comments in addition to the primary intent of confirming the ventilation structures' purpose/operation.

## 1 Overview of Current Study and the Environmental Assessment Process

NAPSCI staff provided a brief summary of the intent of the air quality assessment, and identified the need for RMH staff to definitively identify the purpose of the ventilation structures so as to help them better direct the scope of their efforts.

AG staff provided a brief overview of the Environmental Assessment process, in general, and the history of the current project. AG staff will provide a webpage link to RMH staff where they can find further details about the project.

**Action By: Ainley Group**

## 2 Ventilation Structures

RMH staff provided a general description of the ventilation structures' function:

- Believed to be "fresh air intakes" for the Hospital's boiler room, and that the boiler room is designed to rely on positive air pressure.
- The connection between the ventilation structures and boiler room is passive; i.e., there is no fan driving air flow between the two locations. As a result, air flow could be observed in either direction, depending on atmospheric conditions.
- Historically, staff have been warned to prevent diesel engines from running for prolonged periods near the fresh air intake structures to limit the risk for their exhaust fumes into the structure.

RMH staff committed to confirming, with certainty, the purpose of the ventilation structures via forthcoming correspondence.

*[Post-Meeting Note: a photograph of a mechanical schematic drawing has been provided since the meeting; a written description of the ventilation structures' purposes was requested by AG staff in response.]*

**Action By: Ross Memorial Hospital**

## 3 Stakeholder Concern – Air Quality

RMH staff noted that, while the quality of air at the ventilation structure should be considered, it is not their primary concern with the reconstruction of Angeline Street North (see Item No. 5).

RMH staff acknowledged that the air quality during road reconstruction represents short-term conditions and, resultingly, their concern is minimal. Care should be taken during construction to limit the runtimes of equipment in close proximity to the structures.

RMH staff speculated that the improved traffic efficiency along Angeline Street North, associated with the operation of the Preliminary Preferred Alternative, may improve/offset the impacts to air quality at the ventilation structures.

AG staff reiterated that the currently planned course of action is to proceed with the air quality assessment through NAPSCI; but will confirm with CKL whether the forthcoming confirmation of the ventilation structures' purpose has the potential to influence its scope.

**Action By: Ainley Group and City of Kawartha Lakes**

## 4 Review of Existing RMH Site Access/Egress

RMH staff answered questions about the site, and relayed observations about current access/egress features/trends. This information has been summarized in the attached figure.

## 5 Stakeholder Concern – Site Access/Egress

RMH staff highlighted that the only public access to the Emergency Room and only ambulance access to the ambulance bay, are along Angeline Street North. Maintaining these accesses during construction is of paramount concern to RMH staff. AG staff noted that they, along with the CKL, planned to consult with RMH staff during the future detailed design stage to establish an access plant to the latter's satisfaction; RMH staff agreed to further discuss and work to address the concern at that future project stage.

RMH staff noted that lefthand-turn maneuvers, from the parking lot entrance onto Angeline Street North, were difficult at times due to significant vehicle queuing in the

southbound lanes of the north leg of the Kent Street West/Angeline Street North intersection. Additionally, a notable increase in the volume of pedestrian users, especially crossing Angeline Street North, has been observed near the same parking lot entrance; RMH staff attribute this to the recent completion of the Community Care center located there (it should also be noted that the Community Care center's entrance is located opposite of the RMH entrance). RMH staff had wondered if the degree of traffic at this parking lot entrance warranted the installation of traffic signals in the future. AG staff noted that the Preliminary Preferred Alternative was expected to improve vehicle queueing efficiency of the subject lanes, which should alleviate the observed issues to some degree. Additionally, the influence of the traffic signals on the north leg of the subject intersection may lead to less desirable traffic efficiency overall. *[Post-Meeting Note: AG staff will discuss RMH comments regarding traffic signalization with the CKL, as it is currently outside of the project scope.]*

RMH staff have concerns for the increased complexity of left-hand turns from the subject entrance onto Angeline Street North; vehicles that are egressing from the RMH parking lot entrance would need to cross two northbound lanes under proposed conditions, as opposed to the one lane under existing conditions. AG staff recorded the comment and noted that the Preliminary Preferred Alternative is intended to improve the efficiency of traffic flow through the corridor for future projected traffic volumes.

Any errors and/or omissions from these Minutes should be reported to the undersigned as soon as possible.

Minutes prepared by:

Alex Wilkinson, P.Eng.
Project Engineer

K:\Projects\18545 - Colborne St W and Angeline St N (CKL)\18545-2 Angeline St N\Environmental\Consultation\Consultation Events\Stakeholder Meetings\2025.01.09 - Ross Memorial Hospital Staff\18545-2 - Meeting Minutes - RMH (09 JAN 25).docx

Additional Notes Recorded for Hospital Site from Meeting with Ross Memorial Hospital on 09 JAN 24

Angeline Street North Reconstruction
Project No. 18545-2
10 JAN 24

## David Davison

**Subject:** FW: Angeline St N reconstruction project

**From:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Sent:** October 9, 2024 7:49 AM
**To:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Cc:** John Innes <jinnes@kawarthalakes.ca>; Brian Paquin <brian.paquin@ainleygroup.com>
**Subject:** FW: Angeline St N reconstruction project

**From:** [redacted]
**Sent:** Monday, October 7, 2024 12:56 PM
**To:** Corby Purdy <cpurdy@kawarthalakes.ca>; Doug Elmslie <delmslie@kawarthalakes.ca>; Dan Joyce <djoyce@kawarthalakes.ca>; Eric Smeaton <esmeaton@kawarthalakes.ca>; Mike Perry <mperry@kawarthalakes.ca>
**Cc:** [redacted]
**Subject:** Angeline St N reconstruction project

Hi Mayor, Councillors and Mr. Cody Purdy-Manager of Infrastructure of Design and Construction

I am writing to you as one of the owners of the Lindsay Professional Building at 65 Angeline St N. I am aware that the City of Kawartha Lakes has a plan to reconstruct Angeline St N which will involve expropriation of our property as well as property to the north and south of our property. Our driveway entrance to Angeline St cannot be moved. Presently, it is combined with our neighbours to the south, the Mall. it is my opinion and that of my co-owners that, for safety reasons, it would be the opportune time to have the common driveway divided. This would be the decision of the Mall but I would encourage our City of Kawartha Lakes leadership to advocate for this decision.

Thank you for your attention.

Regards

[redacted]

[redacted]

[redacted]

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Belleville, Ontario
K8N 2Y5
Tel: (613) 966-4243
Fax: (613) 966-1168

# PUBLIC INFORMATION CENTRE #1 SUMMARY REPORT

## Angeline Street North Reconstruction

**City of Kawartha Lakes**

**April 2019**

**Submitted To:**

City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8

# Public Information Centre #1 Summary Report

for

Angeline Street North Reconstruction

CITY OF KAWARTHA LAKES

Prepared by Ainley Group

April 2019

Prepared By:

Scott Reynolds, B.Sc. (Env), EP
Senior Environmental Planner
Ainley Group

Elizabeth Bonucchi, P.Eng.
Senior Engineer
Ainley Group

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**Appendix B** - Public Information Centre Display Boards / Comment Sheet / Sign-in Sheet

**Appendix C** - Received Comments Before the PIC

**Appendix D** - Received Comments At and After the PIC

## 1.0 The Study

The City of Kawartha Lakes has retained Ainley Graham & Associates Limited (Ainley Group) to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for improvements to Angeline Street North, in Lindsay, Ontario. The project limits are located between Colborne Street West and Roosevelt Street, and the study limits are shown in **Figure 1**.

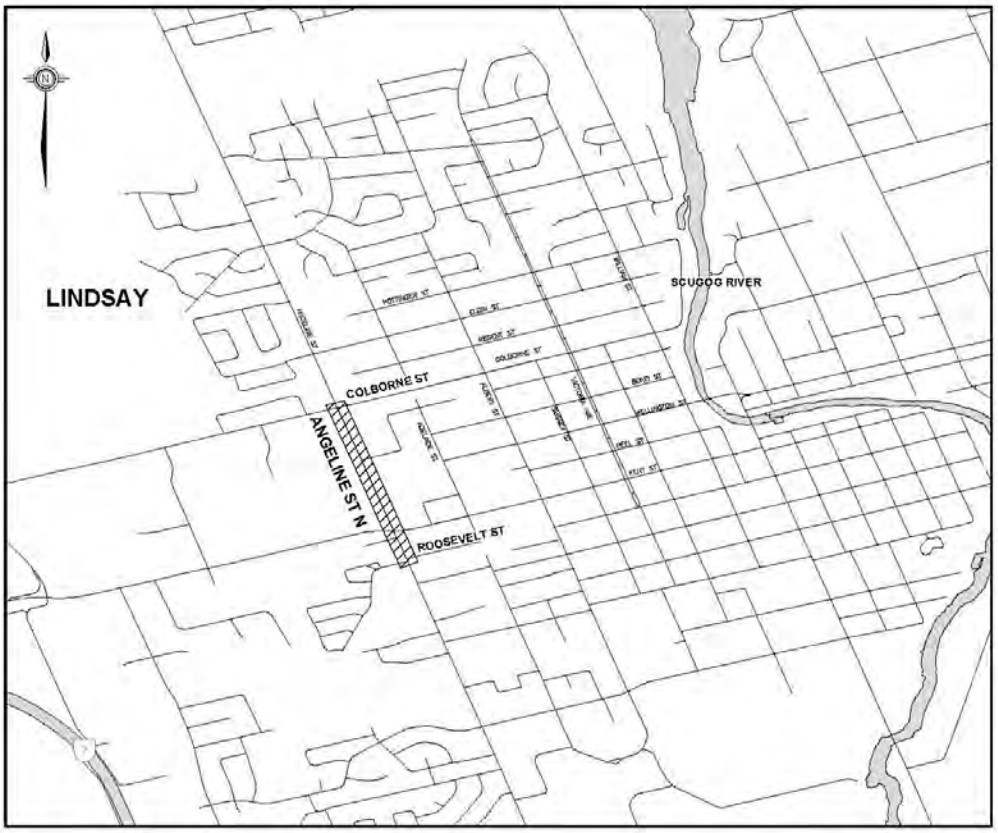



**Figure 1 - Key Map**

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. As part of the study, two (2) areas of improvement were identified on Angeline Street North at both the Kent Street West and Colborne Street West intersections. The Angeline Street North improvements include intersection improvements at Kent Street West and Colborne Street West and the evaluation of potential widening up to four (4) lanes to address future traffic demands.

In order to evaluate potential options to address the intersections at Kent Street West and Colborne Street West, the City of Kawartha Lakes has initiated the MCEA process.

## 2.0 The Process

The proposed improvements to Angeline Street North are classified as a Schedule B undertaking in accordance with the MCEA. Consultation is an important element of the MCEA process, and to provide information to members of the public, stakeholders / businesses, emergency services, and Indigenous Groups, the first of two (2) Public Information Centres (PIC) was hosted on February 28, 2019. The first PIC was hosted to present the proposed alternatives to members of the public and agencies, seek input and comment on the key aspects of the project, and provide technical and design input in response to any questions brought forward at the PIC and throughout the comment period.

The first PIC for this project was held in the Community Room at the Lindsay Recreation Complex on Thursday, February 28th, 2019 from 4:30 pm to 6:30 pm.

### 2.1 Public and External Agency Notification

A Notice of Study Commencement and Public Information Centre was advertised in the Kawartha Lakes This Week on February 21st and February 28th, 2019 and in the Kawartha Promoter on February 21st, 2019 providing notice of PIC#1. A copy of the notice was also provided on the City of Kawartha Lakes website commencing on February 13th, 2019.

In addition to the newspaper advertisement and notification on the Municipal website, notification was made through letter correspondence to external agencies, Indigenous groups, and stakeholders, on February 15th and 26th, 2019 providing information regarding the project and the date/time of the PIC.

A copy of the Notice of Study Commencement and Public Information Centre published in the newspaper and an example correspondence detailing the PIC date and time sent to agencies / stakeholders is provided in **Appendix A**.

### 2.2 Purpose of the Public Information Centre

The Public Information Centre was held to present the alternative solutions and background information for the improvements and potential widening of Angeline Street North to members of the public, agencies, and stakeholders. Individuals from the City of Kawartha Lakes and Ainley Group were in attendance at the PIC to present information and to answer any questions.

Member of the public and agencies were invited to review the display boards presenting the proposed information. The display boards at the PIC included the following:

- Welcome Statement
- Project Location Plan
- Municipal Class EA Planning and Design Process

- Study Purpose and Background
- Problem and Opportunity Statement
- Preliminary Alternative Designs
- Preliminary Alternative Design Summary
- Preliminary Assessment Criteria for Alternative Solutions
- Next Steps

Sign-in forms and comment sheets were provided at the PIC and attendees were encouraged to complete and deposit forms in the comment box. Interested members were also given the option to provide comments by email, fax, or mail, or through the online comment form on the City of Kawartha Lake's website, with comments being requested by March 15th, 2019.

Comment sheets, the sign-in sheet, and display boards provided at the PIC are provided in **Appendix B**.

### 2.3 Project Staff Attendance at the PIC

The following members of the Study Team were present at the Public Information Centre:

- Corby Purdy – Supervisor, Infrastructure Design & Construction – City of Kawartha Lakes
- Joseph Kelly – Senior Engineering Technician – City of Kawartha Lakes
- John Innes – Senior Engineering Technician – City of Kawartha Lakes
- Juan Rojas – Director of Engineering and Assets – City of Kawartha Lakes
- Elizabeth Bonucchi – Project Manager – Ainley Group
- Scott Reynolds – Senior Environmental Planner – Ainley Group
- Chris Teepell – Project Manager – Ainley Group

### 2.4 Public / Agency Attendance at the PIC / Response

The following interested persons attended the PIC:

- Five (5) representatives of agencies / stakeholders;
- Ten (10) plus members of the public;
- Seventeen (17) individuals / stakeholders filled out a comment sheet or provided an email response at / after the PIC.

### 2.5 Summary of Comments Received Before the PIC

There was one (1) agency within the project area that provided comments prior to the PIC after receiving the Notice of Commencement and PIC. A general summary of the comment is provided below:

- Stated that they own a business within the project limits and are concerned about the loss of property and trees from the expansion to 4 lanes. 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.

A copy of the comment received before the PIC is provided in **Appendix C**.

### 2.6 Summary of Comments Received At and After the PIC

The visitors who attended the PIC were mainly community members of the City of Kawartha Lakes. Seventeen (17) individuals / stakeholders provided comment at / after the PIC via email or the provided comment sheets. Summaries of the comments are provided below:

- 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 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. CLFNs concerns with the project include: 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.

- Concerns about elderly pedestrians crossing Angeline Street from Chadwin Drive and the increase of traffic that uses Chadwin Drive to avoid the Angeline Street North and Colborne Street West intersection.

- Respondent noted that they are not in favour of any of the options as getting in and out of the driveway with the existing three lanes of traffic is currently difficult. The existing road noise is very loud and do not want to lose the trees in the front yard by bringing the road closer. 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 North and Colborne Street West 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. Also stated concerns with potential for business disruption during the construction phase. A formal response was also submitted.

- Respondent inquired as to the extent to the north of Colborne Street West and Angeline Street North the widening to four lanes would be completed and on which side of Angeline Street would property acquisition be required.

- Any redesign must incorporate accommodation for bicycle and E-bike use as there will be future increases in active transportation. Existing infrastructure for cyclists currently directs users onto Thunderbridge Road and Angeline Street North, while west of Angeline Street North, St. Josephs Road incorporates bike lanes.

- The driveway into the mall on Angeline Street North 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 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. Also, sidewalks should be constructed on both sides of Angeline Street North to keep with the 2014 Provincial Policy Statement.

- The access to the medical building on Angeline Street North has been awkward and dangerous for many years due to the crossing traffic going into the medical building and mall parking lot. 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 environmental assessment. 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. The on-line scope of the EA plan shows the development is planned from Roosevelt Street to Colborne Street West; however, if planning for the future then the EA assessment scope should be extended to Springdale Gardens or in ten years' time more EA planning will be necessary.

- Conceptual drawings were provided for the corner of Colborne Street and Angeline Street North. The lot currently has a house and an entrance on Angeline Street which was requested to be maintained as an option.

- 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. Concerns for their driveway as it is a steep hill and visibility of pedestrians is presently difficult. 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. Also stated concerns about the proposed plan and the lack of current traffic levels to support the immediate change. It is believed that the proposal will not alleviate the accident rates at Kent Street and Angeline Street North as left turn lanes currently exist.

- Respondent notes that the preferred option should be one that improves traffic flow but also has minimum impacts on the adjacent properties. 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 North. 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 safety of pedestrians and cyclists using the Kent / Angeline Street intersection is paramount for whatever option is chosen.

- Respondent requested a brief summary regarding the project as they were unable to attend the PIC. The only concern presented is a large bump in front of residence on Angeline Street as it causes vehicles to make a lot of noise when travelling over the bump. Also concerns about whether or not the wall in front of residence will be touched during construction.

Comments received before and after the PIC are provided in **Appendix D**.

## 2.7 Freedom of Information and Privacy Act

With the exception of personal information, the above-noted comments will be maintained as a public database and kept on file for use during the study. Unless otherwise requested, the comments may be included in the Study documentation that is made available for public review.

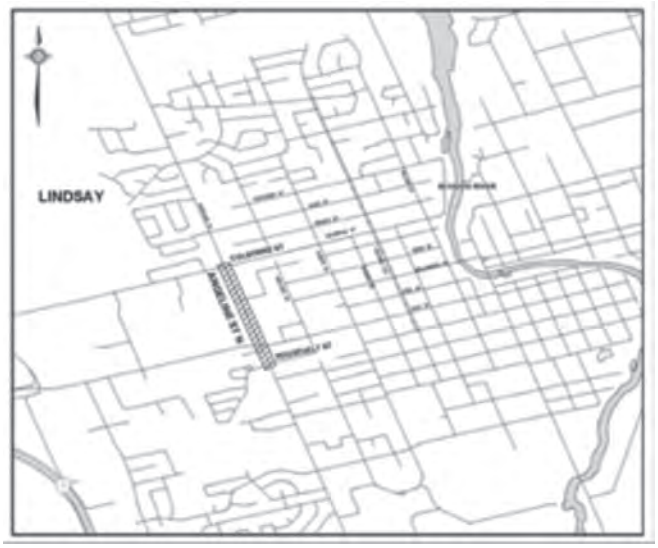
# Appendix A

## Notice of Study Commencement and Public Information Centre Sample Letter

# Public Notice

## Notice of Study Commencement and Public Information Centre (PIC)
## City of Kawartha Lakes
## Municipal Class Environmental Assessment and Design for the Reconstruction of Angeline Street North

The City of Kawartha Lakes has retained Ainley Group to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for intersection improvements and reconstruction and potential widening of Angeline Street North. The section of Angeline Street North to be improved is between Colborne Street West and Roosevelt Street, and is proposed to be widened to four (4) lanes.




The preliminary and detail design activities for Angeline Street North and the intersection improvements are being initiated as a Schedule 'B' undertaking in accordance with the MCEA, which applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the MCEA process. Two Public Information Centres (PICs) will be held to provide information to the public regarding the project and to answer any questions.

PIC #1 will be held on **February 28, 2019 from 4:30pm to 6:30pm in the Community Room at the Lindsay Recreation Complex, 133 Adelaide Street South, Lindsay, Ontario.**

The PIC will consist of a drop-in style format with displays providing information about the project.

Staff from the City and Project Lead Consultant will be on hand to answer any questions. The date, time, and location of PIC #2 will be provided in future correspondence and will also be advertised in a newspaper notice in advance. Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

If you are interested in providing comments or receiving further information on this project, please contact the following individuals:

**Ms. Elizabeth Bonucchi, P.Eng.**
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2

Phone: (343) 266-0002 extension 207
Fax: (343) 266-0028
Email: bonucchi@ainleygroup.com

**Mr. Corby Purdy, C.E.T.**
Supervisor, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8

Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. These comments will be maintained on file for use during the study in accordance with the Freedom of Information and Protection of Privacy Act. All comments, with the exception of personal information, will become part of the public record. If you have any accommodation requirements in order to participate in this project please contact one of the project team members listed above.

# Public Notice

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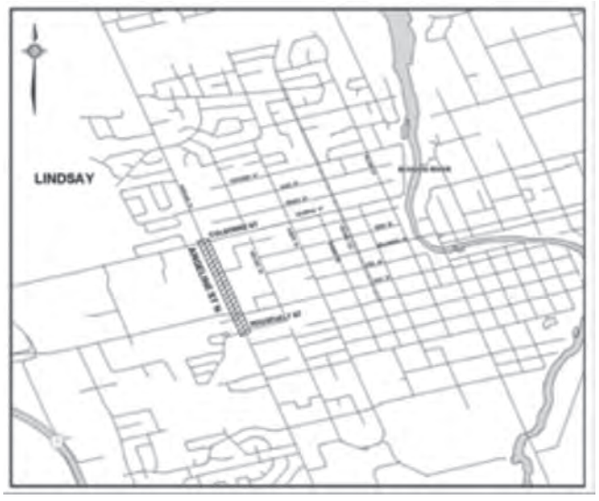


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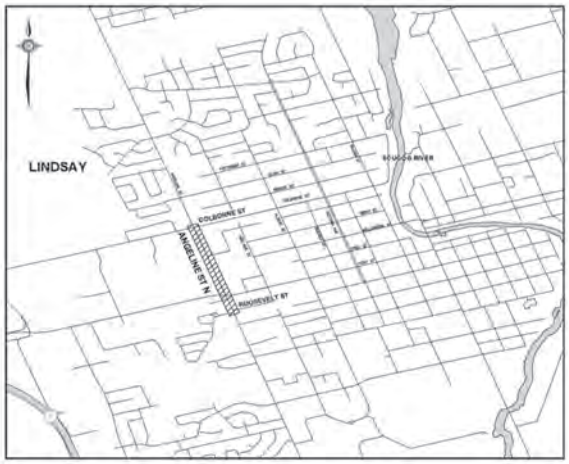
# Notice of Study Commencement and PIC

## City of Kawartha Lakes Municipal Class Environmental Assessment and Design for the Reconstruction of Angeline Street North

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The preliminary and detail design activities for Angeline Street North and the intersection improvements are being initiated as a Schedule 'B' undertaking in accordance with the MCEA, which applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the MCEA process. Two Public Information Centres (PICs) will be held to provide information to the public regarding the project and to answer any questions.

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If you are interested in providing comments or receiving further information on this project, please contact the following individuals:

**Ms. Elizabeth Bonucchi, P.Eng.**
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1-50 Grant Timmins Drive
Kingston, ON K7M 8N2

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12 Peel Street
Lindsay, ON K9V 5R8

Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. These comments will be maintained on file for use during the study in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments, with the exception of personal information, will become part of the public record. If you have any accommodation requirements in order to participate in this project please contact one of the project team members listed above.

Ainley Graham & Associates Limited
45 South Front Street, Belleville, ON, K8N 2Y5
Tel: (613) 966-4243 ▪ Fax: (613) 966-1168
E-mail belleville@ainleygroup.com

February XX, 2019 18545-1

AGENCY
ADDRESS
ADDRESS
ADDRESS

Attn: **AGENCY**

Ref: **Notice of Study Commencement and PIC, Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

To AGENCY:

The City of Kawartha Lakes has retained Ainley Group to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for improvements to Angeline Street North in Lindsay.

Proposed improvements are located between Colborne Street West and Roosevelt Street, and include intersection improvements and the evaluation for potential widening up to four (4) lanes to address future traffic demands. The location of the study is shown on the attached project location plan.

**The Process**

The preliminary and detail design activities for Angeline Street North and the intersection improvements are being initiated as a Schedule 'B' undertaking in accordance with the MCEA. The MCEA applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the Environmental Assessment process. Two Public Information Centres (PICs) will be held to provide project related information to the public and to answer any questions.

PIC #1 will be held on **February 28, 2019 from 4:30 to 6:30 in the Community Room at the Lindsay Recreation Complex, 133 Adelaide Street South, Lindsay, Ontario**. The PIC will consist of a drop-in style format with displays showing project background information.

Staff from the City and Project Lead Consultant will be on hand to answer any questions. The date, time, and location of PIC #2 will be provided in future correspondence and will also be advertised in a newspaper notice in advance.

Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

**Comments**

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.


**Ms. Elizabeth Bonucchi, P.Eng**.
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive,
Kingston, Ontario
K7M 8N2

Phone: (343) 266-0002 ext. 207
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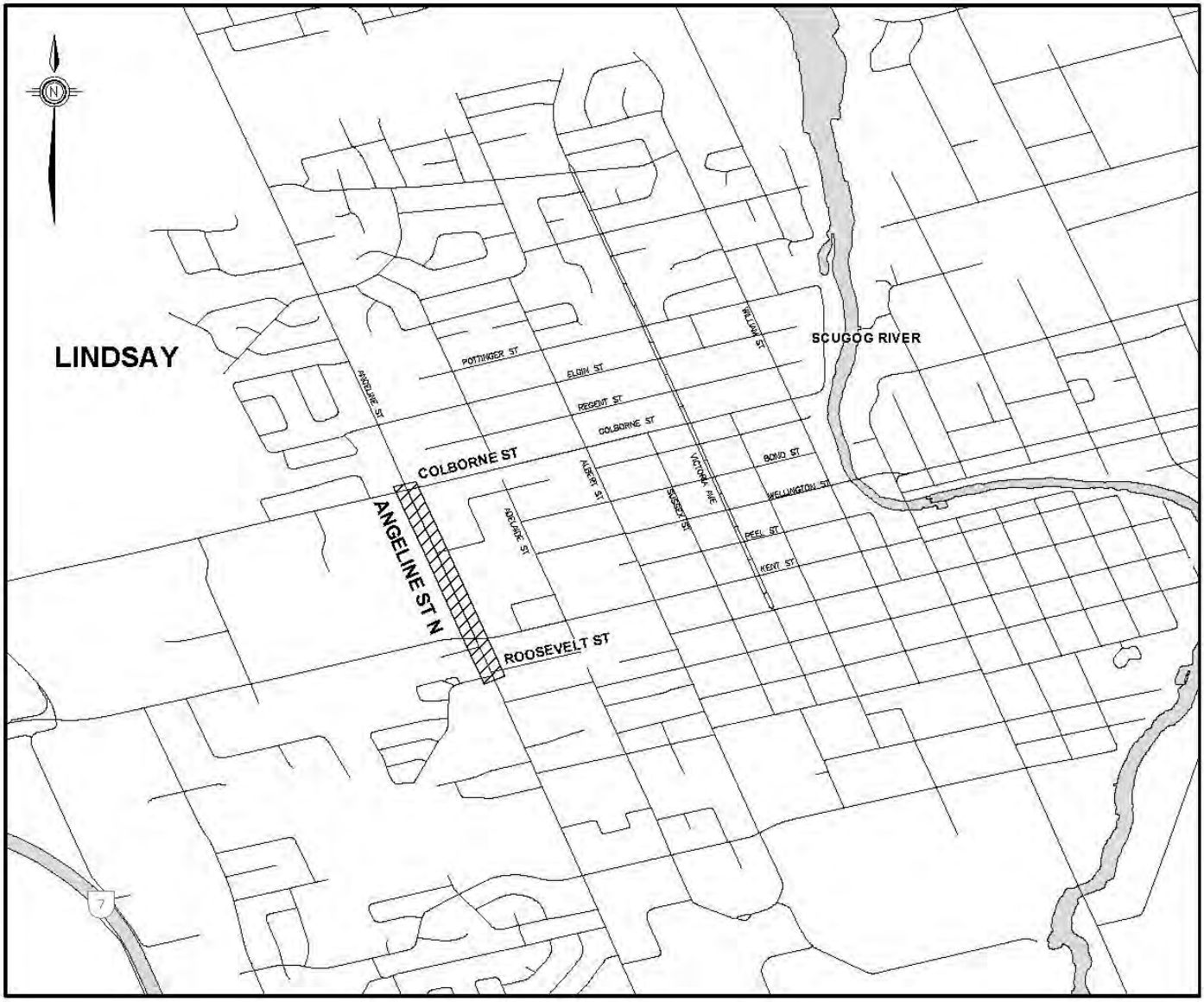
Sincerely,

Scott Reynolds, B.Sc.(Env), EP
Consultant Environmental Planner

cc. Elizabeth Bonucchi, P.Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Supervisor, Infrastructure Design and Construction – City of Kawartha Lakes

**Project Location Plan**
**(not to scale)**



**Notice of Study Commencement and PIC**
**City of Kawartha Lakes**
**Municipal Class Environmental Assessment and Design**
**for the Reconstruction of Angeline Street North**

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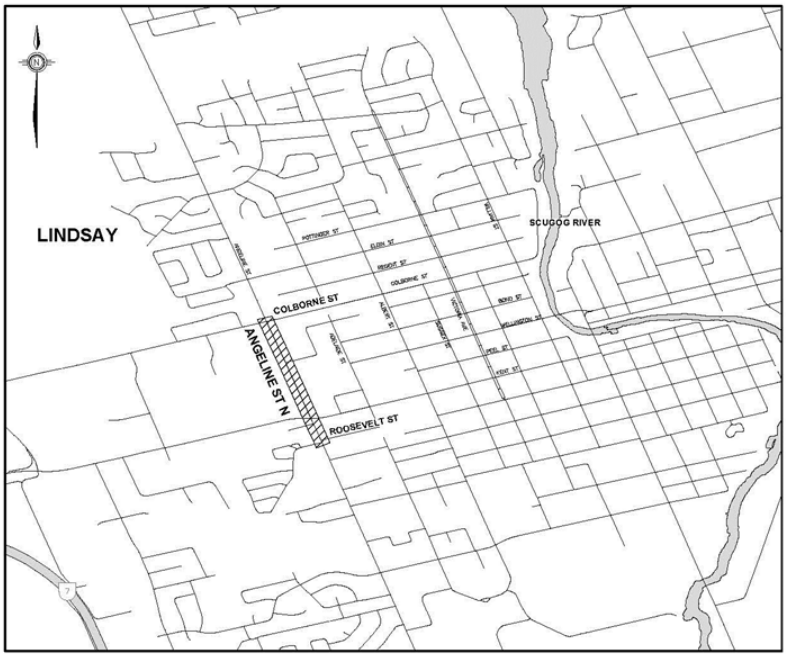


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**Ms. Elizabeth Bonucchi, P.Eng.**
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# Appendix B

## Public Information Centre Display Boards / Comment Sheet / Sign-in Sheet

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

| Name (please print) | Address | Signature |
|---|---|---|
| | | |

Phone: _____ Email: _____

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
Infrastructure Design and Construction
Engineering and Corporate Assets
12 Peel Street, P.O. Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

Public Information Centre

February 28, 2019 – 4:30 pm to 6:30 pm

**Angeline Street North**

# Please sign in:

| Name (please print) | Address | Phone | Email |
|---|---|---|---|
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# PUBLIC INFORMATION CENTRE

# Angeline Street North Corridor

## Colborne Street West to Roosevelt Street
## Town of Lindsay

Municipal Class Environmental Assessment

February 28th, 2019
4:30 p.m. to 6:30 p.m.

KAWARTHA LAKES

Ainley GROUP
CONSULTING
ENGINEERS
PLANNERS

# WELCOME

Welcome to the Public Information Centre for the Angeline Street North Corridor between Colborne Street West and Roosevelt Street, within the Town of Lindsay.

**The purpose of this Public Information Centre is:**

- To introduce the project and explain the Municipal Class Environmental Assessment (MCEA) process;
- To summarize the study area and existing conditions of the Angeline Street North corridor;
- To provide reconstruction alternatives for Angeline Street North, including Kent and Colborne Street intersections; and
- To provide an opportunity for the public to discuss and provide comments on the alternative solutions.

Members of the City of Kawartha Lakes and their consultant, Ainley Group, are working as a team to complete the MCEA process and are available to discuss the project with you.

**We encourage you to fill out a comment sheet following your review of display materials**

KAWARTHA LAKES

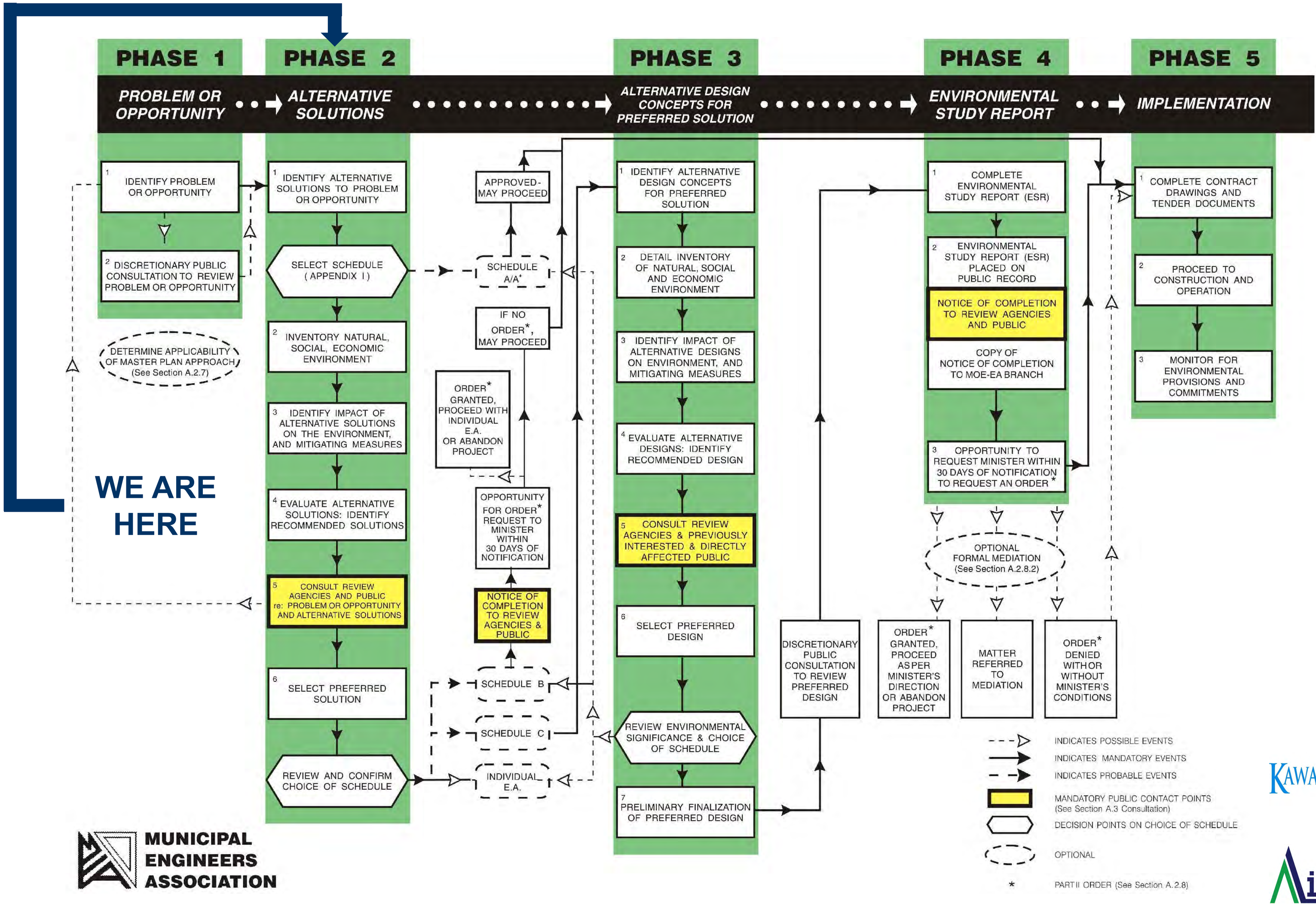
Ainley GROUP CONSULTING ENGINEERS PLANNERS

# PROJECT LOCATION PLAN

KAWARTHA LAKES

Minley GROUP CONSULTING ENGINEERS PLANNERS

# SCHEDULE 'B' Mmunicipal CLASS EA PROCESS




MUNICIPAL ENGINEERS ASSOCIATION

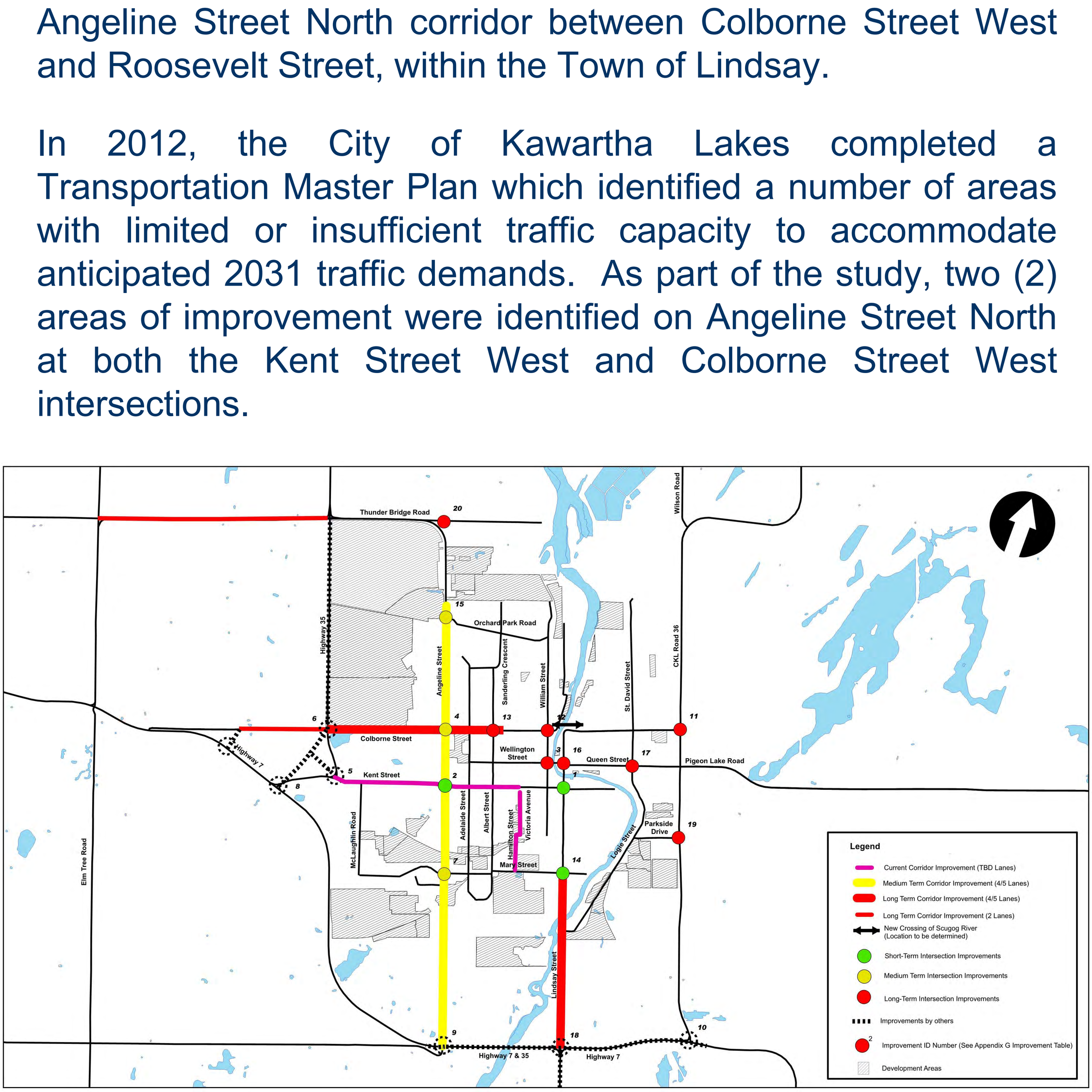
KAWARTHA LAKES

Ainley GROUP CONSULTING ENGINEERS PLANNERS

## Study Purpose / Background

The purpose of this Municipal Class Environmental Assessment is to identify and evaluate alternatives for improvements to the Angeline Street North corridor between Colborne Street West and Roosevelt Street, within the Town of Lindsay.

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. As part of the study, two (2) areas of improvement were identified on Angeline Street North at both the Kent Street West and Colborne Street West intersections.



# STUDY PURPOSE & BACKGROUND

## Previous Environmental Assessments

To review potential opportunities for improvements at Angeline / Kent Streets and Angeline / Colborne Streets, CKL commissioned independent corridor studies and environmental assessments at these intersections. The identified preferred solution at these intersections based on the EA's is as follows:

### Colborne Street West at Angeline Street North:

- Widen Angeline Street North from a 3-lane cross-section including a two-way left-turn lane, to a 5-lane cross section including a two-way left-turn lane.
- Add eastbound right turn lane.
- Add westbound right turn lane.

### Kent Street West at Angeline Street North:

- Widen Angeline Street North from a 3-lane cross-section including a two-way left-turn lane, to a 5-lane cross section including a two-way left-turn lane.
- Add eastbound right turn lane.
- Add southbound right turn lane.
- Add additional northbound left-turn lane, for dual northbound left-turn lanes.

* In each of the respective EA's, it was recommended that the Angeline Street North corridor be evaluated under a separate MCEA

# PROBLEM AND OPPORTUNITY STATEMENT

## Problem Statement

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 EA studies for these intersections provided preferred intersection improvements which will be considered as part of this study for the Angeline Street North corridor.

**Angeline Street North and Colborne Street West Intersection**

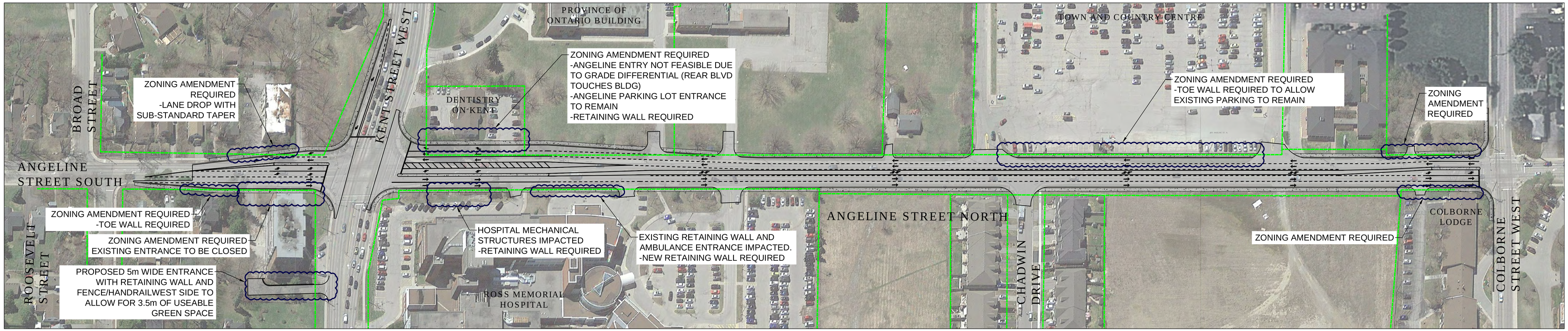
## Opportunity Statement

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 reviewed.

The reconstruction also provides an opportunity to review the condition of and replace watermain, sanitary sewer, and storm sewer infrastructure where warranted.

KAWARTHA LAKES

Ainley GROUP CONSULTING ENGINEERS PLANNERS




EXISTING R.O.W.

# ALTERNATIVE 1

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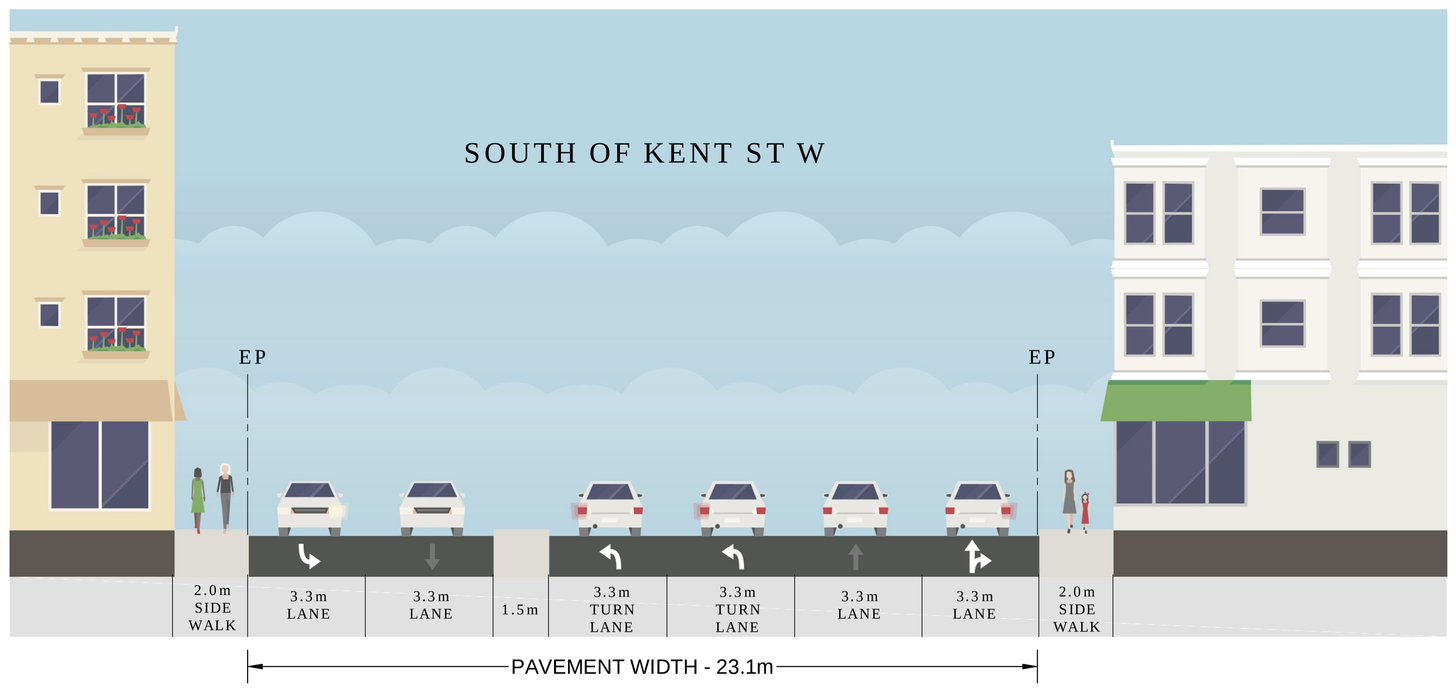
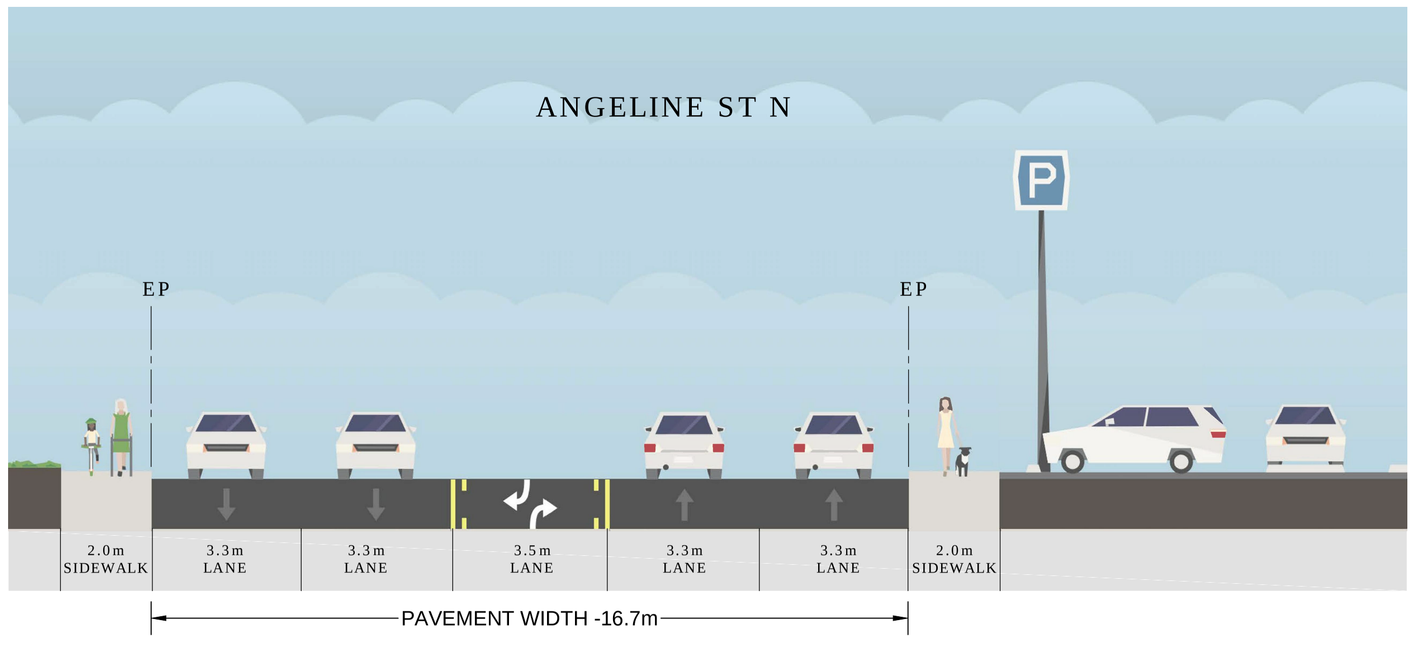
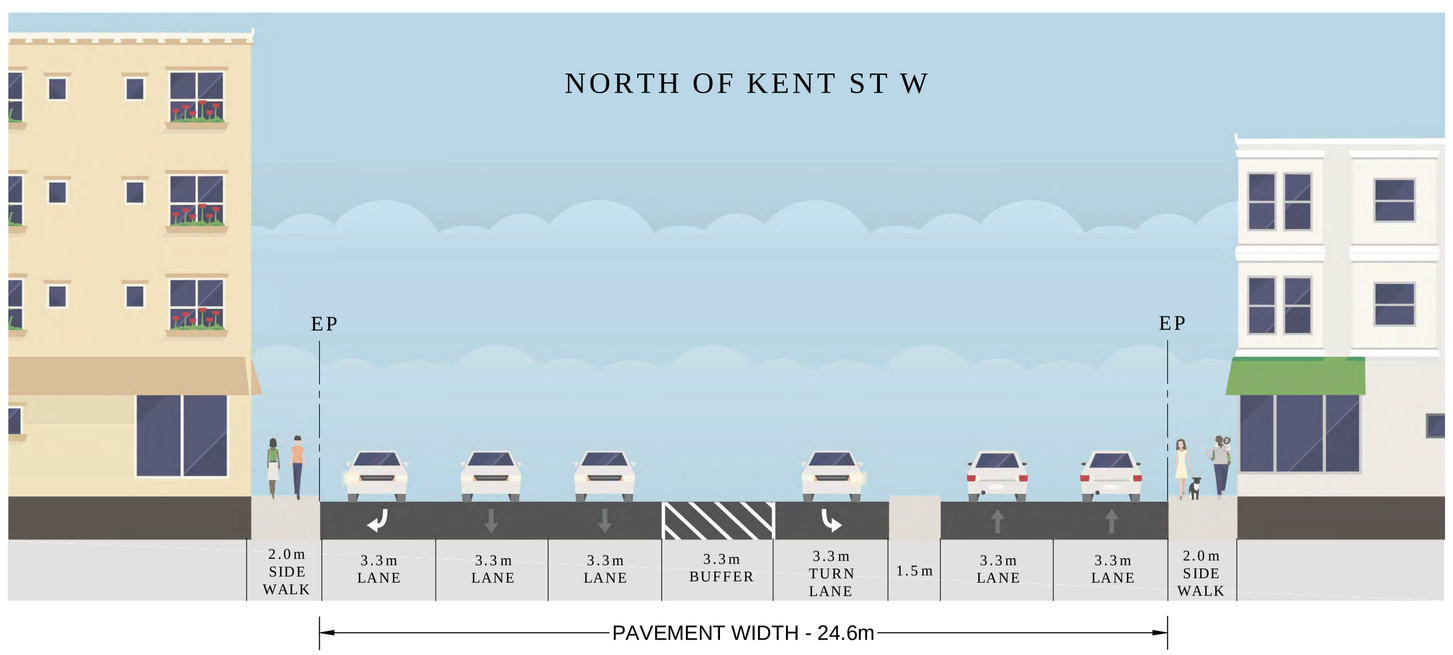
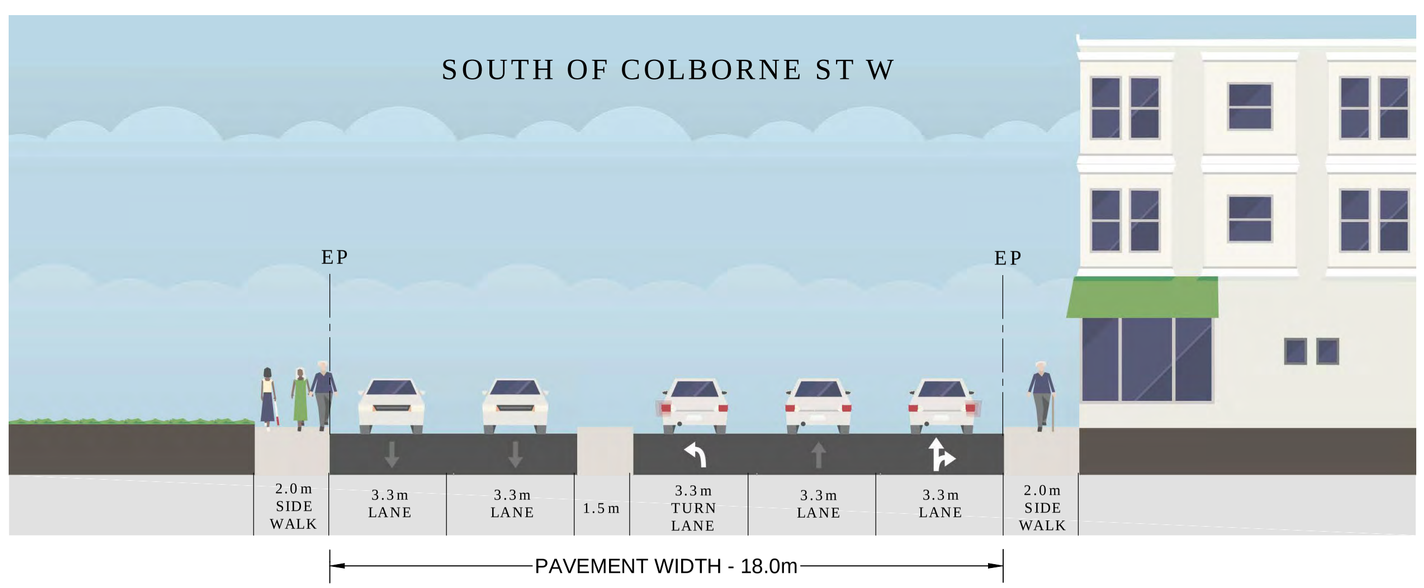
UTILITY POLES RELOCATED = 20

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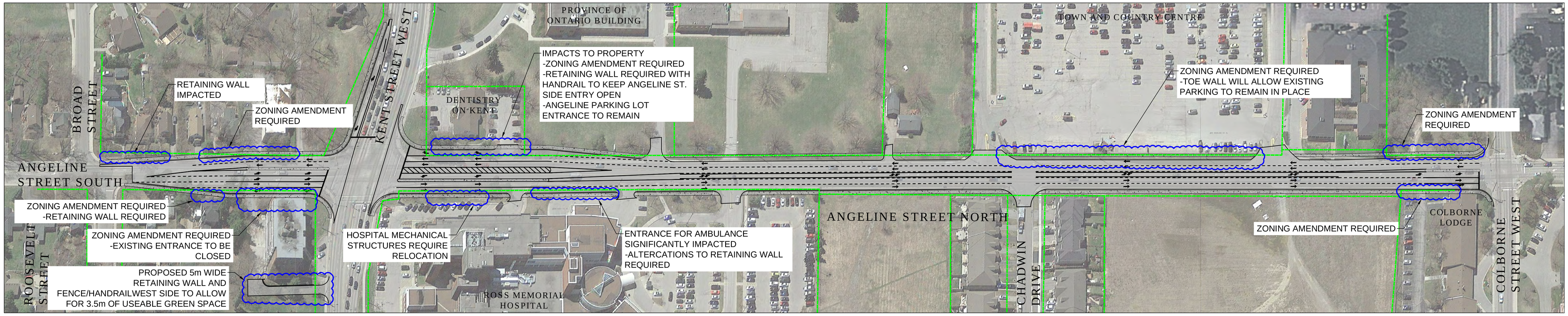


EXISTING R.O.W.

# ALTERNATIVE 2

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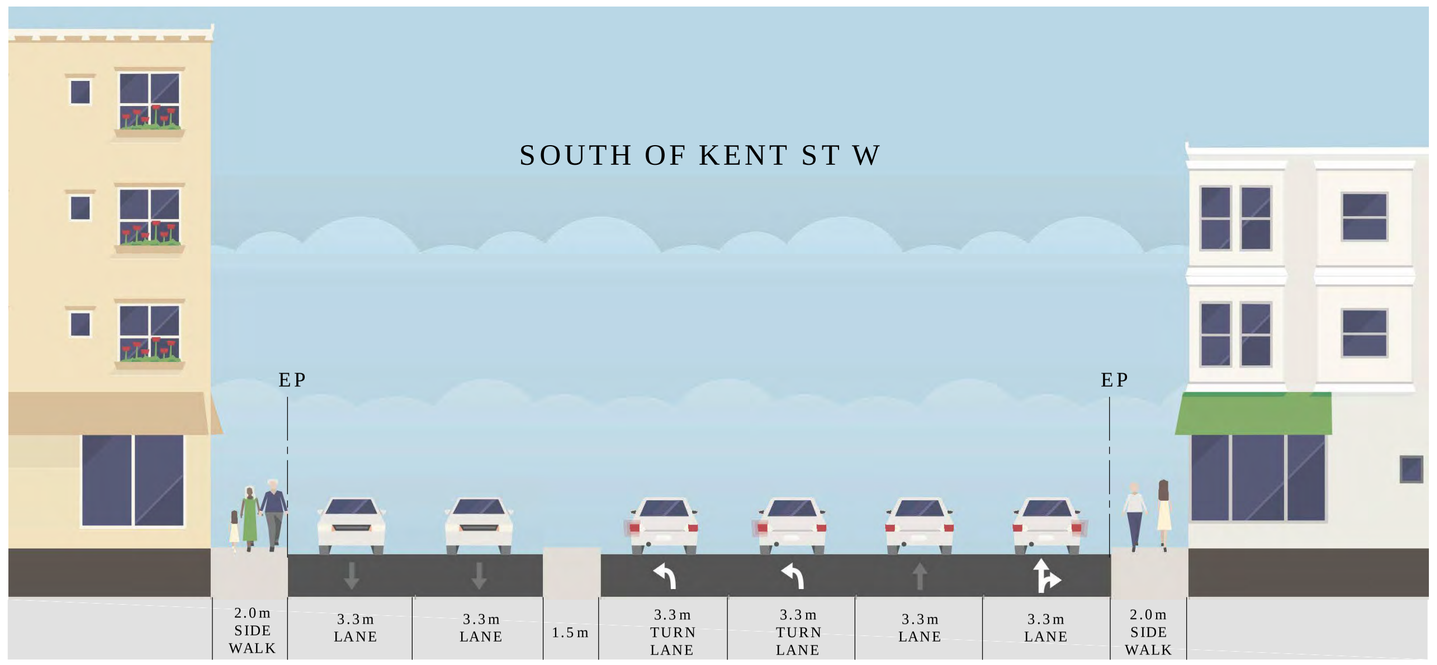
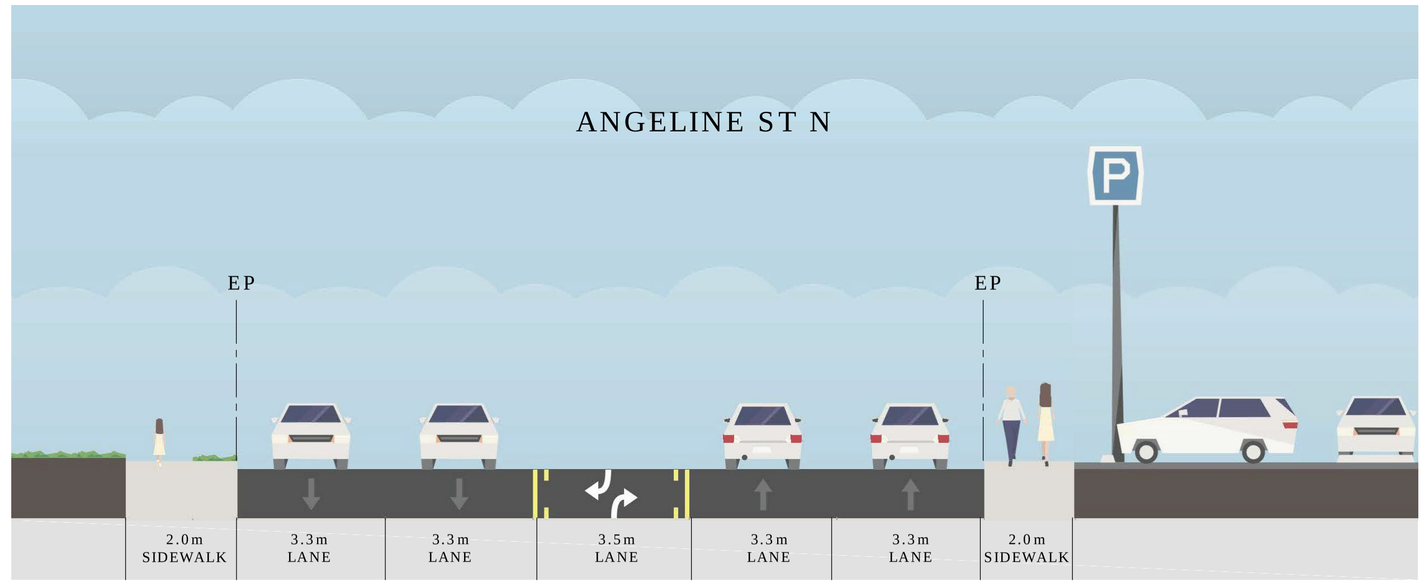
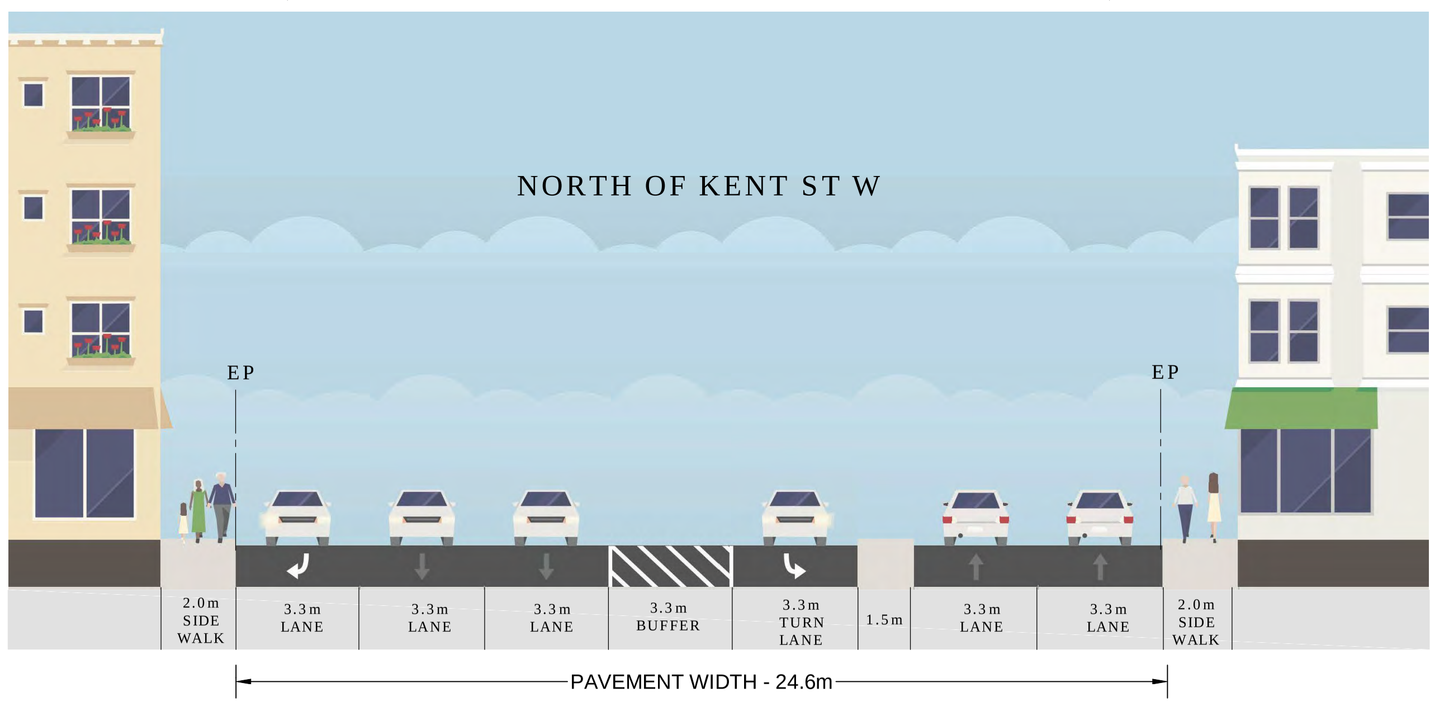
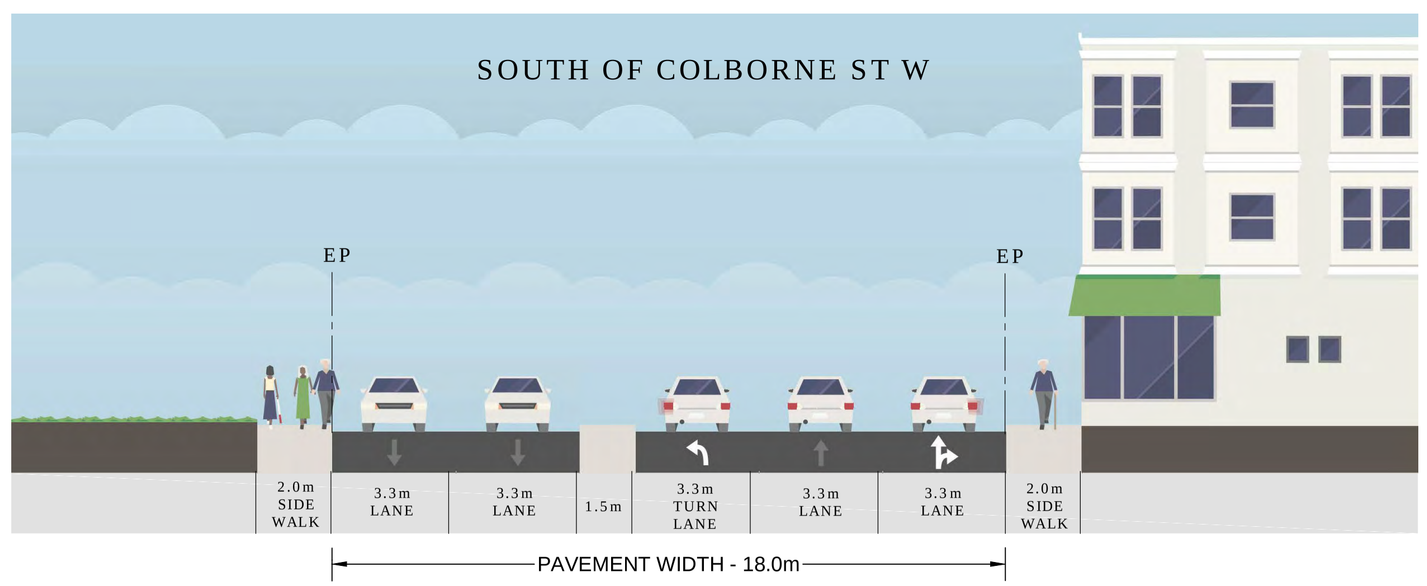


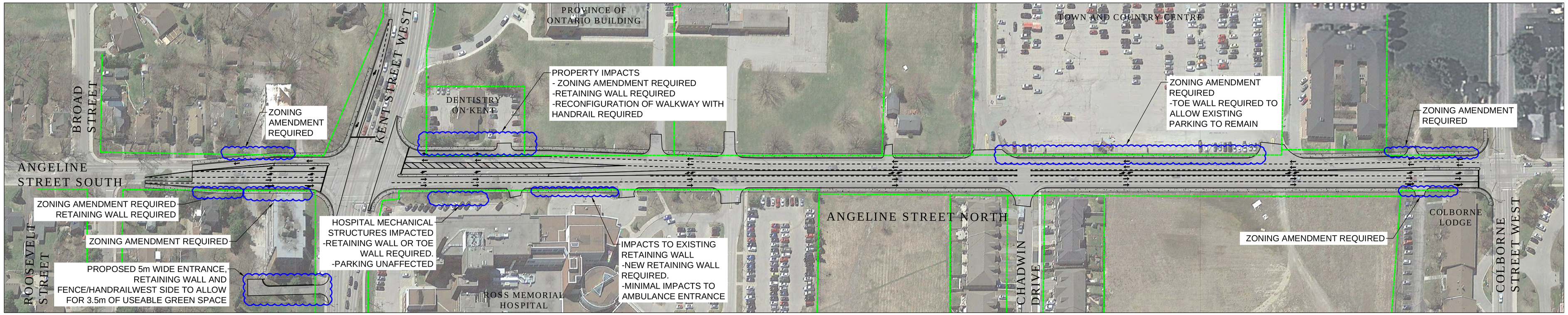




*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

668




EXISTING R.O.W.

## ALTERNATIVE 3

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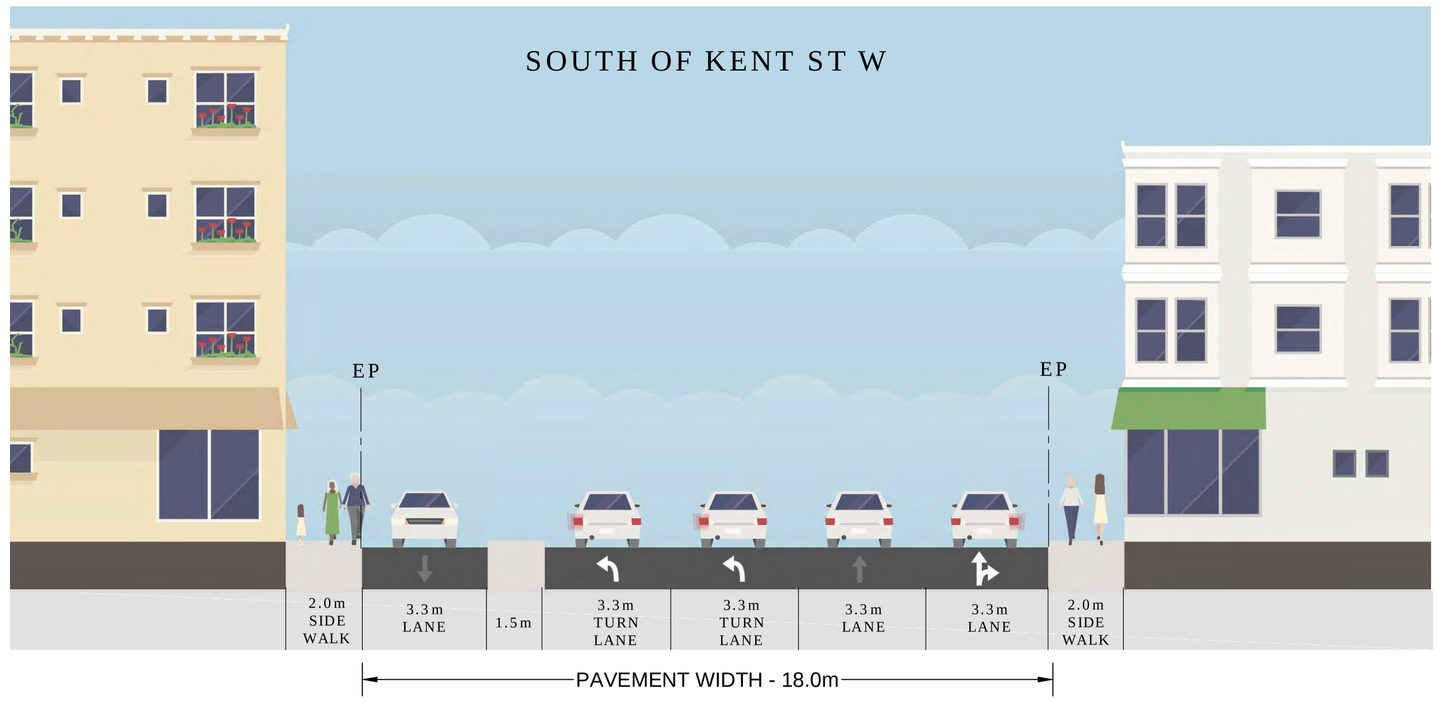
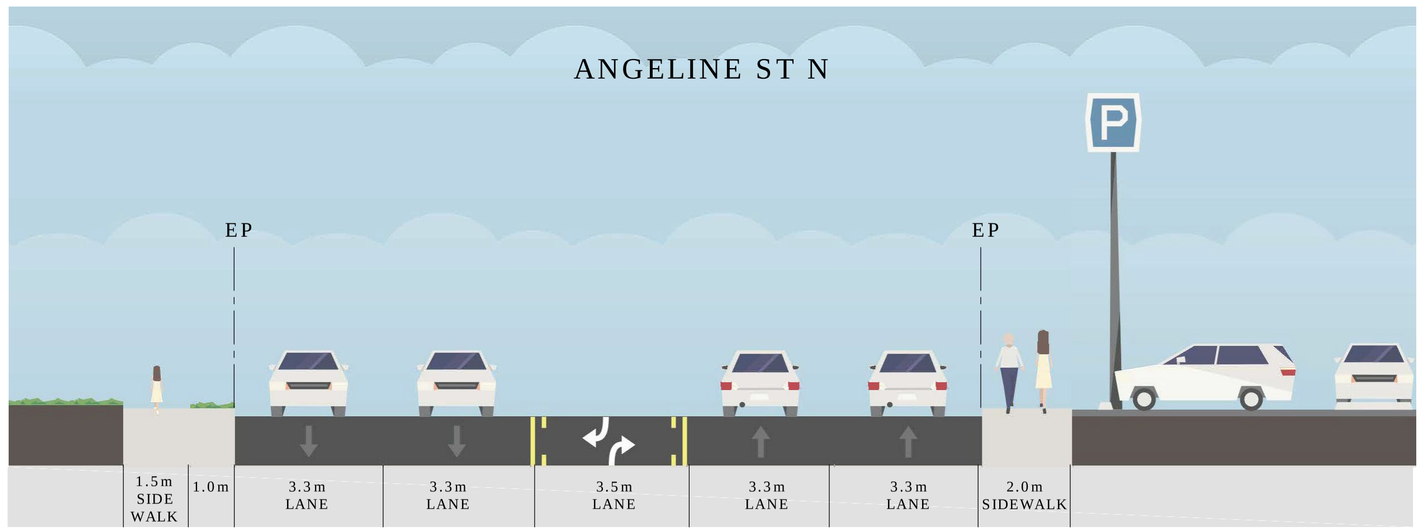
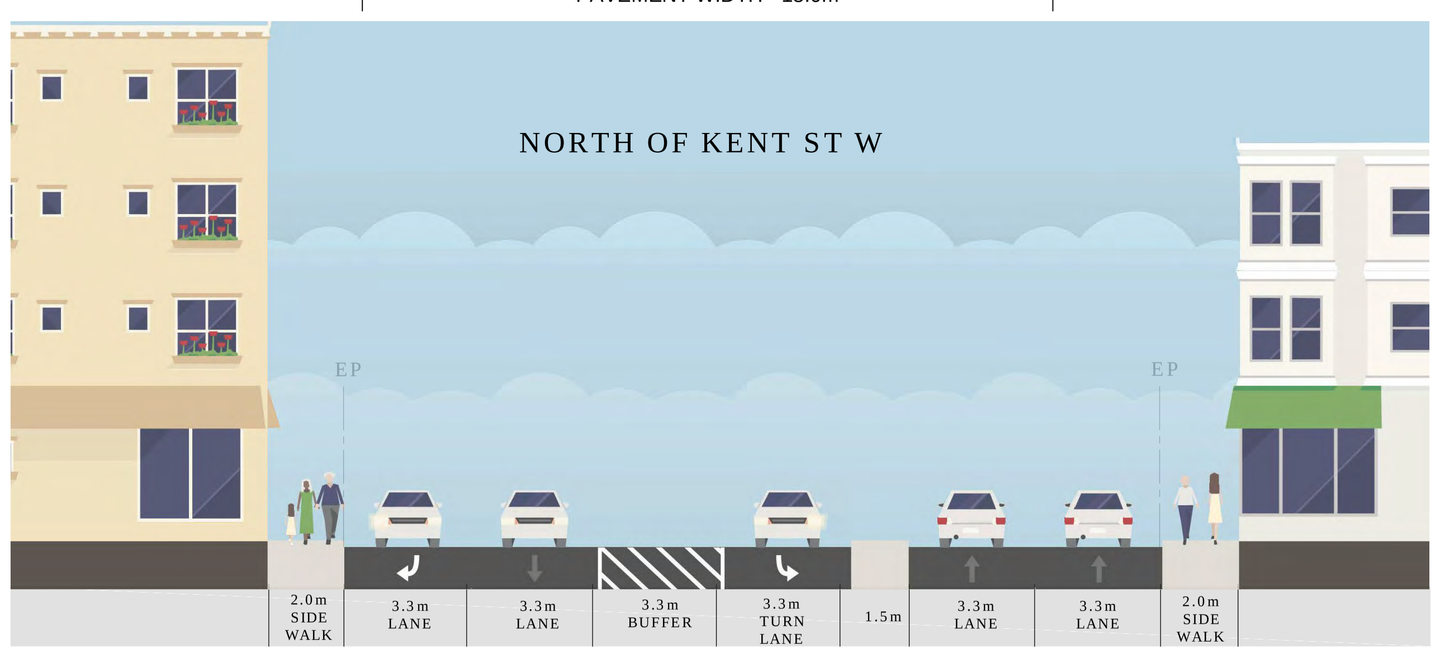
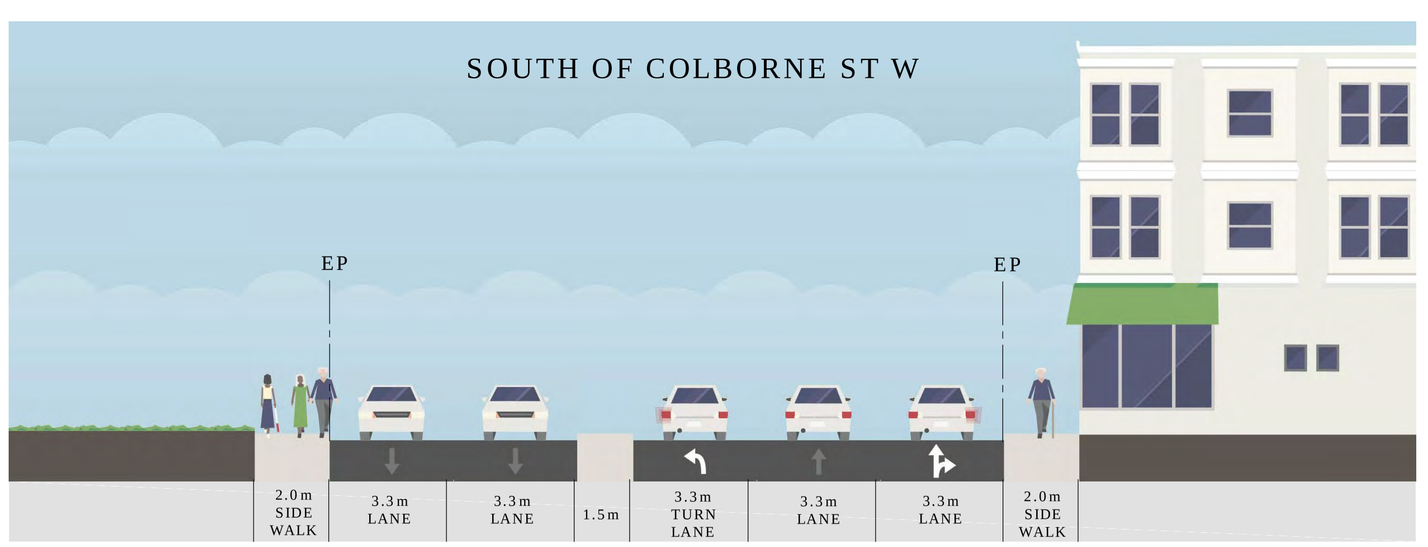
UTILITY POLES RELOCATED = 11

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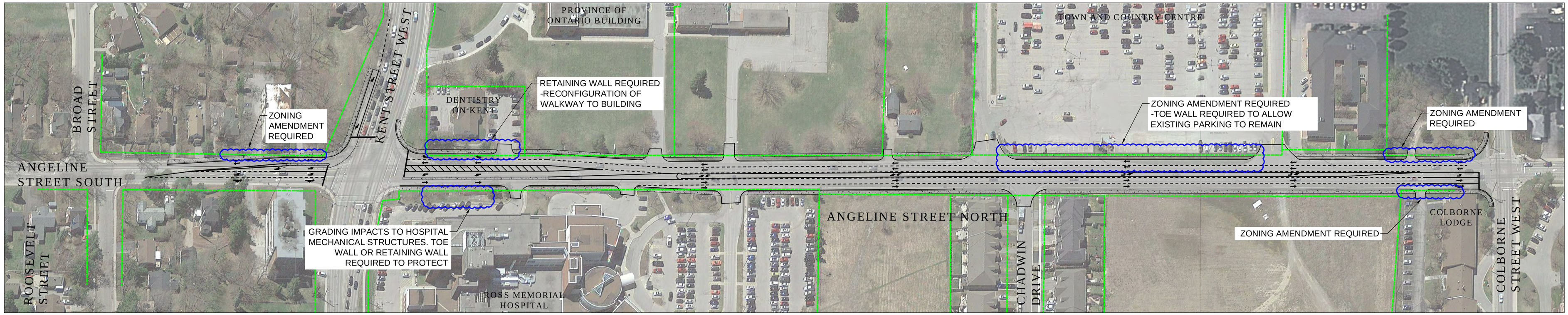


EXISTING R.O.W.

## ALTERNATIVE 4

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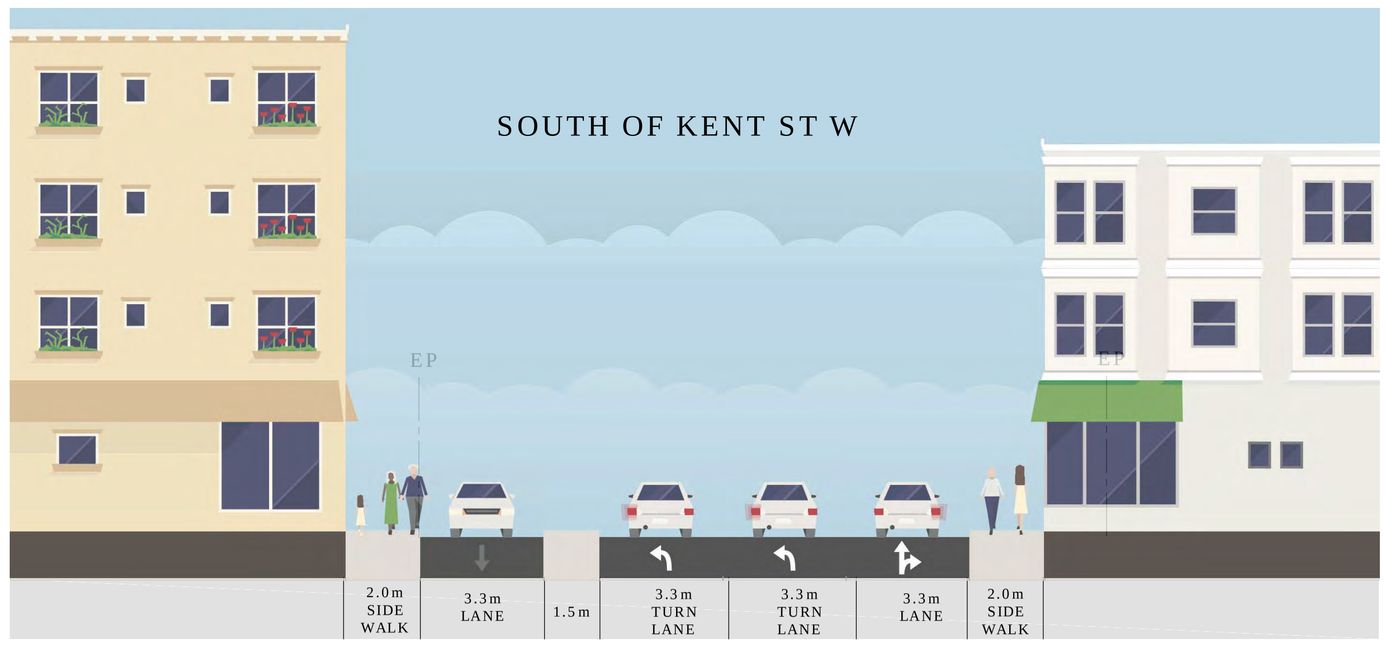
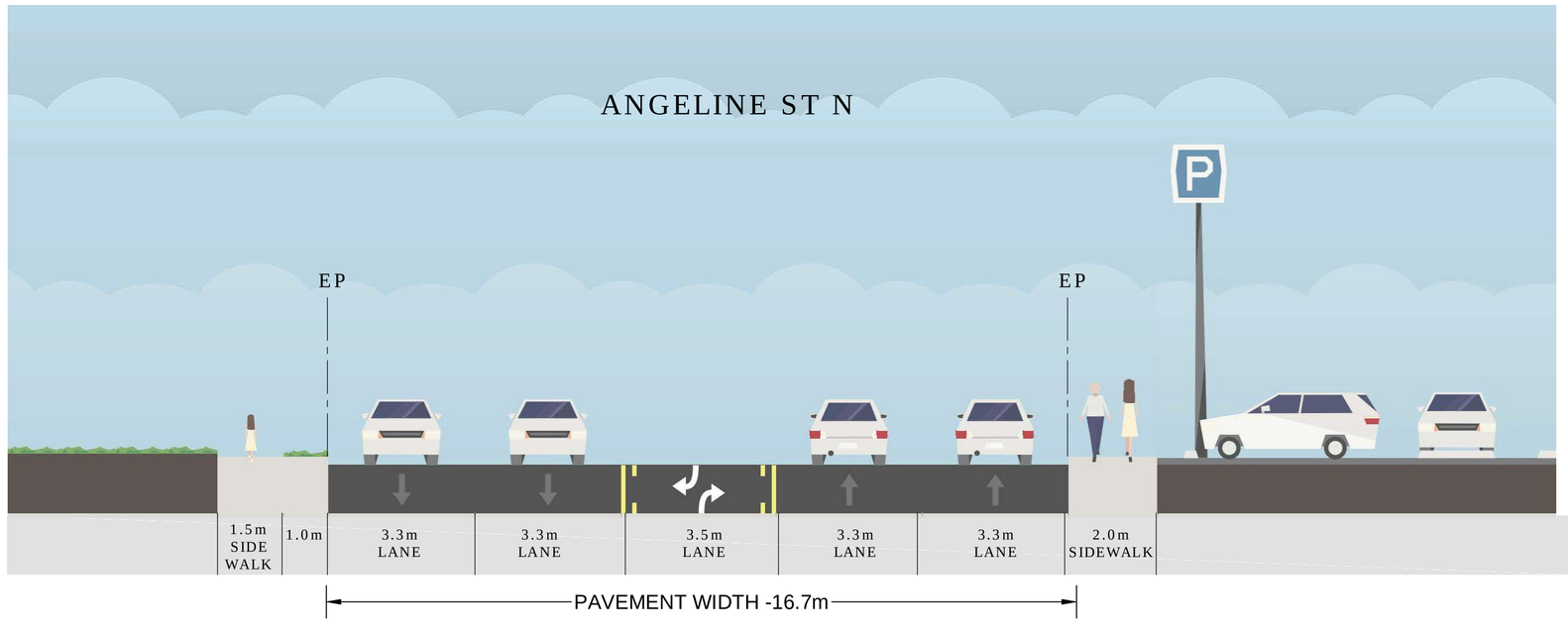
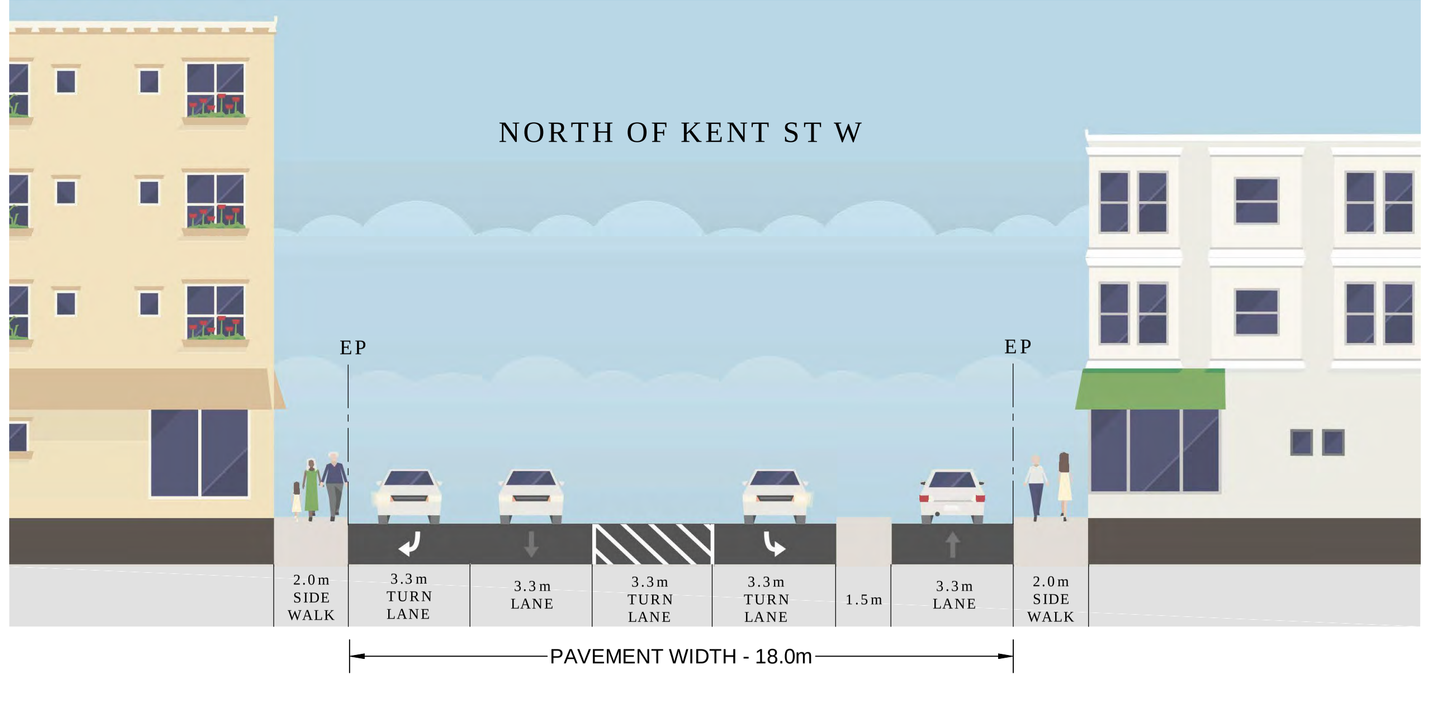
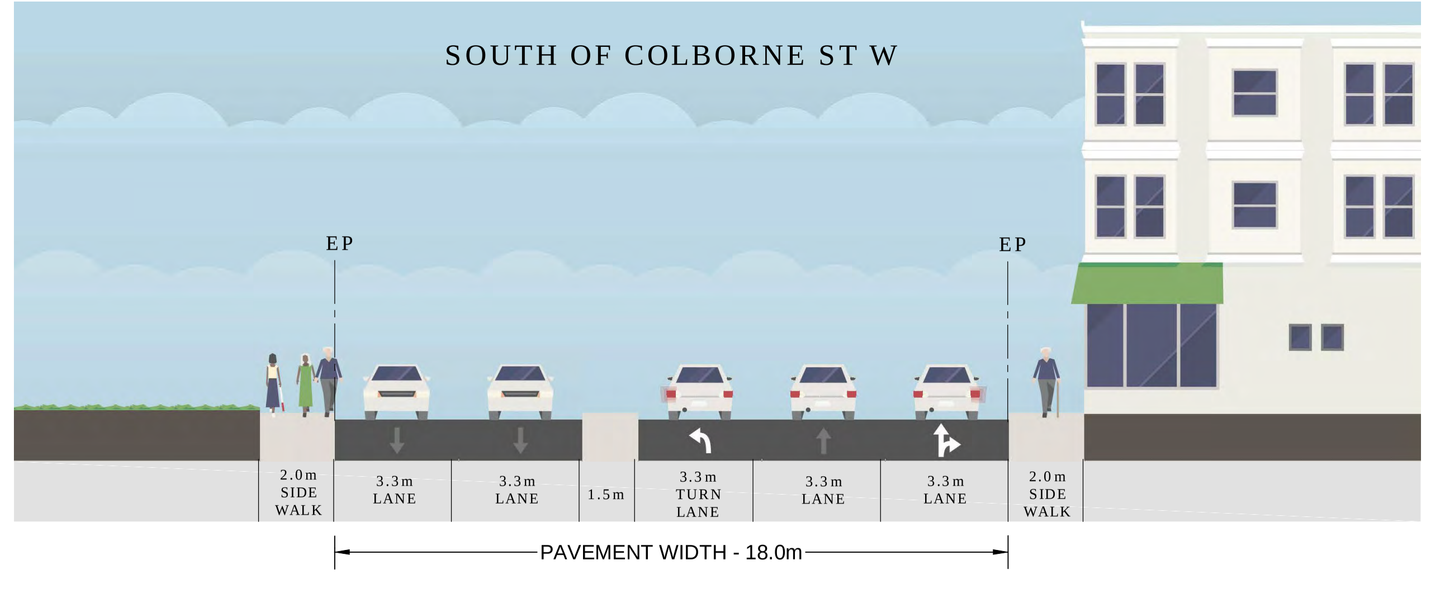
UTILITY POLES RELOCATED = 8

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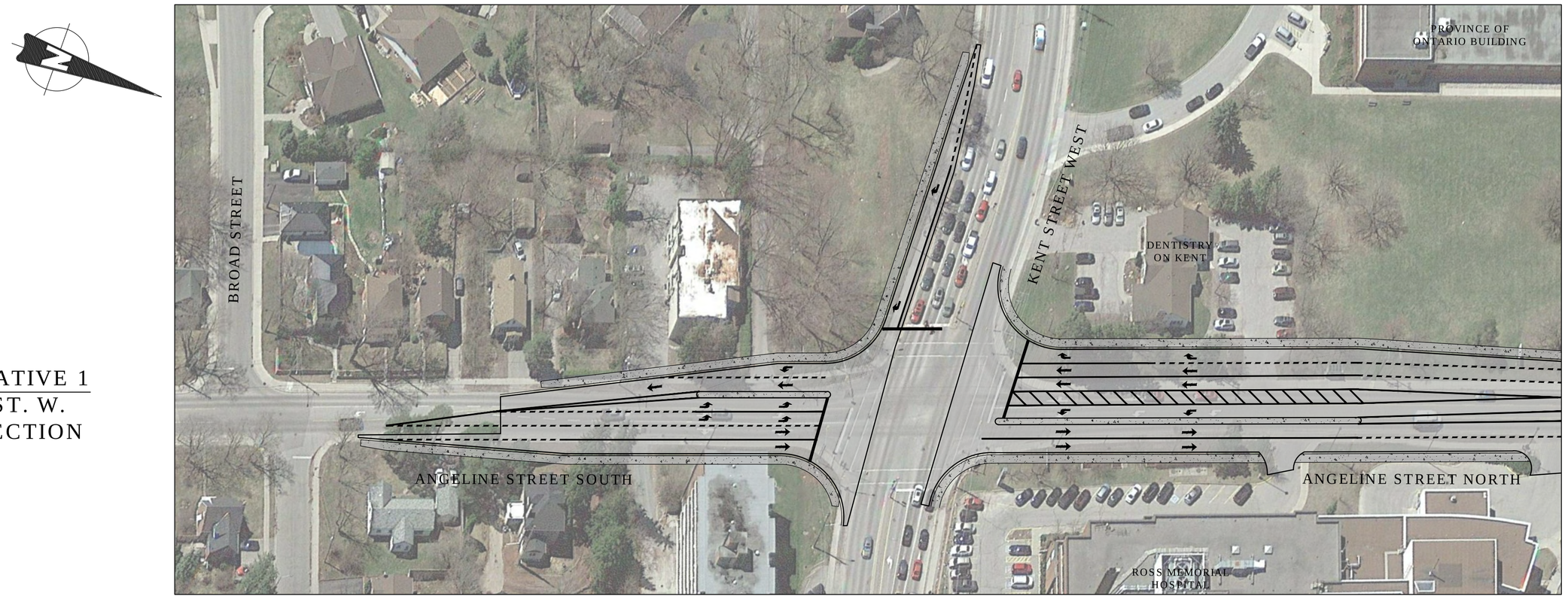
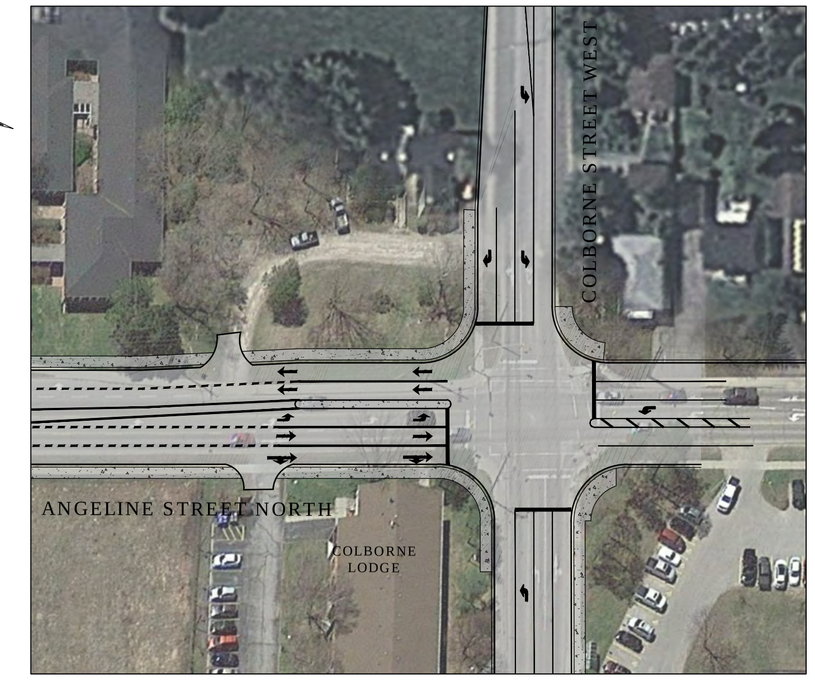
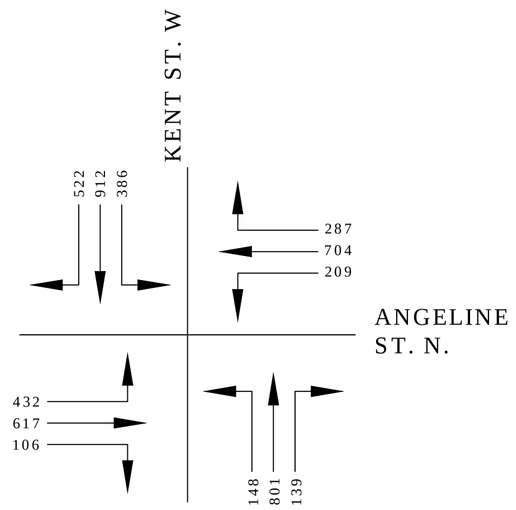


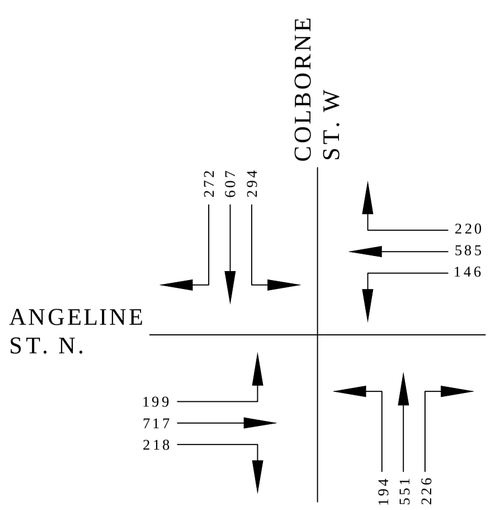

ALTERNATIVE 1
KENT ST. W.
INTERSECTION



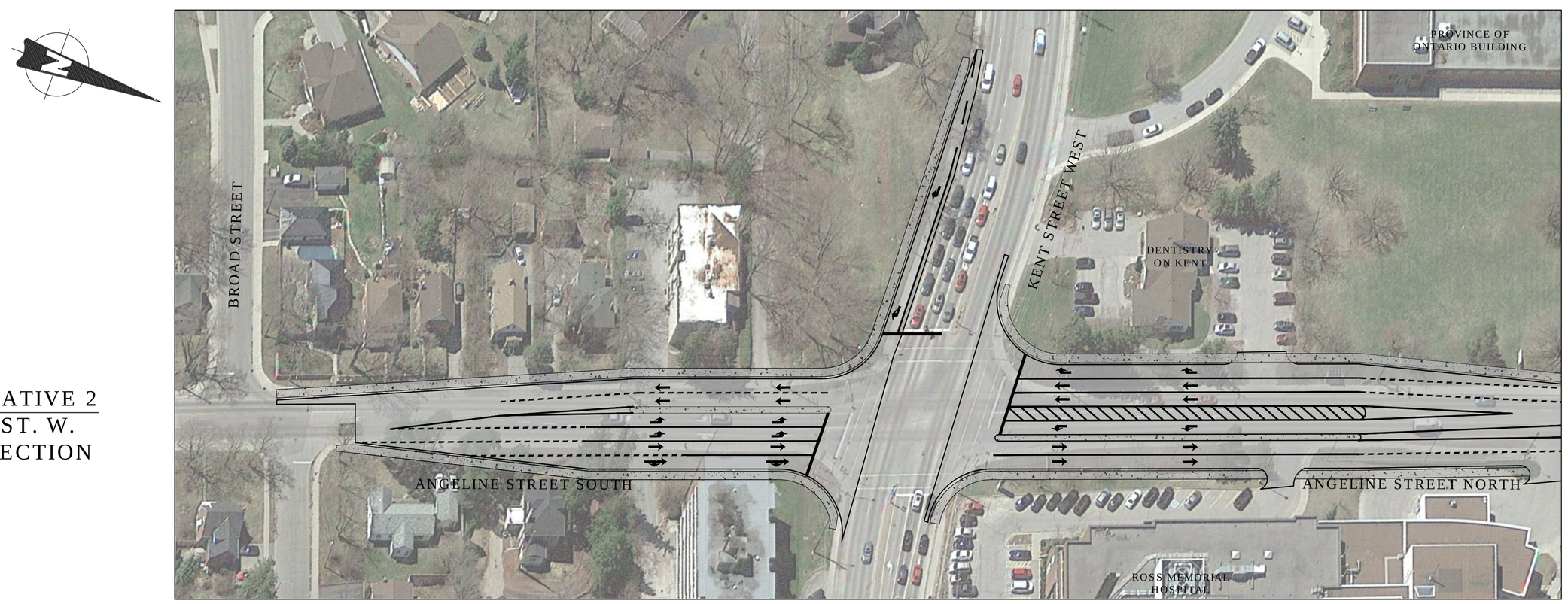

ALTERNATIVE 1
COLBORNE ST. W.
INTERSECTION



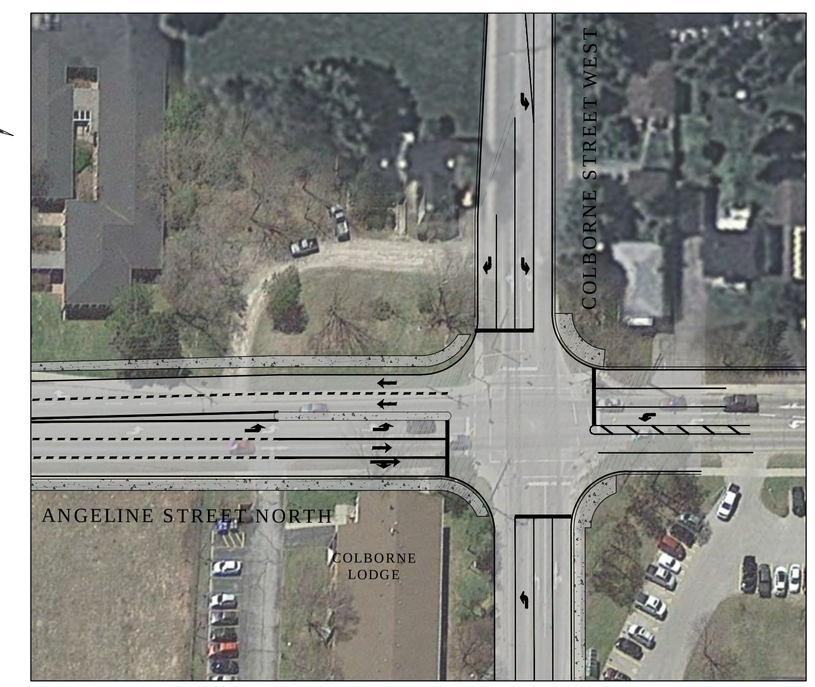

2031 FORECAST
TRAFFIC VOLUMES




2031 FORECAST
TRAFFIC VOLUMES

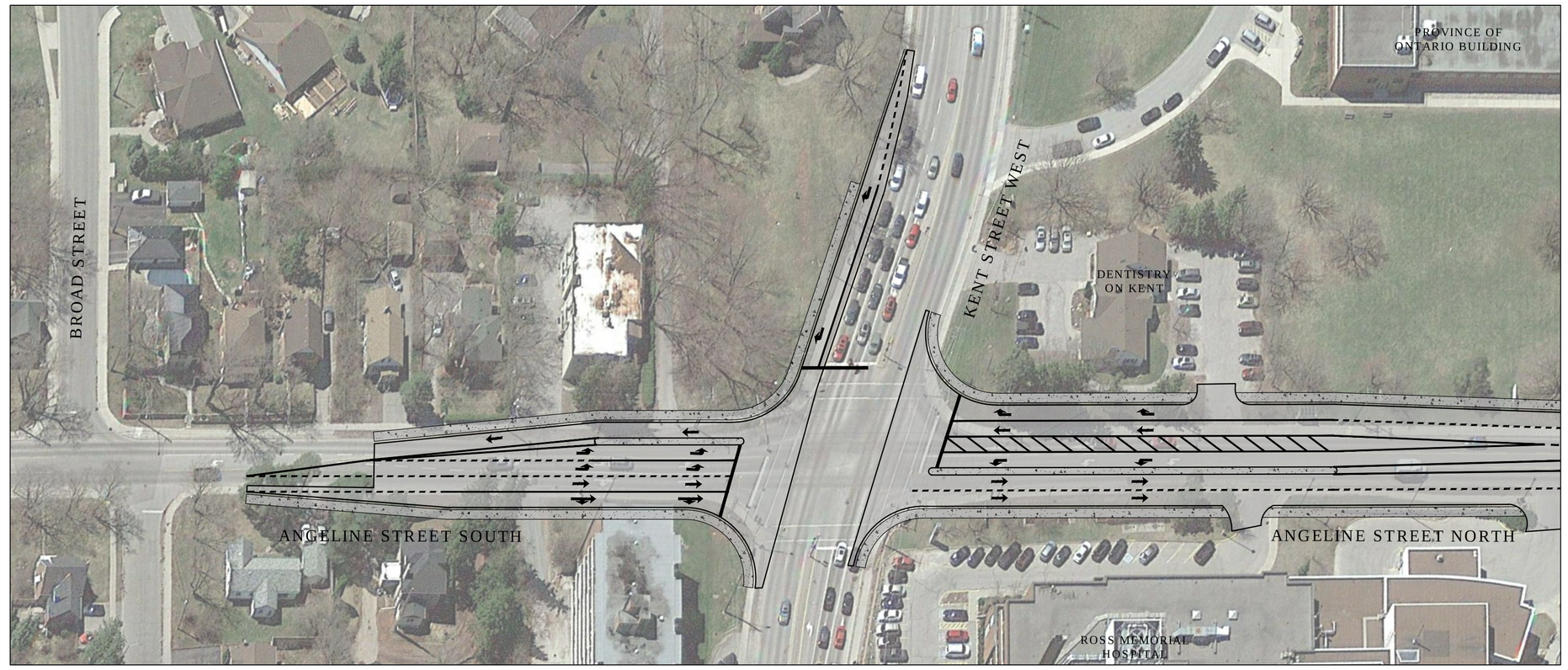


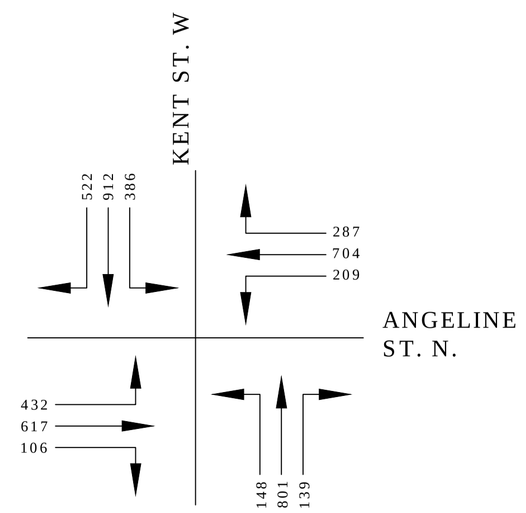

ALTERNATIVE 2
KENT ST. W.
INTERSECTION




ALTERNATIVE 2
COLBORNE ST. W.
INTERSECTION

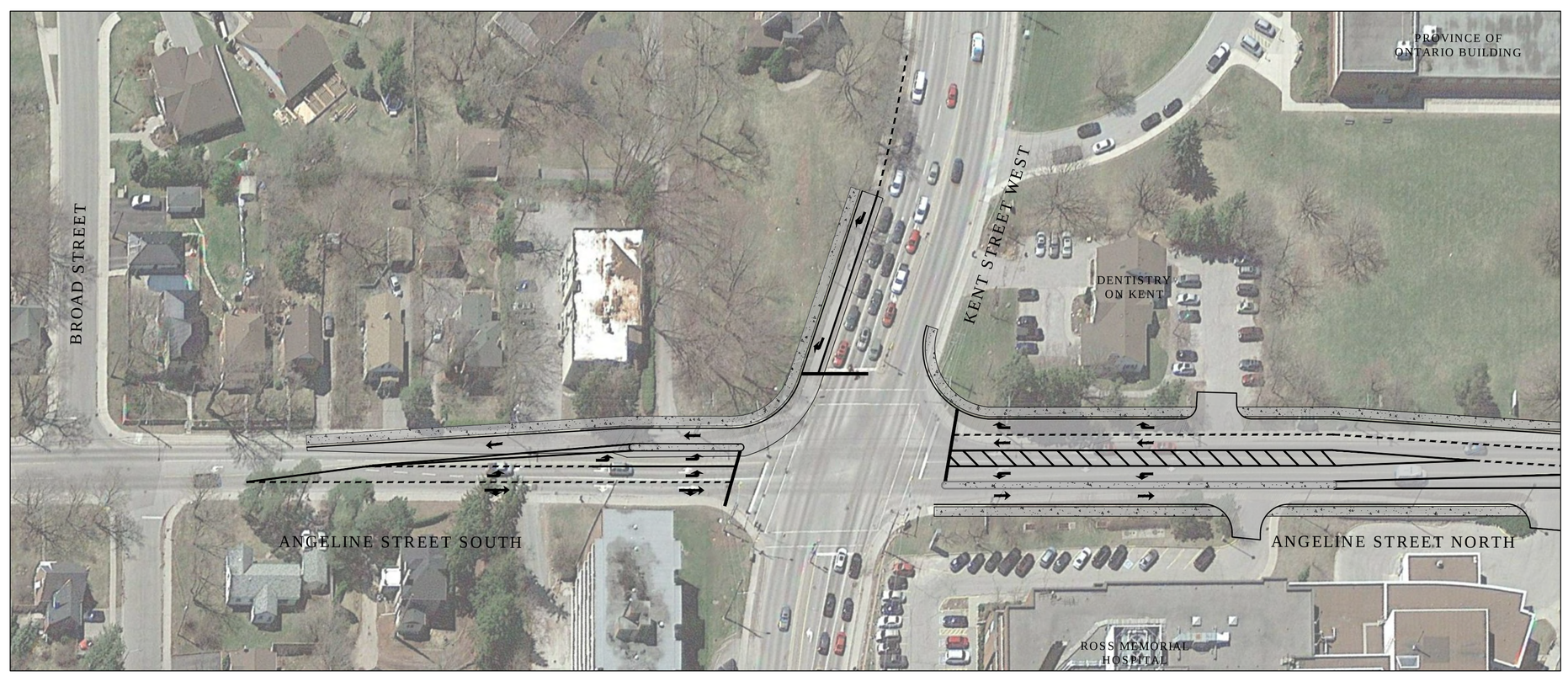
ALTERNATIVE 3
KENT ST. W.
INTERSECTION



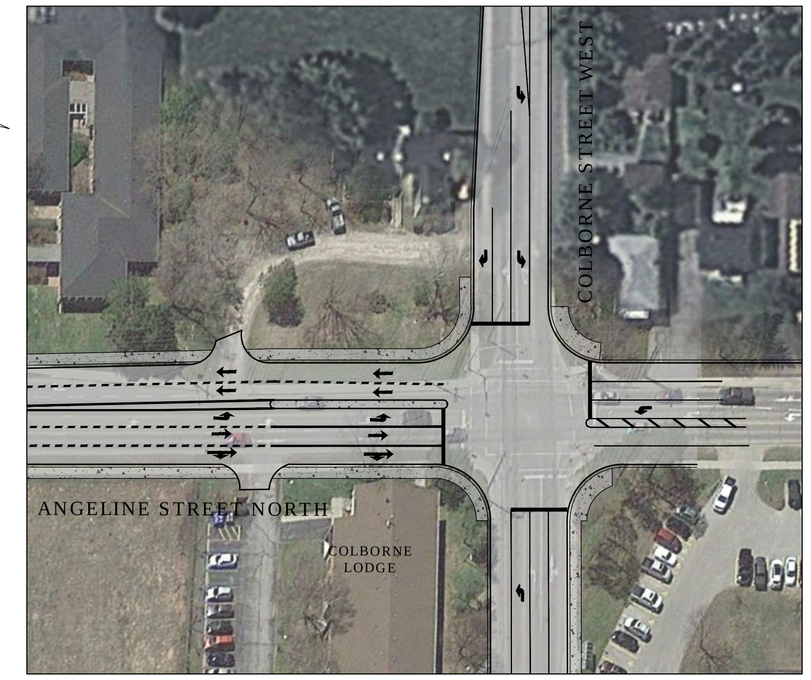



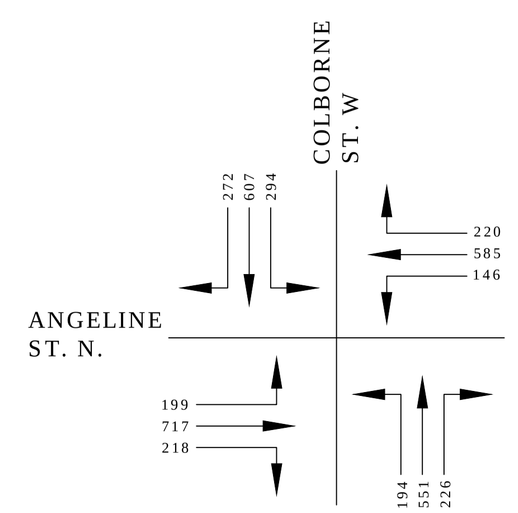

2031 FORECAST
TRAFFIC VOLUMES

ALTERNATIVE 4
KENT ST. W.
INTERSECTION



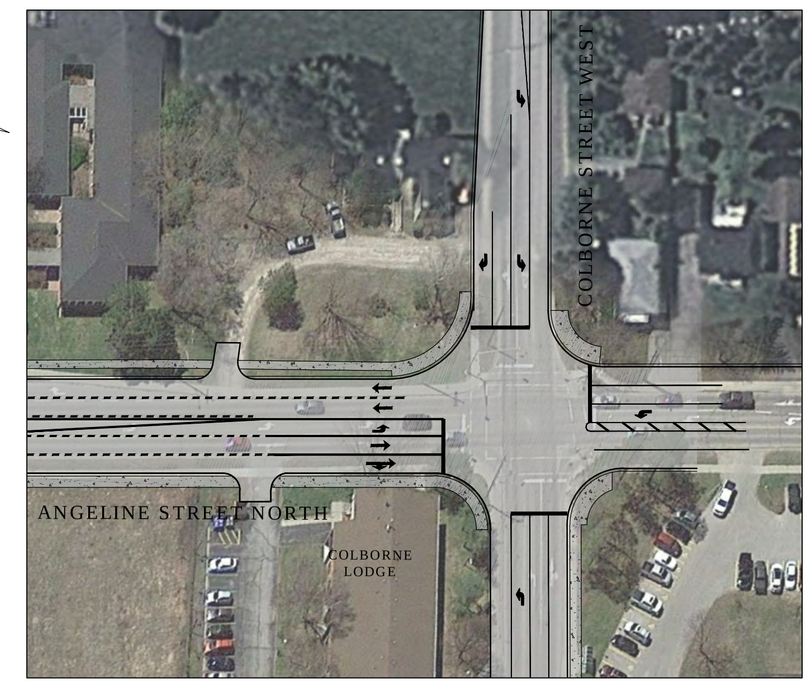

ALTERNATIVE 3
COLBORNE ST. W.
INTERSECTION




2031 FORECAST
TRAFFIC VOLUMES

ALTERNATIVE 4
COLBORNE ST. W.
INTERSECTION



# PRELIMINARY ALTERNATIVE DESIGN SUMMARY

As part of the planning process, the following alternatives were identified in order to address the Problem / Opportunity:

## Alternative 1 – Westward Shift

- Addresses all traffic needs at Kent intersection
  - North configuration: 6-lane section
  - South configuration: 6-lane section
- Significant property impacts

## Alternative 2 – Eastward Shift

- Addresses all traffic needs at Kent intersection
  - North configuration: 6-lane section
  - South configuration: 6-lane section
- Largest impact to vegetation (tree removal)
- Largest impact to overhead utility line
- Significant property impacts

## Alternative 3 – Westward Shift (Reduced Pavement Width)

- Addresses most traffic needs at Kent intersection
  - North configuration: 5-lane section
  - South configuration: 5-lane section
- Significant property impacts
- Least impact to vegetation (tree removal)

## Alternative 4 – Eastward Shift (Reduced Pavement Width)

- Does not address all traffic needs at Kent intersection
  - North configuration: 4-lane section
  - South configuration: 4-lane section
- Least impact to overhead utility line
- Least impact to property

Each alternative will be evaluated based on the assessment criteria shown on the following presentation board, as well as City guidelines, policies and design standards.

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Ainley GROUP CONSULTING ENGINEERS PLANNERS

# PRELIMINARY ASSESSMENT CRITERIA FOR ALTERNATIVE SOLUTIONS

## Angeline Street North Corridor

**During the assessment / evaluation of alternative solutions, consideration will be given to the following factors and criteria:**

### Natural Environment

- Landscape Components (Tree Inventory)
- Surface Water / Drainage

### Cultural Environment

- Aboriginal / First Nations
- Built Heritage / Cultural Landscape
- Archaeological Resources

### Socio-Economic Environment

- Accessibility during Construction
- Property Impacts
- Compatibility with Land Use

### Transportation Environment

- Construction Delays
- Roadway Safety
- Traffic Operations / Performance

### Costs

- Capital (Construction)
- Utility Relocation
- Property
- Operation and Maintenance

KAWARTHA LAKES

Minley GROUP CONSULTING ENGINEERS PLANNERS

Upon completion of the Public Information Centre, the following steps will be taken:

- Review alternative design concepts in consideration of public / agency comments;
- Review alternative design concepts in consideration of natural, socio-economic, cultural, and transportation environments;
- Confirm the preliminary preferred alternative; and
- Present the preliminary preferred alternative at the PIC #2 (date to be determined).

***Thank you for attending!***

***Please provide comments by March 15, 2019.***


**Ms. Elizabeth Bonucchi, P. Eng**
Consultant Project Manager
Ainley Group

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2

**Phone**: (343)-266-0002 ext. 207
**Fax**: (343)-266-0028
**E-mail**: bonucchi@ainleygroup.com

**Mr. Corby Purdy, C.E.T.**
Supervisor, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8

**Phone**: (705)-324-9411 ext. 1155
**Fax**: (705)-324-2982
**E-mail**: cpurdy@kawarthalakes.ca


Comments and information regarding the proposed project are being collected to assist in meeting the requirements of the *Environmental Assessment Act.* The collection of comments and information will be conducted in accordance with the *Freedom of Information and Protection of Privacy* Act. Comments will be maintained on file for use during the Study and may be included in the Study documentation. With the exception of personal information, all comments will become part of the public record.

KAWARTHA LAKES

Ainley GROUP CONSULTING ENGINEERS PLANNERS

# Appendix C

## Comments Received Before the PIC

## Elizabeth Bonucchi

**From:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Sent:** February-15-19 8:10 AM
**To:** [redacted]
**Cc:** Juan Rojas; bonucchi@ainleygroup.com
**Subject:** RE: proposed 4 lanes on Angeline.

**Categories:** Comments

Good morning [redacted]
I would be happy to meet with you to discuss the project ahead of the Public Information Centre.
I am available next week on Tuesday afternoon, Wednesday morning, and Thursday morning.
Please let me know what day/time works best for you.
Corby

**From:** [redacted]
**Sent:** Thursday, February 14, 2019 8:38 AM
**To:** Corby Purdy
**Cc:** [redacted]
**Subject:** proposed 4 lanes on Angeline.

Dear Mr. Purdy
I just received notice of an ongoing Environmental assessment for the proposed 4 lanes on Angeline. My dental practise Dentistry on Kent which I own and the building that my wife owns could be adversely affected by this construction. Looking at your crude drawing and imagining 4 lanes we could lose a substantial amount of land to the expansion, not to mention several large mature trees.
Most importantly is my concern about the interruption to my business during the construction process.
I intend to be at the informal meeting on Feb. 28th, but would like to address my concerns to you directly. Possibly we could sit down for a discussion.
I eagerly await your reply.
Sincerely
[redacted]

This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this e-mail. If you have received this e-mail in error, please notify the sender immediately by telephone, fax, or e-mail and shred this confidential e-mail, including any attachments, without making a copy. Access to this e-mail by anyone else is unauthorized.

# Appendix D

## Comments Received At & After PIC

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

RESIDENTS OF CHADWIN DRIVE CONCERNS

1. CROSSING ANGELINE BY PEDESTRIAN SENIORS TO GET TO PLAZA (GIANT TIGER) FROM CHADWIN DRIVE
2. INCREASE IN TRAFFIC THAT USE CHADWIN DRIVE TO AVOID ANGELINE ST N AND COLBORNE STREET WEST INTERSECTION

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
Infrastructure Design and Construction
Engineering and Corporate Assets
12 Peel Street, P.O. Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

We are not in favour of any of the options. Crossing 3 lanes of traffic to get in & out of our driveway is difficult enough, especially when having to back out. The road noise is already very loud with transport trucks, motorcycles and the loud cars - not to mention the people speeding. We don't want to lose the privacy we already have with losing the trees and bringing the road closer. We have small children that don't need to be closer to traffic when playing outside. We are planning a landscape project for this spring but now will have to put that on hold until this decision is made. It's intended to raise the property value but losing land to the road we feel will decrease our property value. Also, not looking forward to living with construction for a period of time.

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
Infrastructure Design and Construction
Engineering and Corporate Assets
12 Peel Street, P.O. Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

We realize the entrances and the trees at the corner of Angeline and Colborne will be impacted. We're willing to work with the designers for a change and better solution.

Fairview Baptist Church.

[redacted]

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
Infrastructure Design and Construction
Engineering and Corporate Assets
12 Peel Street, P.O. Box 9000
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

KAWARTHA LAKES

# Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

Dear Sirs / Madam

I was given copies of the 4 proposed Options for the intersection of KENT and ANGELINE

I own the dental Practice Dentistry on Kent and my wife owns the building. I represent her here today.

Option 1 – Totally Catastrophic would result in the necessity of selling the building / land and moving the practice resulting in an unmanagable cost.

Option 2 – Most likely would be the same as #1. Loss of parking and patient movement through parking lot. If Angeline parking entrance lost, Access would be terrible.

Option 3 – This is workable with input

Option 4 – best.

Project concern: I'm worried about the disruption to my practice during construction phase will that loss of revenue and ability of my patients to recieve care.

* I will follow this up in a formal letter.

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
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# Dentistry on Kent

**Date: Mar. 12, 2019**

**Re: Expansion of Angeline St.and its affect on Dentistry on Kent**

**Dear Elizabeth Bonucchi and Corby Purdy**

**I have met with Mr. Corby on one occasion and did attend the informal meeting in Lindsay Feb. 28th, 2019. I left a written explanation of how the project could affect me and wanted to follow it up with a formal response. My wife owns the property and I own the dental office located at** [redacted]

**Basically Options 1 and 2 would be catastrophic for my business and office. We would lose too many parking spots and the Angeline entrance. These would also probably result in the loss of my walkway from back parking to front.**
**These options would force me to move the practice. That and the fact the land would be unsellable would just be too costly to me, placing an unmanageable expense.**

**Options 3 and 4 are doable. I would need to work closely with you guys to ensure we maintain the Angeline entrance and the rebuilt walkway. I am concerned with the difficulty the actual construction will impose on my patients and office access. No doubt there will be a financial hit to my practice but I think with cooperation it could be manageable.**

**Let me know how things develop or if you need any further imput from me.**

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

REGARDING [redacted] ACCESS FROM ECONOMY WHEELS
JUST WONDERING HOW FAR NORTH OF COLBOURNE ON ANGELINE
WOULD THE 4 LANES START AND WHICH SIDE OF ROAD WILL YOU
BE TAKING PROPERTY TO INSERT 4 LANES

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


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KAWARTHA LAKES

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

Any Redesign must incorporate accomodation for bicycle & E-bike use.
Future increased use of bikes for transportation must be designed in to the plans now.
~~Growth of bicycle for~~

Existing rural infrastructure ~~of~~ for cyclists leads them onto Thunderbridge and Angeline St. North. Future development west of Angeline St. North incorporates bikelanes on St. Josephs exiting onto Angeline St. North

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

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Kingston, ON K7M 8N2
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KAWARTHA LAKES

# Public Information Centre
February 28, 2019
## Angeline Street North

**Comments –**

Regarding the [redacted] property (medical building). The plans need to show a driveway into the medical building. The driveway into the adjacent mall should be moved about 30 metres south so that the 2 driveways are not confused by motorists entering or exiting either of these driveways (as often happens now).
Another issue is the lack of bike path(s) in this section. The 2014 Provincial Policy Statement argues that "active transportation" is to be promoted. Given that this is new construction, advantage should be taken of building a bike path that should be planned for connection to downtown Lindsay, to the Scugog River paths and to bike paths along the Trans Canada Trail, Victoria Rail Trail, other trails and to new subdivisions. I am a director of the Green Trails Alliance and we support a bike path on this Angeline St. N. reconstruction. As well, sidewalks should be constructed on both sides of the road in keeping with the Policy Statement.

| Name (please print) | Address | Signature |
|---|---|---|
| [redacted] | | |

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
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Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

**Elizabeth Bonucchi**

**From:** [redacted]
**Sent:** March-04-19 6:53 PM
**To:** Elizabeth Bonucchi; cpurdy@kawarthalakes.ca
**Subject:** Re Angeline St N call for comments

**Categories:** Comments

Ms. Elizabeth Bonucchi, P.Eng. Ainley Graham & Associates Limited Project Manager

Mr. Corby Purdy, C.E.T.

City of Kawartha Lakes, Supervisor Infrastructure Design and Construction Engineering and Corporate Assets

I am commenting on behalf of the Owners of the medical building at [redacted]

The Angeline St access has been awkward and dangerous for some years because of the crossing traffic going into our parking lot and into the adjacent mall.

Would it be possible to move the north mall parking access to the south a bit? It would be safer for foot traffic as well.

Thank you

[redacted]

March 4, 2019

City of Kawartha Lakes
P.O. Box 9000, 26 Francis Street
Lindsay, Ontario K9V 5R8
Attention: Supervisor of Infrastructure Design

**RE: INFORMATION MEETING (FEB. 28/19) REGARDING A CLASS ENVIRONMENTAL ASSESSMENT (EA) FOR THE ANGELINE STREET NORTH, COLBORNE STREET WEST TO ROOSEVELT STREET, TOWN OF LINDSAY**

Dear Mr. Purdy:

Unfortunately many of our members were not able to attend this information session but we appreciate the opportunity to provide written comments based upon what has been told to us and what we can view on-line about the proposed EA plans.

I am sure you agree this design and eventual development needs to last a long time – 20 years plus. The need to plan for the future and not be entirely focused on the car; it is this we have our biggest objection that NO BIKE LANES are being planned for in this initial design.

During your environmental assessment this needs to be included, there is a significant amount of literature supporting bike lanes - health, environment, economic, social and more. This proven research needs to be applied to this project.

Because of the lack of support in the past in the development of plans by CKL for cycling/pedestrian, especially in Lindsay, there is no Active Transportation or Living Plan or Cycling Plan to use in your planning of Angeline Street. You will need to depend on citizens input, limited CKL policy and Provincial Policy to provide direction.

Some of these provincial policies that support "active transportation" such as bike lanes are:

PROVINCIAL POLICY STATEMENT (2005, 2014) The Provincial Policy Statement sets out Provincial policy which municipal planning instruments must be consistent with. This section addresses how the Cycling and Leisure Trails Plan is consistent with Provincial policy. "The long term prosperity and social well being of Ontarians depends on maintaining strong communities, a clean and healthy environment and a strong economy".11 It states "strong communities, a clean and healthy environment and a strong economy are inextricably linked. Long term prosperity, environmental health and social well-being

should take precedence over short-term considerations.12 Specific policy direction on parks and open spaces is provided in Section 1.5.1: Healthy, active communities should be promoted by: a) Planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, and facilitate pedestrian and; b) non-motorized movement, including but not limited to, walking and cycling.

ACTIVE2010: Ontario Sport and Physical Activity Strategy 23 includes a number of key components, including the Ontario Trails Strategy, which supports convenient, affordable and health-enhancing physical activity on Ontario's province-wide network of trails and bikeways, such as walking, hiking, jogging, rollerblading, cross-country skiing, cycling and other activities.

City of Kawartha Lakes Transportation Master Plan (2012) the plan is mostly focused on the automobile however, there are sections that deal with pedestrian and cycling (bike lanes). The plan refers to a BALANCE STRATEGY that recognizes opportunities for trails and cycling. As well, section 9.5.1.1 refers to the "develop bicycle lanes on selected collector/rural roads as road improvements are undertaken". Angeline Street was identified as one of these collector roadways.

Ontario's Cycling Strategy (2016) looks ahead 20 years and outlines what needs to be done to promote cycling across the province as a viable mode of transportation. The guiding principles for this policy are safety, accessibility, connectivity and partnerships.

The on-line scope of the EA plan shows the development is planned from Roosevelt Street to Colborne. Again no bike lanes indicated, if you are planning to the future and with all the current residential development occurring Angeline Street North the study or EA assessment should be done at least up to Springdale Gardens or in ten years' time we will be back planning another EA.

Bike lanes should be co-ordinate and integrated with the large subdivision development occurring at Jennings Creek and Colborne Street.

These are just a few of our comments regarding the lack of vision for bike lanes indicated at this public meeting.

We trust our comments will be considered seriously and incorporated into the next version of the EA assessment.

Yours truly,

Barb MacPherson, President
Green Trails Alliance
49 Mohawk Drive, Lindsay ON
K9V 0J5

## Elizabeth Bonucchi

**From:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Sent:** March-07-19 7:48 AM
**To:** bonucchi@ainleygroup.com
**Subject:** FW: Colborne and Angeline
**Attachments:** [redacted] Proposed Development.pdf

**Categories:** Comments

Hi Liz,
Attached is comments I received from [redacted]

**From:** [redacted]
**Sent:** Wednesday, March 06, 2019 5:30 PM
**To:** Corby Purdy
**Cc:** [redacted]
**Subject:** Colborne and Angeline

Hi Corby,

Please find attached conceptual drawing for the corner of Colborne St and Angeline. The current house has an entrance off of Angeline and it would be nice if we could maintain an option for an entrance here.

I am away now until March 18th but would be pleased to chat further when I return.

Regards,

[redacted]

This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this e-mail. If you have received this e-mail in error, please notify the sender immediately by telephone, fax, or e-mail and shred this confidential e-mail, including any attachments, without making a copy. Access to this e-mail by anyone else is unauthorized.

Re: Adelaide Street North

To: Ms. Elizabeth Bonuchi, P. Eng.

Mr. Corby Purdy, C.E.T

Concerns/Comments

My concerns are related to the changes proposed between Kent Street and Roosevelt.

1. The corner at Roosevelt and Broad is already extremely problematic. I have witnessed numerous near-collisions. This proposal would have four lanes merging at that corner, and the risk for accidents will significantly increase.

2. My driveway is a steep hill. It is already a visual challenge to exit safely onto Angeline Street because of earlier changes made by the town. If this proposal includes removing the wall garden, I will be left with a high wall which will effectively make short adults, children and motor scooters approaching from the south invisible until I am on the sidewalk. The little grade I do have at the bottom will be gone. My front lawn will have an unacceptable high drop that will cause a fall which could be serious. Passing children have a habit of walking the wall already. Mowing the lawn will present hazards.

Angeline Street North: page 2

3. This is a residential block. While I understand that this proposed plan is based on traffic volume in 2032, current traffic levels do not support immediate change. The very real hazards involved suggest that within that time frame, another north/south route extending from Kent to Highway 7 should be considered to disperse traffic more effectively beyond 2032.

At the meeting, the accident rate at Kent and Angeline was mentioned. This proposal will not alleviate that and may make it worse. Most of the accidents appear to be related to a failure to adhere to advance greens appropriately in addition to other traffic violations. There is already a turn lane. The plan for Kent Street west of Angeline resulted in a stretch of road that is dangerous and also results in numerous accidents. Please don't repeat those errors on this block of Angeline Street South.

[redacted]

Public Information Centre
February 28, 2019
**Angeline Street North**

**Comments –**

- We believe that as a general principle the preferred option is one that will achieve the benefit of improving traffic flow through the intersection while having the minimum impact on adjacent properties.
- The diagrams and explanatory material provided do not make clear exactly how much additional land will have to be acquired under the four options. We look forward to having much greater detail at the next presentation.
- We would be opposed to any plan that required the extensive removal of trees along Angeline Street South (as suggested under Alternative 2).
- We see problems with plans to create a second southbound lane on Angeline South between Kent Street and Broad Street, as this would involve traffic having to merge into a single lane within the short distance of a block (or less, in the case of Alternative 1). We believe this would encourage aggressive driving and increase the risk of accidents as vehicles jockey to merge in that short stretch.
- Whatever option is chosen, the safety of pedestrians and cyclists using the Kent/Angeline intersection must be paramount. Even at present, crossing at the intersection can be a nerve-racking experience for pedestrians, especially the elderly and handicapped. If the intersection is to become even busier than it is now, consideration should be given to traffic calming measures. These might include appropriately placed speed bumps.

**Please submit this comment sheet no later than March 15, 2019 to:**


Ms. Elizabeth Bonucchi, P.Eng.
Ainley Graham & Associates Limited
Project Manager

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 extension 207
Fax: (343) 266-002
E-mail: bonucchi@ainleygroup.com

Mr. Corby Purdy, C.E.T.
City of Kawartha Lakes, Supervisor
Infrastructure Design and Construction
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Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
E-mail: cpurdy@kawarthalakes.ca

**Elizabeth Bonucchi**

**From:** Corby Purdy <cpurdy@kawarthalakes.ca>
**Sent:** March-18-19 10:02 AM
**To:** [redacted]
**Cc:** bonucchi@ainleygroup.com
**Subject:** RE: Hi. [redacted]

Good morning [redacted]
Thanks for your interest in the project.
The material at the public meeting can be found at the link below. I you have any trouble viewing it pls let me know. We can make other arrangements for you to view the material.
Right now the consultant is looking at exploring the different alternatives. You input is welcomed!

https://www.kawarthalakes.ca/en/municipal-services/major-projects.aspx

Corby

-----Original Message-----
From: [redacted]
Sent: Friday, March 15, 2019 1:37 PM
To: Corby Purdy
Subject: Hi. [redacted]

Hi. Sorry I missed the original Feb 28 meeting. Illness. Can you please briefly advise what's about to take place? I must admit, that at the moment, the sole concern I have is the bump in the road in front of my homes (Angeline street). Every time a truck, car pulling a trailer/small or large/-or an 18 wheeler passes over--it makes one hell of a noise. If you're doing anything close bye, please rectify that. If you have another meeting I'll be there unless it's in April//Mexico. (Holiday). One other thing, will you be touching the wall in front of my homes and [redacted] I'm almost deaf, so email is best. I played way too much hockey without a helmet!! 😁

Sent from my iPhone
This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this e-mail. If you have received this e-mail in error, please notify the sender immediately by telephone, fax, or e-mail and shred this confidential e-mail, including any attachments, without making a copy. Access to this e-mail by anyone else is unauthorized.

**From:** Sharday James
**To:** bonucchi@ainleygroup.com; cpurdy@kawarthalakes.ca
**Subject:** MCEA Improvements to Angeline Street North, Lindsay
**Date:** March-01-19 3:02:13 PM

---

Hello,

My name is Sharday James and I am a representative from the Chippewas of Rama First Nation. I am sending this email in regards to a notice we received from you dated February 15th, 2019 about the eventual completion of the MCEA process for improvements to Angeline Street North in Lindsay. Thank you for reaching out to us. At this time we have no comments or concerns regarding this project. However, we would like to point out that this project falls in Treaty 20 and it would be best if you contacted Hiawatha, Curve Lake and Scugog FNs. We still have interests in activities in this area and we ask that you please continue to contact us with any activities that take place throughout this region.

Thank you,
Sharday James

---

**Sharday James**
*Community Consultation Worker, Communications*
**Chippewas of Rama First Nation**
(ph) 705-325-3611, 1633
(cell)
(fax)
(url) www.ramafirstnation.ca

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*Please consider the environment before printing this e-mail.*

| | |
|---|---|
| **From:** | Wiltshire, Jeff (MNRF) |
| **To:** | bonucchi@ainleygroup.com |
| **Cc:** | Warren, Catherine (MNRF) |
| **Subject:** | MNRF Comments - Angeline St N. Reconstruction - LIndsay - 19-OPS-CKL-INF-2971; PB2019-0849 |
| **Date:** | March-08-19 11:39:37 AM |

Hello Ms. Elizabeth Bonucchi,

MNRF Peterborough District has received the letter (dated Feb. 15, 2019) from Scott Reynolds regarding the Notice of Study Commencement (Angeline St. N. Reconstruction in Lindsay) with respect to the project area located in Lots 20 to 22, Concessions 4 and 5 (Ops township), City of Kawartha Lakes. We provide the following general information and technical advice for your consideration:

**General: MNRF Data and Information**

MNRF's natural heritage and natural resources GIS data layers (including wetlands, ANSIs, and species at risk observations) can be obtained through the Ministry's Land Information Ontario (LIO) website. You may also view natural heritage information online (e.g. Provincially Significant Wetlands, ANSIs, woodlands, species at risk 1 km screening squares) using the Natural Heritage Make a Map tool. To determine which species are protected under the Endangered Species Act, please refer to the Species at Risk in Ontario List.

We recommend that you use the above-noted sources of information during review of your project proposal.

MNRF may provide additional information and technical advice if details of the proposed location(s) and design(s) of the proposed works are circulated to our office.

**Wetlands**

According to our records there are no wetlands within or adjacent to the project area.

**ANSIs**

According to our records there is no ANSI within 1km of the project area.

**Fisheries**

According to our records there are no fisheries concerns within 1km of the project area.

**Species at Risk**

A review of our best available information indicates that there are observations of the following species (endangered/threatened/special concern) in the immediate area of the site (1 km radius):

- Bank Swallow (THR)
- Barn Swallow (THR)
- Bobolink (THR)

Also, there are observations of the following species (endangered/threatened/special concern) in the general area (5 km) of the proposed activities:

- Canada Warbler (SC)
- Eastern Meadowlark (THR)
- Eastern Wood-pewee (SC)

- Loggerhead Shrike (END)
- Peregrine Falcon (SC)
- Snapping Turtle (SC)
- Wood Thrush (SC)

Although no other threatened or endangered species or their habitat have been documented in the area of the proposed projects, these features may be present and this list should not be considered complete.

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list are protected under the Endangered Species Act, 2007 (ESA). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. Section 10(1) of the ESA prohibits the damage or destruction of habitat of a species listed as endangered or threatened on the SARO list.

**Since comprehensive mapping for most species at risk is not available, a site assessment is recommended** to identify the presence of any species at risk and/or their habitat on the subject lands, as a decision should not be made in the absence of such information. The focus of the site assessment can include a review of the information about known occurrences provided by MNRF above along with other information sources such as species distributions and habitat requirements as well as field visits using MNRF approved protocols during the appropriate seasons by a qualified professional.

Due to the species that are potentially present at this site, the following recommendations should help prevent adverse impacts. If you are proposing to conduct SAR/habitat surveys, please contact us for appropriate survey protocols.

Birds

Workers must be vigilant and check work areas for the presence of breeding birds and nests containing eggs and/or young. If breeding birds and/or nests are encountered, works should not continue in the location of the nest until after August 1 (or as soon as it has been determined that that the young have left the nest). Please note that the breeding bird season in the subject area extends from April 15 to July 31.

Specific Barn Swallow Information: Barn Swallow nests may be present under bridges and/or culverts. Therefore, the underside of these structures should be assessed for Barn Swallow nests before proceeding. If no nests are present, a contravention of the ESA is unlikely. However, if nests are present, construction should not begin until after August 15 of any year. If nests will be impacted during the nesting season or if the structure will no longer be suitable for nesting post-construction, ESA requirements will apply to the activity. A regulatory provision is available that allows eligible activities that impact to Barn Swallow to register and follow all the rules in regulation in place of applying for a permit under the ESA. See this website for more information on regulatory requirements for Barn Swallow.

Turtles and Snakes

Workers must be vigilant and check work areas for the presence of turtles. If turtles or snakes are encountered, whenever possible, work should be temporarily suspended until the animal is out of harm's way. Workers should report any turtle observations (including photographs and coordinates) to the Peterborough District Office immediately at 705-755-2001. **Please note that the turtle nesting season in the subject area extends from May**

**15th to September 30th.** Therefore, activities which may cause adverse impacts to a species or habitat (e.g. use of heavy equipment) should commence after September 30th.

**Regulatory Provisions and Further Registration Options**
The ESA provides regulatory provisions for certain eligible activities to proceed without an ESA permit. To be eligible, the proponent register with the MNRF and adhere to specific rules in regulation under the ESA. To assess your eligibility please see the links below:

- Information on the ESA regulatory provision
- ESA regulation (O. Reg. 242/08).

If an impact to a species at risk or its habitat cannot be avoided, a person(s) should contact MNRF to discuss options, including applying for an authorization under the ESA. In situations where an activity is not registered with or authorized by the MNRF, a person(s) must comply with the ESA by modifying proposed activities to avoid impacts to species at risk and habitat protected under the ESA.

It is highly recommended that landowners and on-site workers familiarize themselves with MNRF's Species at Risk website.

During on-site activities, should any species at risk or their habitat be potentially impacted, MNRF should be contacted immediately and operations should be modified to avoid any negative impacts to species at risk or their habitat until further discussions with MNRF can occur regarding opportunities for mitigation. If any species at risk are found, the MNRF Peterborough District Office should be contacted at **705-755-2001**. If possible, pictures of the species at risk and coordinates for the location where it was observed should be provided to MNRF.

**Significant Woodlands**
The study area contains a small wooded area in the south west corner of the project area. The identification of significant woodlands is the responsibility of the respective planning authority. As such, we recommend that you contact the local municipality for more information and potential study requirements.

**Significant Wildlife Habitat**
According to our records there are no significant wildlife habitats within or near (500m) the project area. However, significant wildlife habitat is typically identified during site-specific investigations.

Significant wildlife habitat may include features such as: seasonal concentration areas for wildlife species (e.g. snake hibernaculum), rare vegetation communities (e.g. tallgrass prairie), specialized habitats of wildlife (e.g. turtle nesting and over-wintering areas), habitats of species of conservation concern (e.g. Special Concern species as identified on the Species at Risk in Ontario list) and animal movement corridors (e.g. amphibian movement corridors). We recommend that you contact the local planning authority for potential study requirements for the identification of Significant Wildlife Habitat. In addition, when no information is available, we refer you to the Significant Wildlife Habitat Technical Guide and the Ecoregion Criterion Schedules for the identification of Significant Wildlife Habitat (January 2015). The Ecoregion Criterion Schedules and Significant Wildlife Habitat Mitigation Support Tool (MiST) can be downloaded here. MNRF considers these documents to be the best available information to identify significant wildlife habitat.

Should a site be identified by the municipality as Significant Wildlife Habitat, development and site alteration shall not be permitted in the designated area or on adjacent lands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Deer Yards:
MNRF is responsible for the identification of winter deer yards.
A review of our available information indicates that the subject property does not contain deer wintering or deer yards.

According to the latest Ecoregion 6E Criterion Schedule for the identification of Significant Wildlife Habitat (January 2015), both Stratum 1 and 2 deer yards are recommended to be considered Significant Wildlife Habitat. Stratum 2 deer yards can also contain agricultural areas. According to the PPS, development within Significant Wildlife Habitat would require an EIS to demonstrate no negative impacts.

Raptor Nests:
Active raptor nesting habitat (nests) and the surrounding vegetative community may be identified as Significant Wildlife Habitat. According to our records there are no raptor nests within or near the project area. However, this does not mean they don't exist. If some are found please contact the MNRF for "next steps".

Aggregate Resources
The project area is located on tertiary sand and gravel deposits and bedrock deposits. Where an application for development occurs on or within 300 metres of a known unconsolidated deposit (e.g., sand, gravel, clay) or a mineral aggregate pit operation, or 500 m of a known bedrock deposit or bedrock quarry operation, the applicant should be required to assess the impact of the proposed development on the mineral aggregate resource and the mineral aggregate operation(s). MNRF can provide a terms of reference for completing an impact assessment.

Petroleum Wells & Oil, Gas and Salt Resource Act
There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the Library website in order to better understand the well information available. Any oil and gas wells in your project area are regulated by the Oil, Gas and Salt Resource Act, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at 519-873-4634.

General Information Regarding MNRF approvals:

Lakes and Rivers Improvement Act
Approval may be required under the Lakes and Rivers Improvement Act (LRIA), if any dyking, dredging or damming activities are planned along or near watercourses or wetland areas. If you have any questions regarding the LRIA, please contact the Lands and Waters Technical Specialist at 705-755-3134.

**Public Lands Act**
Except for federal canals and harbours, the beds of most lakes and streams are public land in Ontario. Please note that you may require a Work Permit under the Public Lands Act if you are proposing any work in water or near shore areas below the spring high water mark. If you have any questions about the Public Lands Act (PLA), please contact the Lands and Waters Technical Specialist at 705-755-3134.

**Fish and Wildlife Conservation Act**
Please note that you may require a Scientific Collector's Permit from our office if you will be doing any fish or wildlife sampling, collection, salvage, or relocation within Peterborough District. For more information about Scientific Collector's Permits, please contact Julie Formsma, Fish and Wildlife Technical Specialist at 705-755-3296.

**Other Approvals**
It is the responsibility of the proponent to acquire all other information and necessary approvals from any other municipal, provincial or federal authority under other legislation. We recommend that you contact your local Conservation Authority, Department of Fisheries and Oceans, Parks Canada – Trent-Severn Waterway, Ministry of the Environment, Conservation and Parks, Ministry of Tourism, Culture and Sport, etc.

If you have any questions regarding the above comments, don't hesitate to contact me. Please reference file number **19-OPS-CKL-INF-2971** and **PB2019-0849** for any future correspondence.

Sincerely,

*Jeff*

Jeff Wiltshire
Partnership Specialist
Peterborough District
Ministry of Natural Resources and Forestry
300 Water Street
Peterborough ON K9J 3C7

Office: 705-755-3295
Cell: 705-927-8094
E-mail: jeff.wiltshire@ontario.ca

As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

## Elizabeth Bonucchi

**From:** Charlotte Gurnsey <consultation@mbq-tmt.org>
**Sent:** March-19-19 11:30 AM
**To:** bonucchi@ainleygroup.com
**Cc:** Nicole Storms; Amy Brant; Lisa Maracle
**Subject:** Angeline Street North Reconstruction
**Attachments:** Angeline St N Reconstruction - City of Kawartha Lakes & Ainley Group - Reponse (Signed).pdf

Good morning Ms. Bonucchi,

On behalf of MBQ, please find attached our official response to the Angeline Street North Reconstruction Project in the City of Kawartha Lakes. We will also be sending a copy via letter mail for your records.

We look forward to hearing from you in the near future.

Kind regards,

***Charlotte E. Gurnsey***
Consultation Coordinator
Mohawks of the Bay of Quinte | Kenhteke Kanyen'kehá:ka
24 Meadow Drive, Tyendinaga, ON, K0K 1X0
Ph: (613)-396-3424 ext. 155
Cell: (613)-813-5002
Fax: (613)-396-3627
Email: consultation@mbq-tmt.org
*"Another world is not only possible, she is on her way…"*

# MOHAWKS OF THE BAY OF QUINTE

## KENHTEKE KANYEN'KEHÀ:KA

*COMMUNITY INFRASTRUCTURE / TECHNICAL SERVICES / ENVIRONMENT*
*24 Meadow Drive., Tyendinaga Mohawk Territory, ON K0K 1X0*
*Phone 613-396-3424 Fax 613-396-3627*


March 18th, 2019

Elizabeth Bonucchi
Consultant Project Manager: Ainley Group
1-50 Grant Timmins Drive,
Kingston, ON K7M 8N2

**RE: Angeline Street North Reconstruction**
**Notice of Study Commencement and PIC**
**Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

Dear Ms. Bonucchi,

We acknowledge your invitation to participate in the environmental assessment process as it relates to the Angeline Street North Reconstruction Project in the City of Kawartha Lakes.

As a First Nation with limited resources and capacity, it is difficult to actively participate in all environmental assessments in the surrounding area; however, the Mohawks of the Bay of Quinte (MBQ) would be concerned if the preliminary archaeological investigations found artifacts or burial remains. There is a traditional process that must be followed for the repatriation or re-interment of remains. We ask that you please forward any completed Archaeological Assessments to consultation@mbq-tmt.org at your earliest convenience.

The Mohawks of the Bay of Quinte expect the project to be carried out in an environmentally sensible manner that is consistent with the laws and regulations governing the said project. We appreciate your efforts in our endeavors 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 our community and generations to come.

Please note that the above shall not be construed so as to derogate from or abrogate any inherent, Aboriginal, treaty, constitutional, or legal rights of the Mohawks of the Bay of Quinte.

Sincerely,

R. Donald Maracle, Chief
Mohawks of the Bay of Quinte
Email: rdonm@mbq-tmt.org

Cc: File

Government Services Building
22 Winookeeda Street
Curve Lake, Ontario K0L1R0

Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

March 20, 2019

Ms. Elizabeth Bonucchi
1-50 Grant Timmins Drive
Kingston Ontario K7M 8N2

RECEIVED MAR 2 5 2019

Dear Ms. Elizabeth Bonucchi,

**RE: Angeline Street North Reconstruction Class EA.**

I would like to acknowledge receipt of your correspondence, which was received on 2/20/2019 the above noted project.

As you may be aware, the area in which your project is proposed is situated within the Traditional Territory of Curve Lake First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and was the subject of a claim under Canada's Specific Claims Policy, which has now been settled. All 7 First Nations within the Williams Treaties have had their harvesting rights legally re-affirmed and recognized through this settlement. We strongly suggest that you provide Karry Sandy-Mackenzie, Williams Treaty First Nation Claims Coordinator, 8 Creswick Court, Barrie, ON L4M 2S7, with a copy of your proposal as your obligation to consult may also extend to the other First Nations of the Williams Treaties.

Curve Lake First Nation is requiring a File Fee for this project in the amount of $250.00 as outlined in the Consultation and Accommodation Standards. This Fee includes project updates as well as review of standard material and project overviews. Depending on the amount of documents to be reviewed by the Consultation Department, additional fees may apply. **Please make this payment to Curve Lake First Nation Consultation Department and please indicate the project name or number on the cheque.**

If you do not have a copy of Curve Lake First Nation's Consultation and Accommodation Standards they are available at https://www.curvelakefirstnation.ca/services-departments/lands-rights-resources/consultation/. Hard copies are available upon request.

Based on the information that you have provided us with respect to Angeline Street North Reconstruction Class EA Curve Lake First Nation requires a Special Consultation Framework for this project. Information on this Framework can be found on page 9 of our Consultation and Accommodation Standards.

In order to assist us in providing you with timely input, it would be appreciated if you could provide a summary statement indicating how the project will address the following areas that are

Government Services Building
22 Winookeeda Street
Curve Lake, Ontario K0L1R0

Phone: 705.657.8045
Fax: 705.657.8708
www.curvelakefirstnation.ca

of concern to our First Nation within our Traditional and Treaty Territory: possible environmental impact to our drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural values; and to endangered species; lands; savannas etc.

After the information is reviewed it is expected that you or a representative will be in contacts to make arrangements to discuss this matter in more detail and possibly set up a date and time to meet with Curve Lake First Nation in person.

Although we have not conducted exhaustive research nor have we the resources to do so, there may be the presence of burial or archaeological sites in your proposed area. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the *Cemeteries Act* to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

Furthermore, Curve Lake First Nation also has available, trained Cultural Heritage Liaisons who are able to actively participate in the archaeological assessment process as a member of a field crew, the cost of which will be borne by the proponent. Curve Lake First Nation expects engagement at Stage 1 of an archaeological assessment, so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Cultural Heritage Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys to full excavation.

Although we may not always have representation at all stakeholders meetings, it is our wish to be kept appraised throughout all phases of this project.

Should you have further questions or if you wish to hire a liaison for a project, please feel free to contact Julie Kapyrka or Kaitlin Hill, Lands and Resources Consultation Liaisons, at 705-657-8045 or via email at JulieK@Curvelake.ca and KaitlinH@Curvelake.ca .

Yours sincerely,

Chief Phyllis Williams
Curve Lake First Nation

# Angeline Street North Reconstruction

## Public Information Centre #2 Summary Report

Prepared For:

City of Kawartha Lakes

October 2024

CREATING QUALITY SOLUTIONS TOGETHER

# Public Information Centre #2 Summary Report

for

Angeline Street North Reconstruction

CITY OF KAWARTHA LAKES

Prepared by Ainley Group

October 2024

Prepared By:

Scott Reynolds, B.Sc. (Env), EP
Manager of Environmental Planning
Ainley Group

Alex Wilkinson, P.Eng.
Project Engineer
Ainley Group

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**Appendix A** - Notice of Public Information Centre #2

**Appendix B** - Public Information Centre Display Boards / Comment Sheet / Sign-in Sheet

**Appendix C** - Received Comments Before the PIC

**Appendix D** - Received Comments At and After the PIC

## 1.0 The Study

The City of Kawartha Lakes has retained Ainley Group to undertake preliminary and detail design activities and to complete the Municipal Class Environmental Assessment (MCEA) process for improvements to Angeline Street North, in Lindsay, Ontario. The project limits are located between Colborne Street West and Roosevelt Street, and the study limits are shown in **Figure 1**.

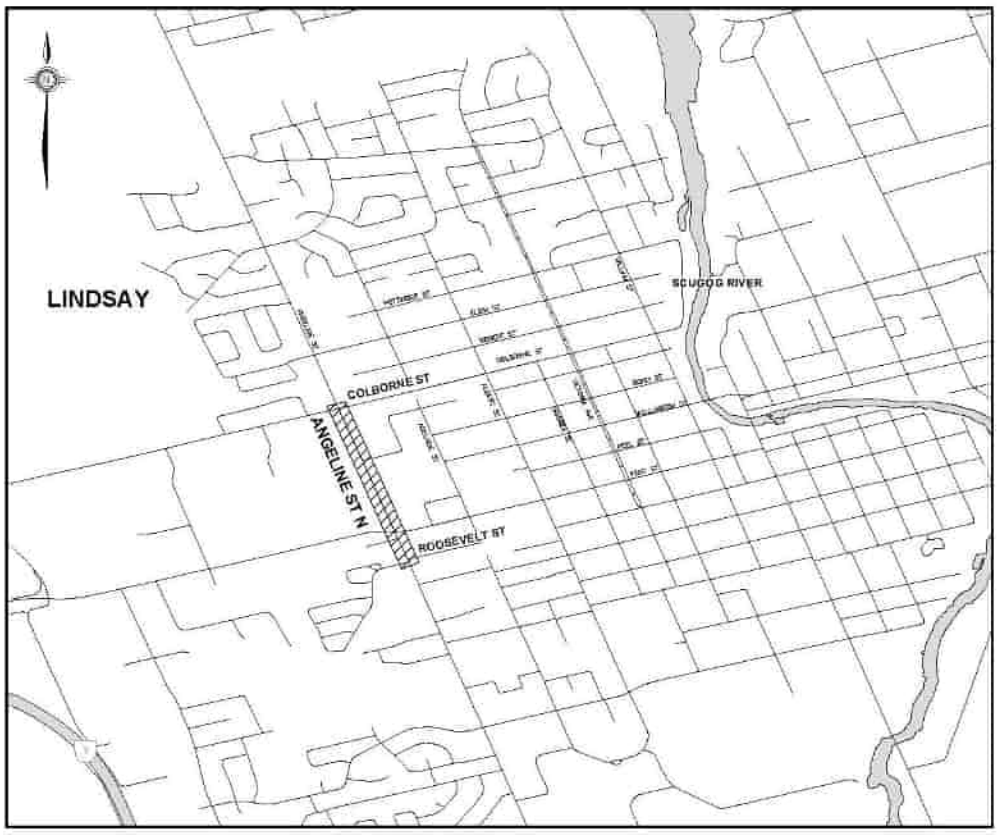



**Figure 1 - Key Map**

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. As part of the study, two (2) intersections along Angeline Street North were identified as requiring improvements: the Kent Street West and Colborne Street West intersections. Overall, the Angeline Street North improvements include those to the Kent Street West and Colborne Street West intersections, and the evaluation of a potential widening up to four (4) lanes, to address future traffic demands.

In order to evaluate potential options to address the intersections at Kent Street West and Colborne Street West, the City of Kawartha Lakes has initiated the MCEA process.

## 2.0 The Process

The proposed improvements to Angeline Street North are classified as a Schedule B undertaking in accordance with the MCEA. Consultation is an important element of the MCEA process, and, to provide information to members of the public, stakeholders / businesses, emergency services, and Indigenous Groups, the second of two (2) Public Information Centres (PIC) was hosted on May 9, 2024. The second PIC was hosted to present the background information, the evaluated alternatives, and the Preliminary Preferred Alternative to members of the public and agencies, seek input and comment on the key aspects of the project, and provide technical and design input in response to any questions brought forward at the PIC and throughout the comment period.

The second PIC for this project was held in the Victoria Room of City Hall on Thursday, May 9, 2024, from 5:00 pm to 7:00 pm.

### 2.1 Public and External Agency Notification

A Notice of Study Commencement and Public Information Centre was advertised on the City of Kawartha Lakes website on April 22, 2024, as well as through social media posts by City of Kawartha Lakes on May 9, 2024.

In addition to the online advertisements and notification on the Municipal website, notification was made through letter correspondence to external agencies, Indigenous groups, and stakeholders, on April 26 and May 1, 2024; providing information regarding the project and the date / time of the PIC.

A copy of the Notice of Study Commencement and Public Information Centre, published on the Kawartha Lakes website, and an example correspondence, detailing the PIC date and time sent to agencies / stakeholders, are provided in **Appendix A**.

### 2.2 Purpose of the Public Information Centre

The Public Information Centre was held to present the alternative solutions, background information and Preliminary Preferred Alternative for the improvements and potential widening of Angeline Street North to members of the public, agencies, and stakeholders. Individuals from the City of Kawartha Lakes and Ainley Group were in attendance at the PIC to present information and to answer any questions.

Members of the public and agencies were invited to review the display boards presenting the proposed information. The display boards at the PIC included the following:

- Welcome Statement
- Project Location Plan
- Problem and Opportunity Statement
- Municipal Class EA Planning and Design Process
- Community Feedback
- Preliminary Preferred Alternative Design
- Preliminary Preferred Alternative Design Summary
- Next Steps

Sign-in forms and comment sheets were provided at the PIC, and attendees were encouraged to complete and deposit forms in the comment box. Interested members were also given the option to provide comments by email, fax, or mail, or through the online comment form on the City of Kawartha Lake's website, with comments being requested by May 31st, 2024.

Comment sheets, the sign-in sheet, and display boards provided at the PIC are provided in **Appendix B**.

### 2.3 Project Staff Attendance at the PIC

The following members of the Study Team were present at the Public Information Centre:

- Corby Purdy – Manager, Infrastructure Design & Construction – City of Kawartha Lakes
- John Innes – Supervisor, Capital Projects – City of Kawartha Lakes
- Joseph Kelly – Senior Engineering Technician – City of Kawartha Lakes
- Alex Wilkinson – Project Manager – Ainley Group
- Scott Reynolds – Manager of Environmental Planning – Ainley Group

### 2.4 Public / Agency Attendance at the PIC / Response

The following interested persons attended the PIC:

- Two (2) representatives of agencies / stakeholders;
- Five (5) plus members of the public;
- Ten (10) individuals / stakeholders filled out a comment sheet or provided an email or phone response at / after the PIC.

## 2.5 Summary of Comments Received Before the PIC

There were five (5) agencies within the project area that provided comments prior to the PIC after receiving the Notice of Commencement and PIC. Copies of the comments received before the PIC, are provided in **Appendix C** and generally summarized below:

- 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.
- Ross Memorial Hospital provided an update regarding contact information.

## 2.6 Summary of Comments Received At and After the PIC

The visitors who attended the PIC were mainly community members of the City of Kawartha Lakes. Ten (10) individuals / stakeholders provided comment at / after the PIC via email, phone or through the provided comment sheets. Copies of the comments received at and after the PIC, are provided in **Appendix D** and generally summarized below.

Summaries of the comments are provided below:

- The west access of the Colborne Lodge, off of Angeline Street North, is the only access for residents. The respondent was concerned if this entrance will be maintained and safe.
- In the event that its access off of Colborne Street and Angeline Street North 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 / Angeline 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.

*(List continued on following page)*

- 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 North, 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 North 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 North 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 North 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 North 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.

## 2.7 Freedom of Information and Privacy Act

With the exception of personal information, the above-noted comments will be maintained as a public database and kept on file for use during the study. Unless otherwise requested, the comments may be included in the Study documentation that is made available for public review.

# Appendix A

## Notice of Public Information Centre #2

**AINLEY GRAHAM & ASSOCIATES LIMITED**
139 Front Street, Unit 100, Belleville, ON K8N 2Y6
Tel: (613) 966-4243 • www.ainleygroup.com

April XX, 2024 File No. 18545-2

AGENCY
ADDRESS
ADDRESS
ADDRESS

**Attn: CONTACT Name**

**Ref: Notice of Second Public Information Centre, Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design, City of Kawartha Lakes**

Dear AGENCY Contact:

The City of Kawartha Lakes has retained Ainley Group to complete design activities and to undertake the Municipal Class Environmental Assessment (MCEA) process for the proposed reconstruction of Angeline Street North within the City of Lindsay.

The section of Angeline Street North to be reconstructed is between Colborne Street West and Roosevelt Street, and includes intersection improvements at Angeline Street North and Kent Street, and Angeline Street North and Colborne Street, and the evaluation for potential widening up to four (4) lanes to address future traffic demands. The location of the study is shown on the attached project location plan.

**The Process**

The preliminary and detailed design activities for Angeline Street North and the intersection improvements are being completed in accordance with the MCEA. The MCEA applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the Environmental Assessment process. The first of two (2) Public Information Centres (PICs) was held on February 28, 2019 to provide information from background studies and the alternative solutions, and to answer questions regarding the project. A second PIC is being held to provide information regarding the preliminary recommended alternative for the project.

PIC #2 will be held on **May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, Ontario, K9V 5R8**. The PIC will consist of a drop-in type format with displays showing project background information, the alternatives, and the

preliminary recommended alternative. Information presented at the PIC will also be available on the City of Kawartha Lakes website at: www.kawarthalakes.ca/majorprojects.

Staff from the City of Kawartha Lakes and Project Lead Consultant (Ainley Group) will be on hand to answer any questions. Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project.

**Comments**

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.


**Mr. Alexander Wilkinson, P.Eng.**
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive,
Kingston, ON
K7M 8N2

Phone: (343) 266-0002 ext. 204
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy**
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, Ontario
K9V 5R8

Phone: (705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.on.ca


These comments will be maintained on file for use during the study in accordance with the *Freedom of Information and Protection of Privacy Act.* With the exception of personal information, all comments will become part of the public record. If you have any accommodation requirements in order to participate in this project please contact one of the project team members listed above.

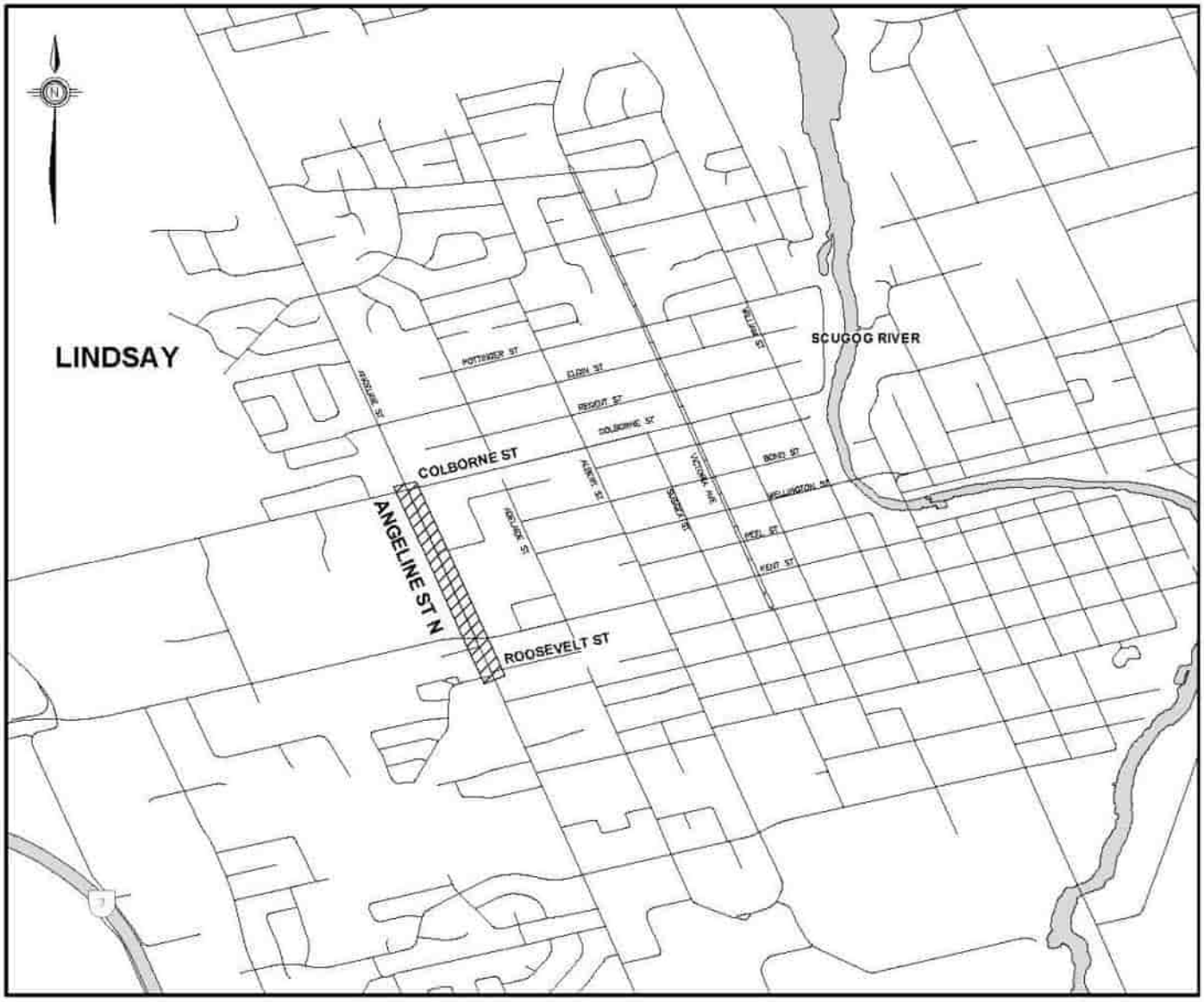
Sincerely,

**AINLEY GRAHAM & ASSOCIATES LIMITED**

Scott Reynolds, B.Sc. (Env), EP
Consultant Environmental Planner

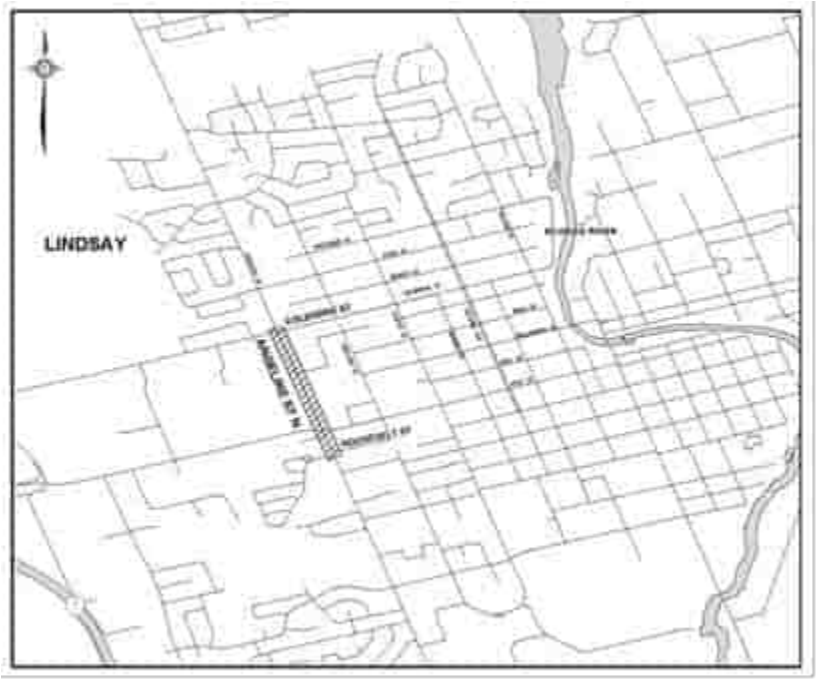
cc. Alex Wilkinson, P. Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Manager, Infrastructure Design and Construction – City of Kawartha Lakes

**Project Location Plan**
**(not to scale)**



**Notice of Second Public Information Centre (PIC)**
**City of Kawartha Lakes**
**Municipal Class Environmental Assessment and Design**
**for the Reconstruction of Angeline Street North**

The City of Kawartha Lakes has retained Ainley Group to complete design activities and to undertake the Municipal Class Environmental Assessment (MCEA) process for the proposed reconstruction of Angeline Street North within the City of Lindsay. The section of Angeline Street North to be reconstructed is between Colborne Street West and Roosevelt Street, and includes intersection improvements at Angeline Street North and Kent Street, and Angeline Street North and Colborne Street, and the evaluation for potential widening up to four (4) lanes to address future traffic demands.




The preliminary and detailed design activities for Angeline Street North and the intersection improvements are being completed in accordance with the MCEA, which applies to municipal infrastructure projects including roads, bridges, water, and wastewater projects.

Public and agency consultation is an important component of the Environmental Assessment process. The first of two (2) Public Information Centres (PICs) was held on February 28, 2019 to provide information from background studies and the alternative solutions, and to answer questions regarding the project. A second PIC is being held to provide information regarding the preliminary recommended alternative for the project.

PIC #2 will be held on **May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, Ontario, K9V 5R8**. The PIC will consist of a drop-in type format with displays showing project background information, the alternatives, and the preliminary recommended alternative. Information presented at the PIC will also be available at www.kawarthalakes.ca/majorprojects on the City of Kawartha Lakes website.

Staff from the City of Kawartha Lakes and Project Lead Consultant (Ainley Group) will be on hand to answer any questions. Subject to comments received and the receipt of necessary approvals, the City of Kawartha Lakes intends to proceed with the planning, design, and construction of this project. If you are interested in providing comments or receiving further information on this project, please contact the following individuals:

**Mr. Alexander Wilkinson, P.Eng.**
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Phone: (343) 266-0002 ext. 204
Fax: (343) 266-0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy**
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8
Phone: (705) 324-9411 x 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.on.ca

Comments and information regarding this study are being collected to assist in meeting the requirements of the *Environmental Assessment Act*. You are encouraged to provide written comments or to contact the City of Kawartha Lakes or the Project Lead Consultant if you have any questions or concerns regarding this project.

# Appendix B

## Public Information Centre Display Boards / Comment Sheet / Sign-in Sheet

City of Kawartha Lakes

Public Information Centre #2 – Sign-In Sheet

Angeline Street North Corridor

**Date:** Thursday, May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall

**Address: City Hall, 26 Francis Street, Lindsay, Ontario, K9V 5R8**

| NAME (PLEASE PRINT) | ADDRESS (INCLUDE POSTAL CODE) |
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Public Information Centre #2
May 9, 2024

# Angeline Street North Corridor

**COMMENTS:** _____

_____

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_____

_____

_____

Thank you for your participation.

*The purpose of the information being gathered on this form is to ensure that further information, when it becomes available, can be forwarded to those parties who have expressed an interest in this study and to gather information from the public for use in the study. The information collected on this form becomes part of the public record and a copy of this document may be attached to further reports that are submitted to Council.*

**PLEASE PRINT**

Name: _____

Address: _____

_____

Tel: _____ Email: _____

**Please submit this comment sheet no later than May 31, 2024 to:**

**Mr. Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Fax: 343.266.0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy C.E.T.**
**City of Kawartha Lakes**
12 Peel Street
Lindsay, ON K9V 5R8
Fax: 705.324.2982
Email: cpurdy@kawarthalakes.ca

**ADDITIONAL COMMENTS:**

Please append to original comment sheet, and provide contact information below:

**PLEASE PRINT**

Name: _____

Address: _____

_____

Tel: _____ Email: _____

# PUBLIC INFORMATION CENTRE

# ANGELINE STREET NORTH CORRIDOR

## Colborne Street West to Roosevelt Street
## Town of Lindsay

## Municipal Class Environmental Assessment

May 9th, 2024
5:00 p.m. to 7:00 p.m.

Kawartha Lakes

Ainley Group CONSULTING ENGINEERS PLANNERS

# WELCOME TO PUBLIC INFORMATION CENTRE #2

## The Purpose of Public Information Centre (PIC) #2:

- To summarize PIC #1, including the concerns and issues brought forward by the public;
- To present the preliminary preferred alternative; and,
- To provide an opportunity for the public to discuss and provide further comments on the project.

**We encourage you to speak to representatives from the City and Ainley Group during the PIC, and to fill out a comment sheet following your review of display materials.**

**Please be sure to sign-in before proceeding.**

Kawartha Lakes

Ainley GROUP CONSULTING ENGINEERS PLANNERS

# METHODS OF COMMUNICATION

## Public Information Centre #2

- ✓ Notices provided to regulatory agencies that may have potential interest in the project.
- ✓ Notices provided to local residents that may have potential interest in the project.
- ✓ Notices provided to potentially affected Indigenous Groups.
- ✓ Notices provided to emergency services, local school boards, and student transportation services.
- ✓ Posted on the City of Kawartha Lakes website.

## Notice of Study Completion/Posting of Project File Report

- To be published on the City of Kawartha Lakes website at the completion of the study.
- Posting will identify 30-day review period of Project File Report and locations where documentation will be made available at the end of the Municipal Class Environmental Assessment (MCEA) process for public and stakeholder review/comment.

# PROJECT LOCATION PLAN

Kawartha Lakes

Ainley GROUP CONSULTING ENGINEERS PLANNERS

# PROBLEM AND OPPORTUNITY STATEMENTS

## Problem Statement

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, and recommended improvements to mitigate them. Stand-alone corridor and MCEA studies for these intersections provided preferred intersection improvements which are being considered as part of the current study for the Angeline Street North corridor.

## Opportunity Statement

The Angeline Street North corridor is being reviewed for potential vehicular traffic improvements to meet the projected 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 reviewed.

The reconstruction also provides an opportunity to review the condition of, and replace, watermain, sanitary sewer, and storm sewer infrastructure, where warranted.

## Relevant Concurrent Studies (External to this MCEA Process)

- The City of Kawartha Lakes is currently completing the following relevant studies concurrently with this MCEA process:
  - **Transportation Master Plan Study** – *long-term strategy to guide the planning, expansion and management of a multi-modal transportation system to the year 2051.*
  - **Growth Management Strategy** – *provides an assessment of future growth and urban land needs within the City to the year 2051.*
- Details and public consultation opportunities for the City of Kawartha Lakes other ‘major projects’ can be found at:

**www.kawarthalakes.ca/en/municipal-services/major-projects.aspx**

Kawartha Lakes

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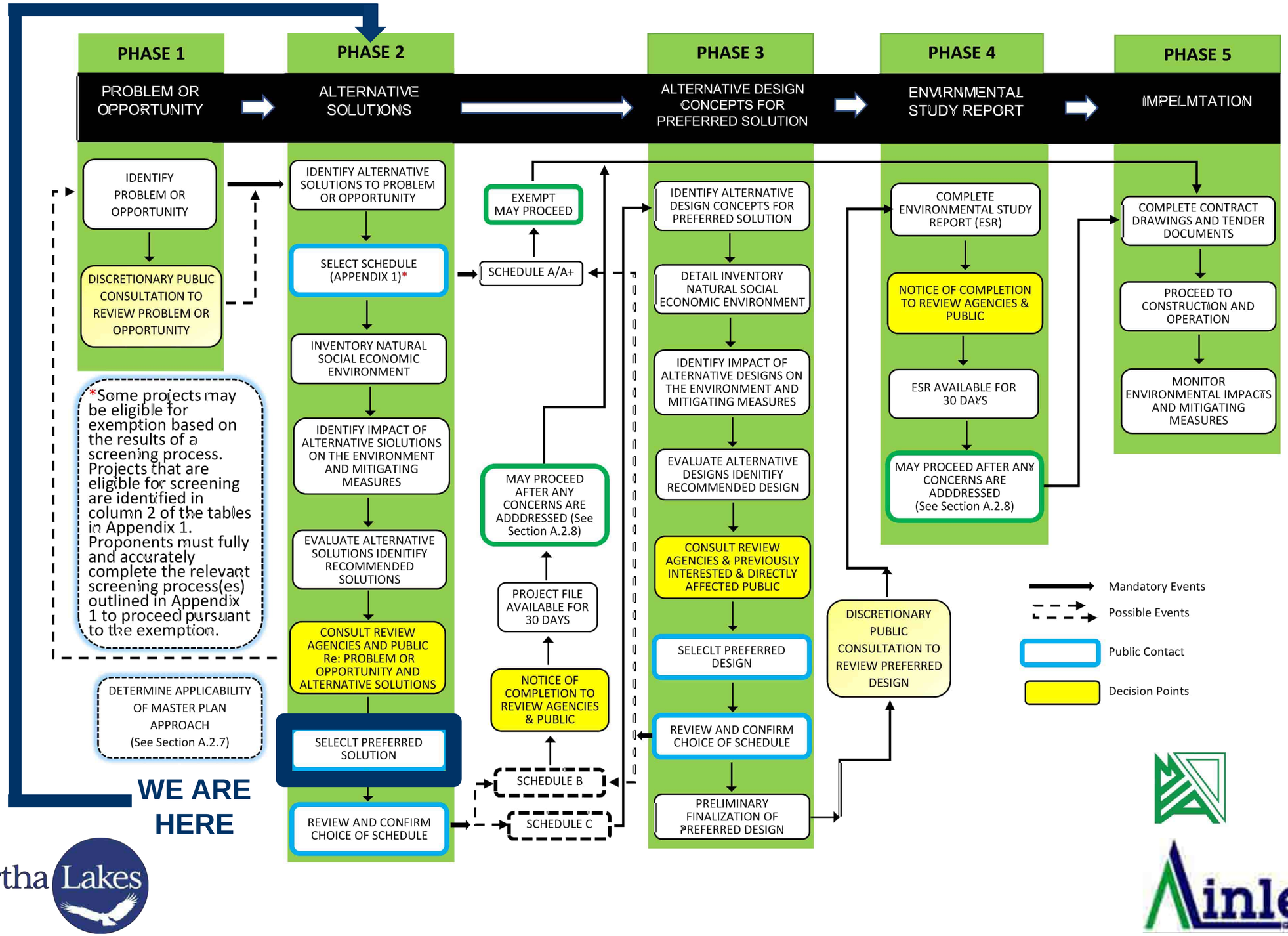
# MUNICIPAL CLASS EA PROCESS




Kawartha Lakes

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# MUNICIPAL CLASS EA PROCESS TO DATE

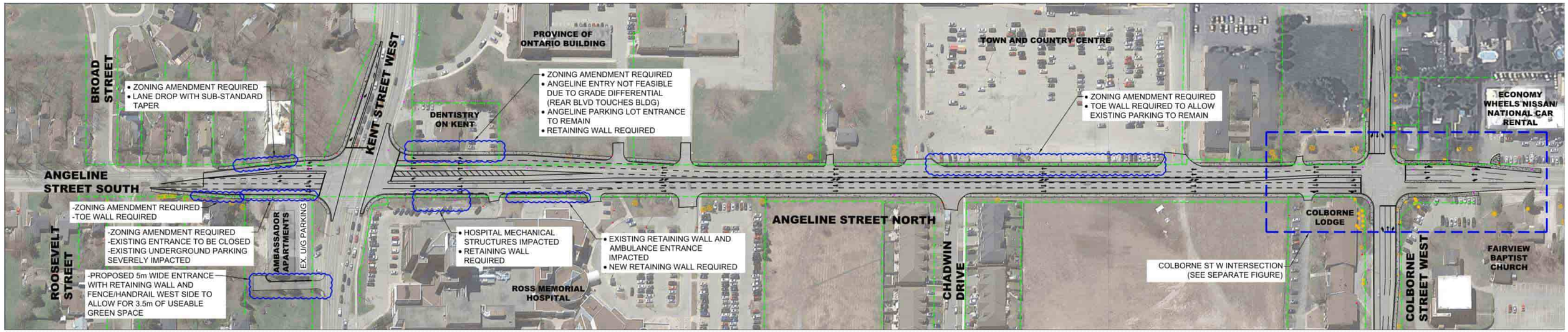
## PIC #1 February 28th, 2019

- Presented the design alternatives and background information.
- Various individuals/stakeholders submitted comments. Representative comments are below:
  - Comment regarding potential impacts to access/egress from properties along the corridor.
  - Comment regarding incorporation of active transportation features into the cross-sectional design.
  - Comments regarding the extent of property acquisition.
  - Inquiries into the potential archaeologic significance of the corridor.

## What has been done since PIC #1?

- Reviewed and considered all comments from PIC #1.
- Completed factor specific studies such as traffic and archaeological (Stage 1 & 2 Assessments), and incorporated recommendations into furthering the environmental assessment process.
- Continued consultation with agencies and stakeholders.
- Selected preliminary preferred alternative in consideration of these studies, and consultations/comments received.

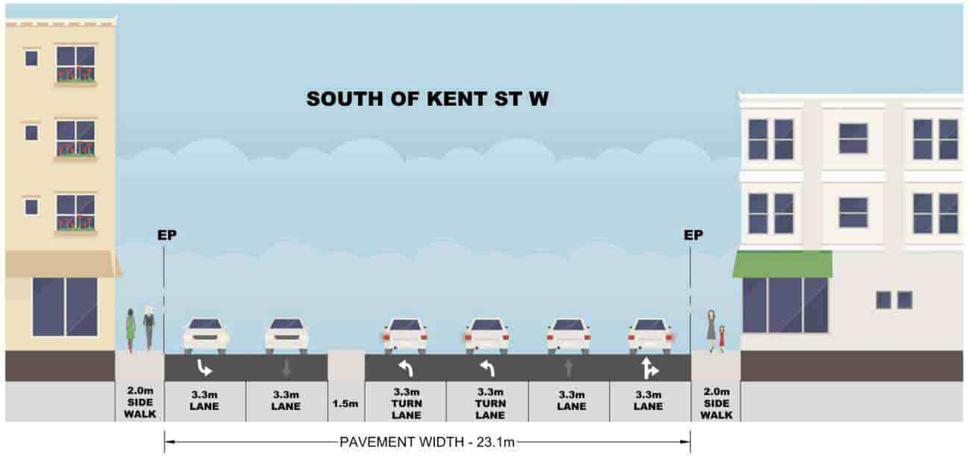
The following alternatives were presented as options to address the Problem Statement at PIC #1.

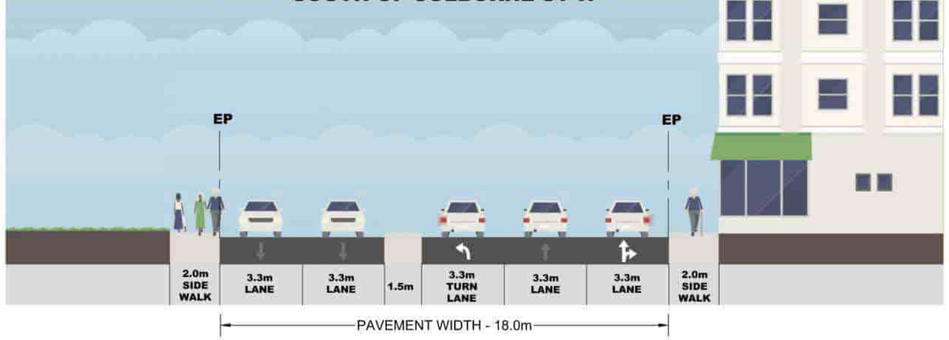


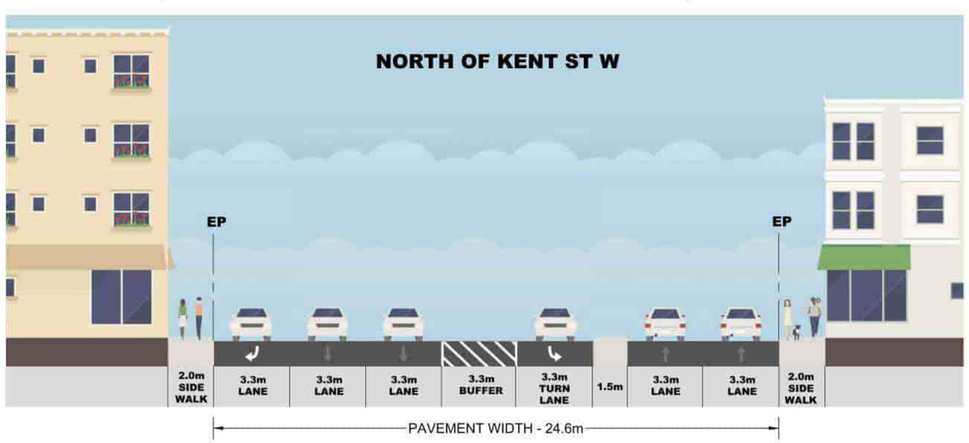

EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

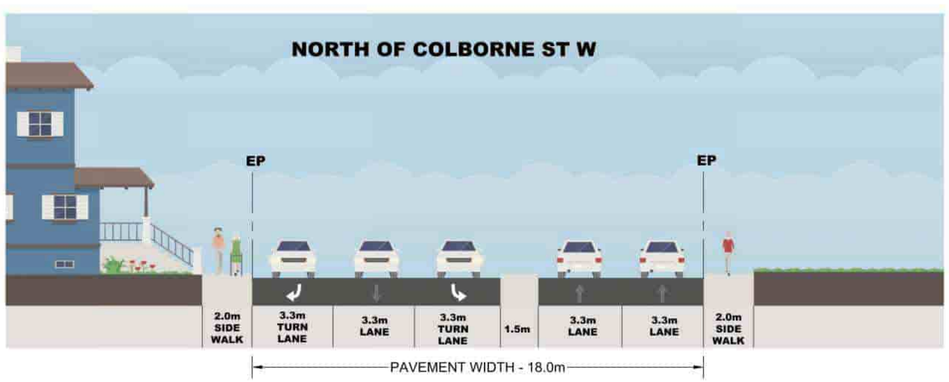
## ALTERNATIVE 1

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



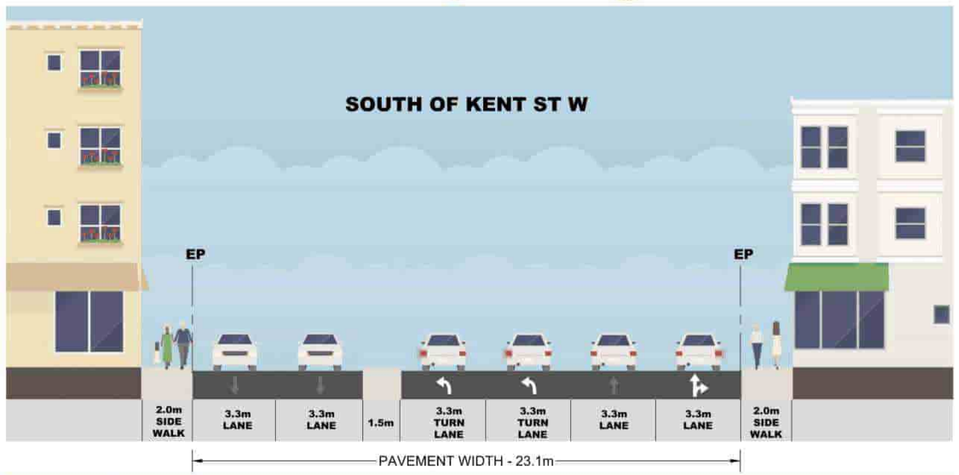

*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

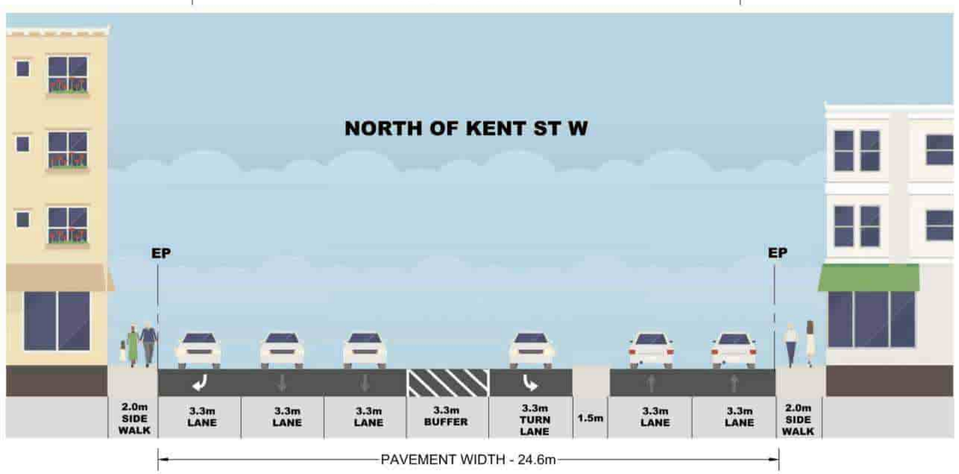
EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

## ALTERNATIVE 2

**SOUTH OF COLBORNE STREET W INTERSECTION:**

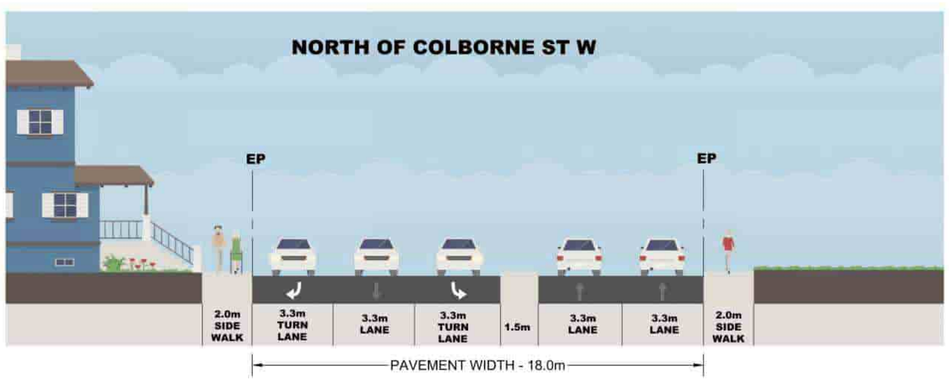
**TREES REMOVED = 58 + 2 CEDAR HEDGES**
**UTILITY POLES RELOCATED = 22***
***9 MAINTAINED THROUGH DETAILED DESIGN**
**LIGHT STANDARDS RELOCATED = 3**







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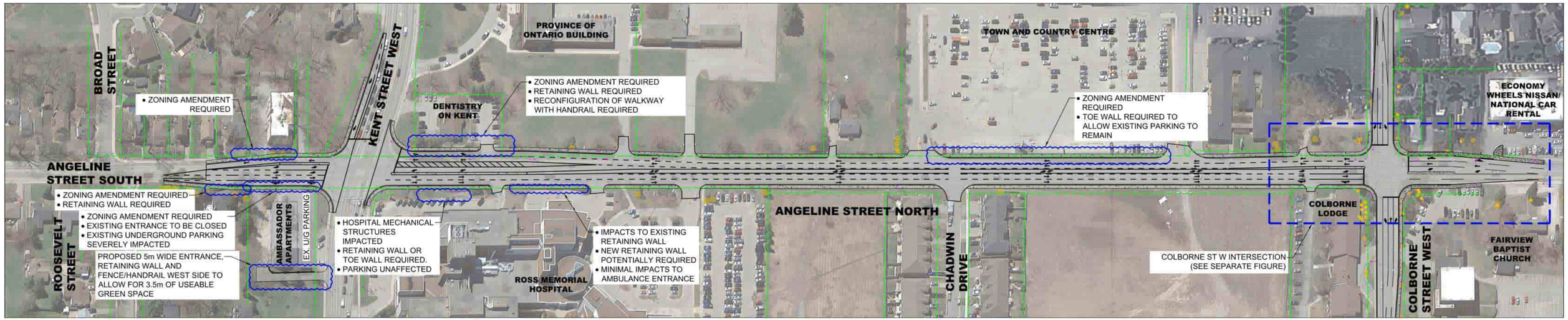
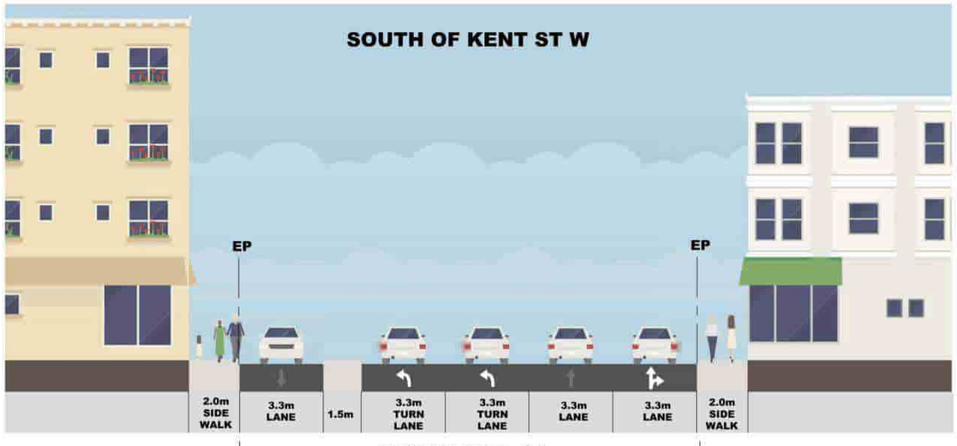
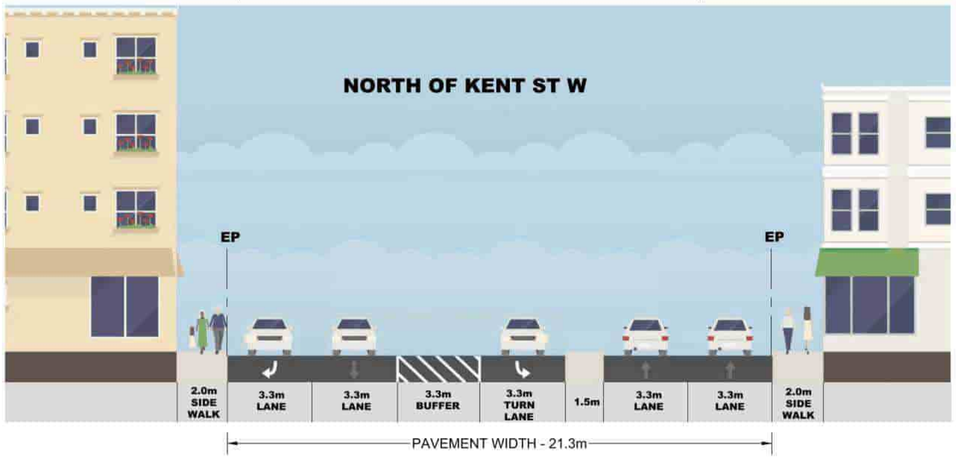



## ALTERNATIVE 3

**SOUTH OF COLBORNE STREET W INTERSECTION:**

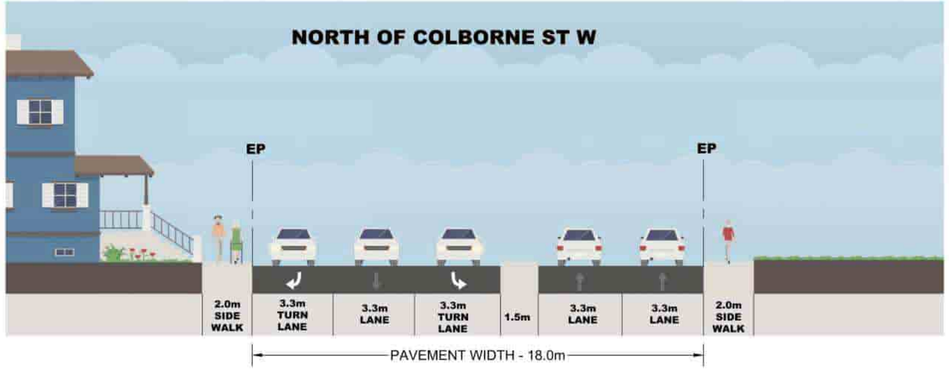
**TREES REMOVED = 40 + 2 CEDAR HEDGES**
**UTILITY POLES RELOCATED = 20**
**LIGHT STANDARDS RELOCATED = 3**



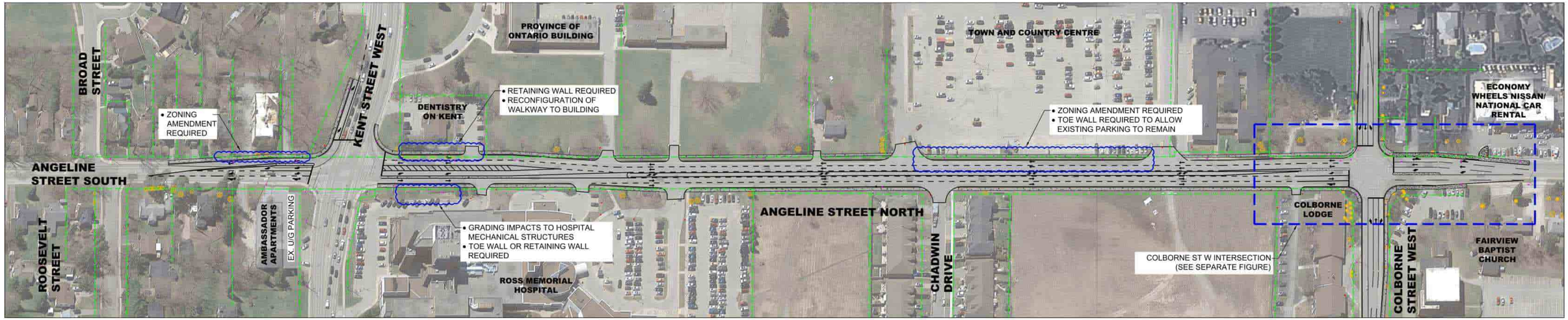









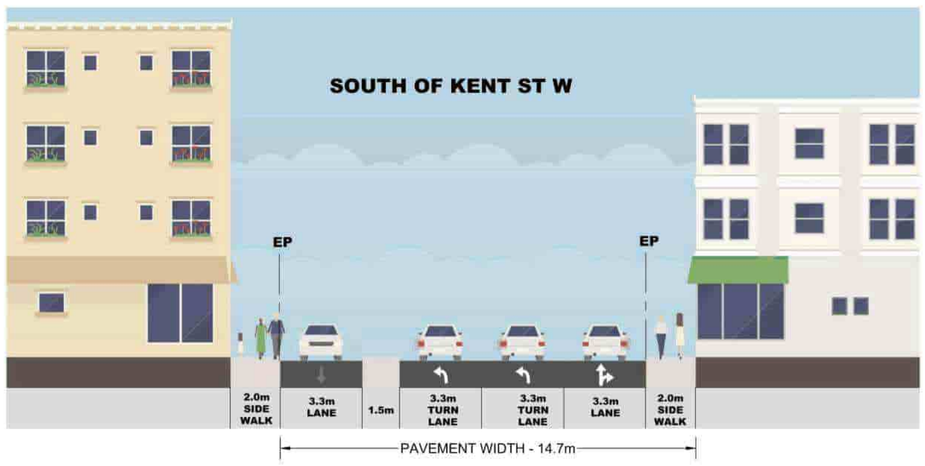

*TYPICAL SECTION ALTERNATIVES WERE CREATED USING STREETMIX AND ARE LICENSED UNDER CREATIVE COMMONS (CC BY-SA 4.0).

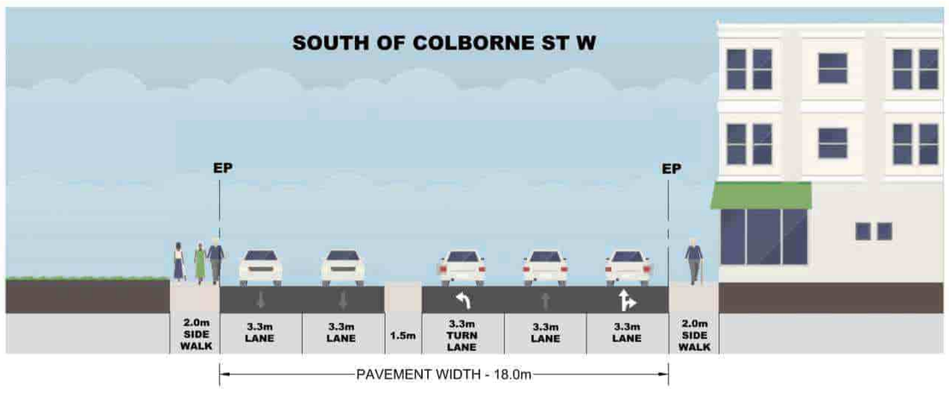


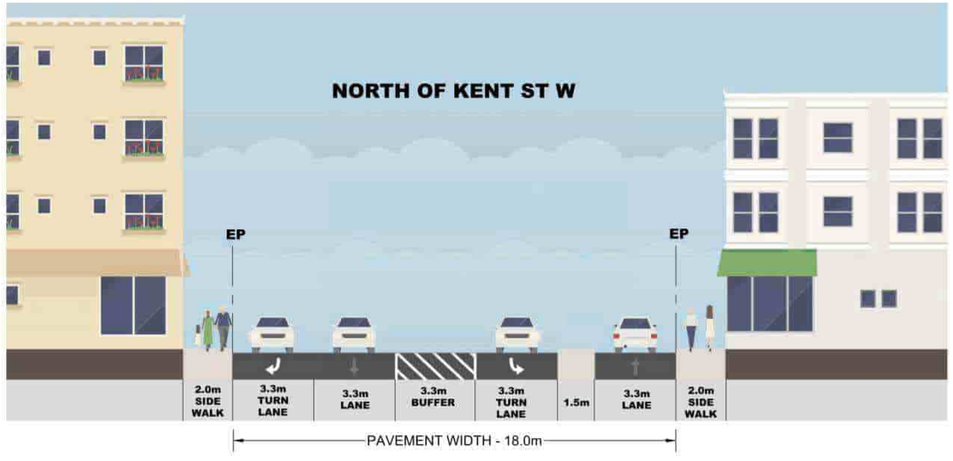

EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

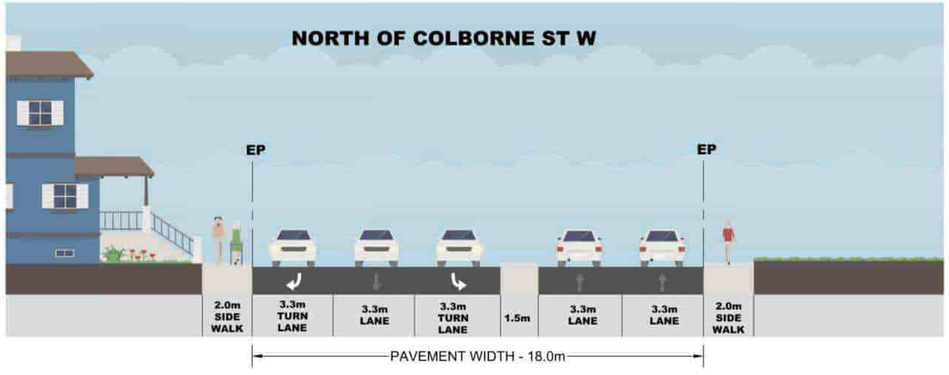
## ALTERNATIVE 4

**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).

# COMMUNITY FEEDBACK/ ASPECTS FOR CONSIDERATION

Comments from PIC #1 and general feedback within the community have provided additional valuable insight into key issues and concerns within the study area and the presented alternatives. In addition to public feedback, other items for consideration as part of the Environmental Assessment are noted below.

**Business Disruptions**

**Environmental Concerns**

**Property Impacts**

**Duration of Construction**

**Traffic Disruptions**

**Street Accessibility**

The design alternatives were then evaluated with respect to a variety of categories via the following matrix.

# SELECTION OF PRELIMINARY PREFERRED ALTERNATIVE: ANGELINE STREET NORTH CORRIDOR

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | ALTERNATIVE 1<br>WESTWARD SHIFT AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 2<br>EASTWARD SHIFT AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 3<br>WESTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions. + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 4<br>EASTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru/RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT<br>**WB:** Ex. Conditions<br>**Angeline Corridor:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRANSPORTATION | TRAFFIC OPERATIONS / PERFORMANCE | Accommodates 2031 traffic volume at Kent Street intersection<br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street intersection<br>Addresses problem statement | ● | 4 | Will not accommodate 2031 traffic volume at Kent Street intersection<br>**Does not address problem statement.** | ○ | 0 | Will not accommodate 2031 traffic volume at Kent Street intersection<br>**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:<br>High Density Residential - relatively lower impact<br>Commercial - relatively higher impact<br>Institutional - relatively lower impact<br>Severe impact to underground parking structure<br>Remaining property to north: generally equal impacts | ◑ | 2 | Kent Street :<br>High Density Residential - relatively higher impacts<br>Commercial - relatively lower impact<br>Institutional - relatively higher impact<br>Severe impact to underground parking structure<br>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 | | |

# KENT STREET WEST INTERSECTION

## Background

- The Kent Street West and Angeline Street North intersection was the subject of a corridor study and approved MCEA that was previously completed in 2016. The results of that MCEA recommended a 5-lane cross section in both the north and south intersection legs, and an exclusive eastbound right-turn lane within the west leg. Implementation of the recommended alternative has proved challenging given existing site constraints, and opportunities to modify/refine have been explored.

## Key Considerations for the Kent Street West Intersection

- Potential impacts to existing mechanical structures (e.g., air ventilation systems) from roadway widening.
- Safeguarding on-site utilities services (e.g., fibre optic) during construction.
- Maintaining existing accesses from Angeline Street North including for waste, moving and emergency service vehicles on site, both during and after construction.
- Maintaining the existing level of on-site parking as much as feasible.
- Maintaining existing on-site pedestrian walkways and accesses.
- Degree of vegetation removal required.
- Challenges associated with the existing underground parking garage of Ambassador Apartments (SE quadrant), which generally extends to the east and south right-of-way limits of Angeline Street North and Kent Street West, respectively.

Kawartha Lakes

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# REFINEMENT OF KENT ST. W. INTERSECTION

## Background

- In review of the identified evaluation criteria, Alternative 2 is selected as the preliminary preferred alternative for the Angeline Street North corridor. However, refinement of the preliminary preferred alternative at the Kent Street West and Angeline Street North intersection, was determined to be warranted to best mitigate the impacts of the road widening at the intersection location.
- Within the north leg, the east-west positioning of Angeline Street North's alignment is associated with varying degrees of impacts to the Mixed Residential Commercial (Dentistry on Kent) and Community Facility (Ross Memorial Hospital) property located there.
- Within the south leg, the existing underground parking structure located within the Residential High Rise property (Ambassador Apartments) is believed to extend generally to the intersection's right-of-way limits within its southeast quadrant.

## Traffic Study

- For Alternative 2, the lane configuration of the Kent Street West intersection reflects that recommended by the previous MCEA process completed for the Kent Street West corridor. The lane configuration was chosen for the Levels of Service it was expected to achieve for the projected 2031 traffic volumes, as supported by modelling completed as part of the previous MCEA process.
- Additional traffic analysis efforts were completed to assess alternative lane configurations that would address the problem statement.
- Updated traffic counts of vehicle movements at the intersection were completed on August 1, 2023.
- The traffic volumes were projected, and capacity analysis modelling completed, for the horizon years of 2027, 2037 and 2051.
- The traffic study suggests an alternative lane arrangement with a single northbound left-turn lane at the intersection is acceptable to meet future traffic demands.

The following alternatives were considered to further refine the Kent Street West intersection for the preliminary preferred alternative.

Kawartha Lakes

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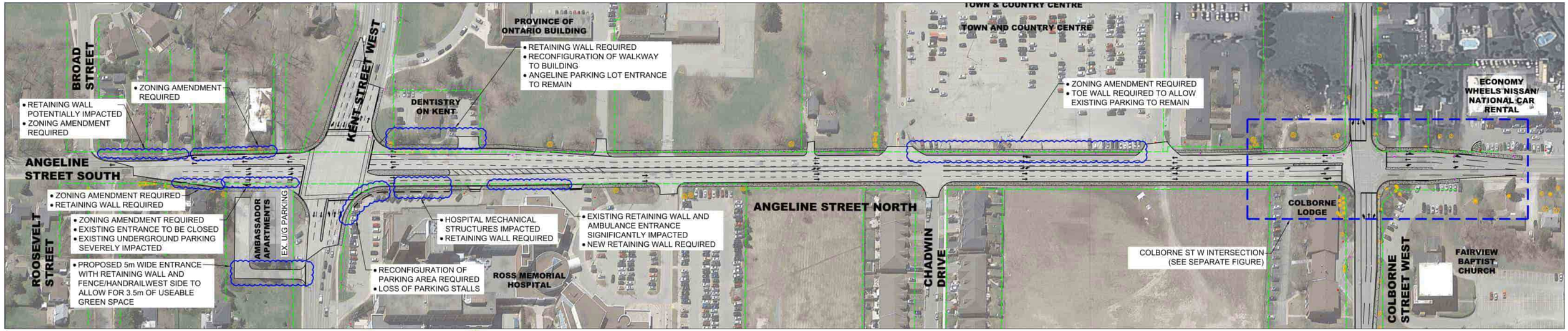
# KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

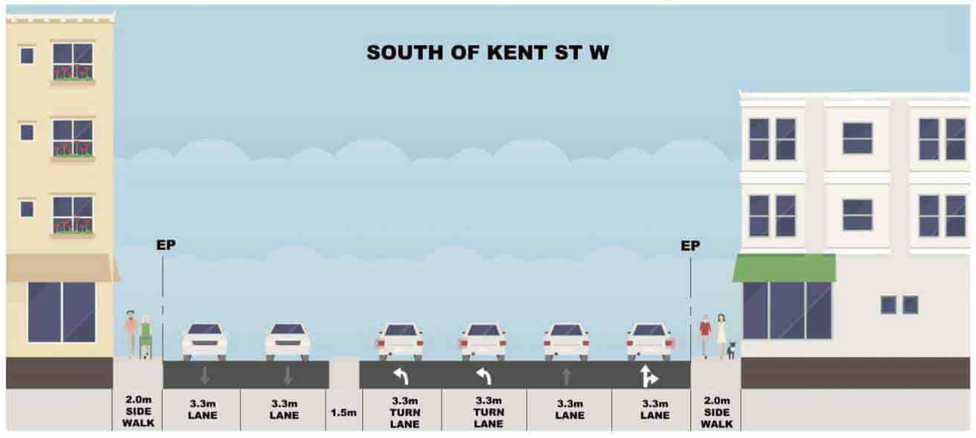



EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

## 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**

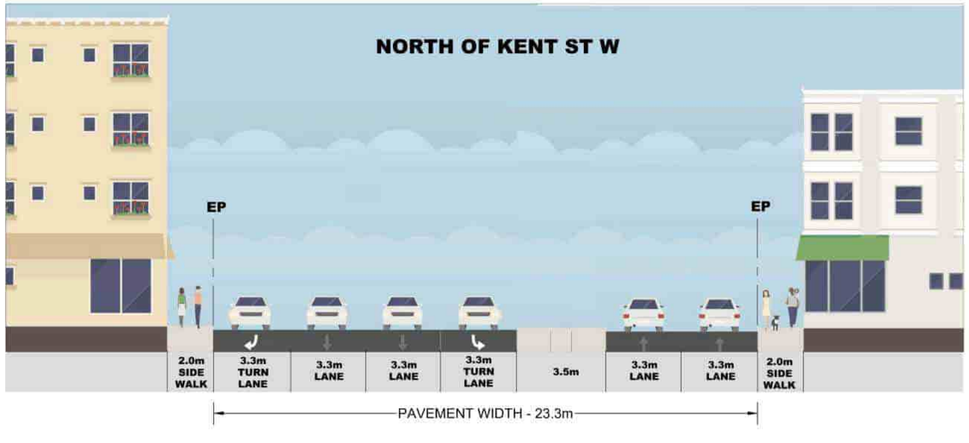
### SOUTH OF KENT ST W



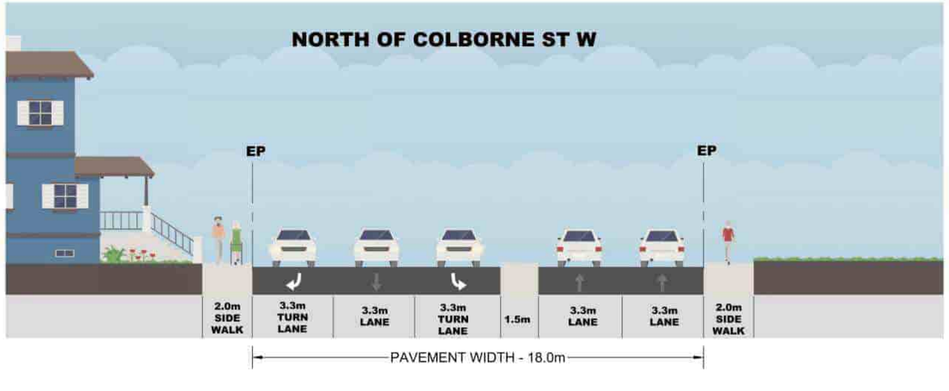

### SOUTH OF COLBORNE ST W




### NORTH OF KENT 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).

# KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

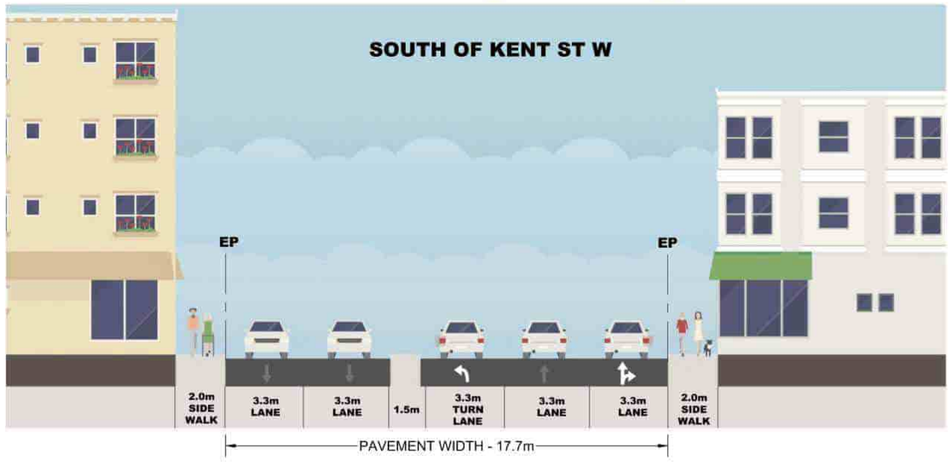
EXISTING R.O.W. | EX. HYDRO POLE | EX. LIGHT STANDARD | EX. DECIDUOUS TREE | EX. CONIFEROUS TREE

## 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

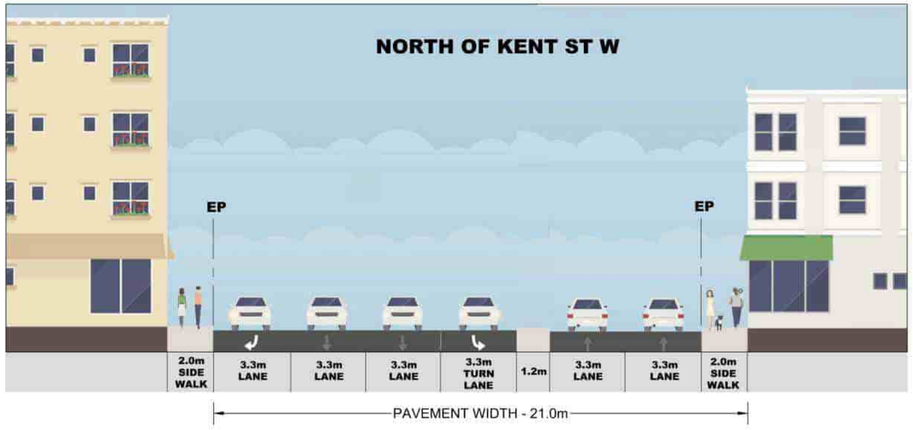
### SOUTH OF KENT ST W



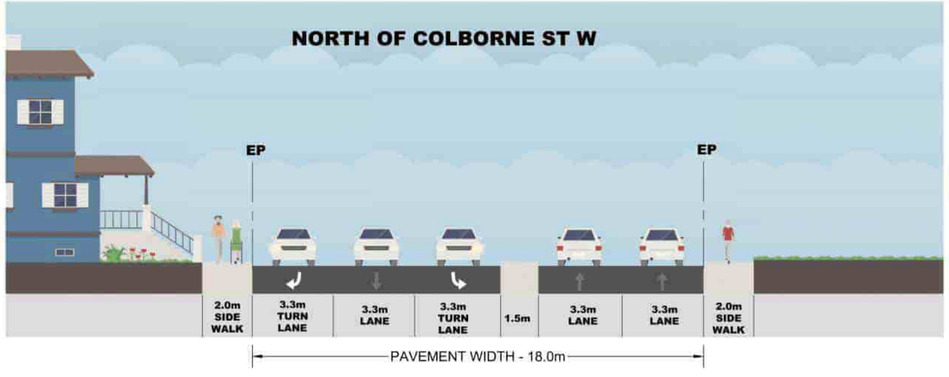

### SOUTH OF COLBORNE ST W




### NORTH OF KENT 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).

# REFINEMENT OF PRELIMINARY PREFERRED ALTERNATIVE: KENT STREET WEST INTERSECTION

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | **ALTERNATIVE 2A**<br><br>**FULL LANE BUILDOUT**<br><br>**Kent St. W. Intersection:**<br>**NB:** 1x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT*<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br><br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | **ALTERNATIVE 2B**<br><br>**REDUCED NORTHBOUND LANES**<br><br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT*<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br><br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | |
|---|---|---|---|---|---|---|---|
| TRANSPORTATION | TRAFFIC OPERATIONS / PERFORMANCE | Accommodates 2031 traffic volume at Kent Street intersection<br><br>Addresses problem statement | | 4 | Accommodates 2031 traffic volume at Kent Street intersection<br><br>Comparitively lower Level of Service<br><br>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 :<br>High Density Residential - relatively higher impacts<br>Commercial - all equal<br>Institutional - all equal<br>Severe impact to underground parking structure<br><br>Remaining property to north: generally equal impacts | | 1 | Kent Street :<br>High Density Residential - relatively lower impacts<br>Commercial - all equal<br>Institutional - all equal<br>Moderate impact to underground parking structure<br><br>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** | | |

# COLBORNE STREET WEST INTERSECTION

## Background

- The Colborne Street West and Angeline Street North intersection was subject to a corridor study and approved MCEA that was previously completed in 2016. The results of that MCEA recommended a 5-lane cross section in both the north and south intersection legs.

- The alternatives considered as part of this MCEA are consistent with the previous corridor study; however, placement options (i.e., eastward shift, centred, westward shift) were reviewed.

- The placement options was investigated to best balance the impacts of the road widening between the abutting properties, minimizing them to the greatest extent possible.

The following alternatives were considered to further refine the proposed Colborne Street West intersection configuration.

# COLBORNE STREET INTERSECTION ALTERNATIVES

| ALT. No. | COLOUR OUTLINE | DESCRIPTION OF ALTERNATIVE | TREES REMOVED | UTILITY POLES RELOCATED |
|---|---|---|---|---|
| 1 | RED | WESTWARD SHIFT AT COLBORNE INTERSECTION | 14 | 9 |
| 2 | VIOLET | CENTERED AT COLBORNE INTERSECTION | 14 | 9 |
| 3 | BLUE | EASTWARD SHIFT AT COLBORNE INTERSECTION | 14 | 9 |

ALTERNATIVE - 1
ALTERNATIVE - 2
ALTERNATIVE - 3

NORTHWEST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- SEPARATION OF ROAD FROM 115 ANGELINE STREET'S HOUSE AND WALKWAY IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- ALTERNATIVES 1 AND 2 ELIMINATE EXISTING PARKING SPACE FOR 115 ANGELINE STREET
- EXISTING COMMERCIAL PROPERTY IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES

ECONOMY WHEELS NISSAN/
NATIONAL CAR RENTAL

ANGELINE STREET NORTH

COLBORNE LODGE

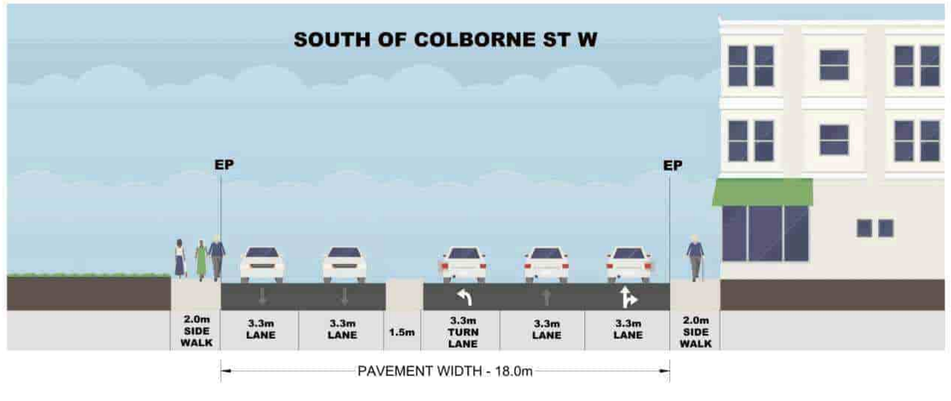
SOUTHEAST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- TOE/RETAINING WALL REQUIRED FOR ALTERNATIVES 2 AND 3
- EXISTING FENCE IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- EXISTING BOLLARD AND LIGHT STANDARD POTENTIALLY IMPACTED BY ALTERNATIVE 3
- RELOCATION OF EXISTING SIDEWALK CONNECTION REQUIRED FOR ALL ALTERNATIVES

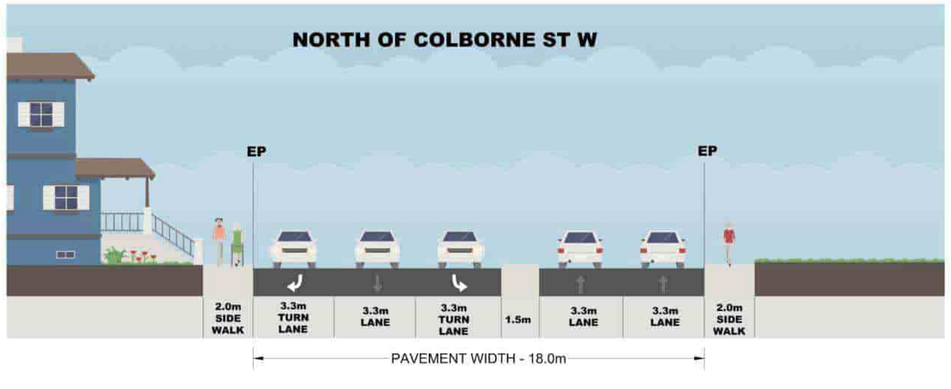
NORTHEAST QUADRANT:
- ALTERNATIVES 2 AND 3 HAVE GREATER IMPACT ON EXISTING CHURCH PARKING (NOTE: EXISTING PARKING LOCATED WITHIN MUNICIPAL ROW)

FAIRVIEW BAPTIST CHURCH

COLBORNE STREET WEST

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




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

# REFINEMENT OF PRELIMINARY PREFERRED ALTERNATIVE: COLBORNE STREET WEST INTERSECTION

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | ALTERNATIVE 1<br>WESTWARD SHIFT AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 2<br>CENTRED AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 3<br>EASTWARD SHIFT AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** 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.<br><br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection.<br><br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection.<br><br>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<br>Commercial - Greatest impact to existing parking area<br>Community Facility - Church parking maintained | ◑ | 1 | Residential - Increased separation from NW property walkway; only parking space eliminared<br>Commercial - Reduced impact to existing parking area<br>Community Facility - Church parking impacted (located within municipal right-of-way) | ◑ | 2 | Residential - Greatest separation from NW property walkway; existing parking space maintained<br>Commercial - Least impact to existing parking area<br>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** | | |

Kawartha Lakes

Ainley GROUP CONSULTING ENGINEERS PLANNERS

# SUMMARY OF PREFERRED ALTERNATIVE

## Along the Main Section of the Angeline Street North Corridor:

- Widen existing configuration from 2 lanes to 5 lanes.
- 2 lanes each for northbound and southbound directions.
- Centre lane for two-way left turns.

## At the Kent Street West Intersection:

- Alternative 2B is the preliminary preferred alternative for the refinement of this intersection (one northbound lane proposed in south leg eliminated).
- **North Leg:**
  - Southbound: 2x through lanes, 1x left-turn (LT) lane, 1x right-turn (RT) lane
  - Northbound: 2x through lanes
- **East Leg:**
  - Westbound: 1x through lane, 1x LT lane, 1x shared through-RT lane
  - Eastbound: 2x through lanes
- **South Leg:**
  - Northbound: 1x through lane, 1x LT lane, 1x shared through-RT lane
  - Southbound: 2x through lanes
- **West Leg:**
  - Eastbound: 2x through lanes, 1 LT lane, 1 RT lane
  - Westbound: 2x through lanes

## At the Colborne Street West Intersection:

- Alternative 3 is the preliminary preferred alternative for the refinement of this intersection (eastward shift of road alignment).
- **North Leg:**
  - Southbound: 2x through lanes, 1x LT lane, 1x RT lane
  - Northbound: 2x through lanes
- **East Leg:**
  - Westbound: 1x through lane, 1x LT lane, 1x shared through-RT lane
  - Eastbound: 2x through lanes
- **South Leg:**
  - Northbound: 1x through lane, 1x LT lane, 1x shared through-RT lane
  - Southbound: 2x through lanes
- **West Leg:**
  - Eastbound: 2x through lanes, 1x LT lane, 1x RT lane
  - Westbound: 2x through lanes

Kawartha Lakes

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# NEXT STEPS

Upon completion of Public Information Centre #2, the following steps will be taken:

- Receive and review comments received from this Public Information Centre;
- Prepare Project File Report;
- Staff Report to Council for approval to post Preferred Alternative for review; and
- Issue Notice of Study Completion and post Project File Report for 30-day review.

**Thank you for your attendance and participation in this public meeting.**

**Please provide comments by May 31, 2024.**


**Mr. Alex Wilkinson, P. Eng.**
Consultant Project Manager
Ainley Group
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2

Phone: (343)-266-0002 ext. 207
Fax: (343)-266-0028
E-mail: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy, C.E.T.**
Manager, Infrastructure Design and Construction
City of Kawartha Lakes
322 Kent Street West,
PO Box 9000
Lindsay, ON K9V 5R8

Phone: (705)-324-9411 ext. 1155
Fax: (705)-324-2982
E-mail: cpurdy@kawarthalakes.ca


Comments and information regarding the proposed project are being collected to assist the City of Kawartha Lakes in meeting the requirements of the Municipal Class Environmental Assessment. The collection of comments and information will be conducted in accordance with the **Freedom of Information and Protection of Privacy Act.** Comments will be maintained on file for use during the study and may be included in the study documentation. With the exception of personal information, all comments will become part of the public record.

Kawartha Lakes

Ainley CONSULTING ENGINEERS PLANNERS

# Appendix C

## Comments Received Before the PIC

**Katrina Fingland**

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**From:** Consultations <Consultations@metisnation.org>
**Sent:** May 1, 2024 7:28 PM
**To:** Alexander Wilkinson
**Subject:** Automatic reply: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

This is an automatically generated response from consultations@metisnation.org. Please do no reply to this e-mail address.

The MNO is adjusting standard work practices due to the Covid-19 outbreak and to better enable staff to work remotely. **Please note that the MNO's Lands, Resources and Consultations (LRC) Branch will no longer review hard copy consultation notices mailed to MNO offices.** The LRC Branch will review all electronic notices and process them in accordance with our standard operating procedures. All consultation notices must be sent electronically to consultations@metisnation.org.

The Métis Nation of Ontario's LRC Branch acknowledges your information notice. The MNO reserves the right to request additional information, meetings and consultations in respect of the project should the MNO deem it to be necessary.

For additional information pertaining to consulting with Ontario Métis please visit the MNO web site at: https://www.metisnation.org/programs-and-services/lands-resources-consultations/duty-to-consult/

## Katrina Fingland

**From:** Alanna Hein <chiefcouncil@pikwakanagan.ca>
**Sent:** May 3, 2024 2:52 PM
**To:** Alexander Wilkinson
**Cc:** Amanda Two-Axe Kohoko
**Subject:** RE: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Good Afternoon Alex Wilkinson;

Thank for your email and letter. I will forward your email to Amanda Two Axe Kohoko, Manager Consultation to review.

Please note that the current Chief is Greg Sarazin.

Thank you,
Alanna Hein

**Manager, Political Operations**
**Chief and Council**
Nìgànizì Gamik
Algonquins of Pikwakanagan First Nation
1657A Mishomis Inamo
Pikwakanagan, Ontario
K0J 1X0

Phone: (613) 625-2800 ext: 228

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---

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** Wednesday, May 1, 2024 7:27 PM
**To:** Alanna Hein <chiefcouncil@pikwakanagan.ca>
**Subject:** 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Good Afternoon,

The City of Kawartha Lakes has retained Ainley Group to undertake the design activities and Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay.

Please find a notice attached that provides details associated with an upcoming Public Information Centre (PIC) for this project. Information pertaining to the project is provided in the attached, and the PIC presentation materials will be available on the City of Kawartha Lakes website (www.kawarthalakes.ca/majorprojects). The PIC is open-house format and being hosted on May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8.

If you have any questions and/or comments regarding the project, please feel free to contact the project team members identified within the attached notice.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

**From:** Laurie M Carvalho
**To:** Alexander Wilkinson
**Cc:** Scott Reynolds; Yen Daniel; Tom Kovendi
**Subject:** RE: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2
**Date:** May 2, 2024 10:56:32 AM
**Attachments:** image001.jpg

---

Hi Alexander

I have copied Yen Daniel, Vice President/CFO on this email as well as our Interim Maintenance Director, Tom Kovendi. Yen will be your contact moving forward, and Tom has been included for information while he is contracted with RMH.

Please also add me as a contact to cc on such communications to bring to the attention of the appropriate RMH stakeholders going forward.

Thank you,

*Laurie Carvalho*
**Executive Assistant**

Ross Memorial Hospital
10 Angeline St N., Lindsay, Ontario, K9V 4M8
lmcarvalho@rmh.org | 705-324-6111 ext. 6218

---

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** Wednesday, May 1, 2024 7:59 PM
**To:** Laurie M Carvalho <lmcarvalho@rmh.org>
**Cc:** Scott Reynolds <scott.reynolds@ainleygroup.com>
**Subject:** FW: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Hi Laurie,

I attempted to mail the email below to Veronica Nelson but received an email back informing me that she is no longer with RMH.

Could you please help direct it to the appropriate person and copy me on the email? This may be of interest to Mark Zahra and/or Vic Tavaszi if they are still with RMH.

Thank you,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

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---

**From:** Alexander Wilkinson
**Sent:** May 1, 2024 7:49 PM
**To:** 'vnelson@rmh.org' <vnelson@rmh.org>
**Subject:** 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Good Afternoon,

The City of Kawartha Lakes has retained Ainley Group to undertake the design activities and Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay.

Please find a notice attached that provides details associated with an upcoming Public Information Centre (PIC) for this project. Information pertaining to the project is provided in the attached, and the PIC presentation materials will be available on the City of Kawartha Lakes website (www.kawarthalakes.ca/majorprojects). The PIC is open-house format and being hosted on May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8.

If you have any questions and/or comments regarding the project, please feel free to contact the project team members identified within the attached notice.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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## Katrina Fingland

**From:** Doreen Davis <shabotobaadjiwan@gmail.com>
**Sent:** May 3, 2024 10:52 AM
**To:** Alexander Wilkinson
**Subject:** Re: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Thank you for the information.

On Wed, May 1, 2024 at 7:35 PM Alexander Wilkinson <alexander.wilkinson@ainleygroup.com> wrote:

> Good Afternoon,
>
> The City of Kawartha Lakes has retained Ainley Group to undertake the design activities and Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay.
>
> Please find a notice attached that provides details associated with an upcoming Public Information Centre (PIC) for this project. Information pertaining to the project is provided in the attached, and the PIC presentation materials will be available on the City of Kawartha Lakes website (www.kawarthalakes.ca/majorprojects). The PIC is open-house format and being hosted on May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8.
>
> If you have any questions and/or comments regarding the project, please feel free to contact the project team members identified within the attached notice.
>
> Regards,
>
> Alex Wilkinson, P.Eng.
>
> Project Engineer
>
> Tel: (343) 266-0002 Ext. 217
>
> Cell: (613) 453-8215
>
> Email: alexander.wilkinson@ainleygroup.com

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## Katrina Fingland

**From:** Algonquins of Ontario Consultation Office <algonquins@tanakiwin.com>
**Sent:** May 9, 2024 12:17 PM
**To:** Alexander Wilkinson
**Subject:** RE: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2
**Attachments:** Notice of PIC #2 - April 26, 2024 - Algonquins of Ontario Consultation Office.pdf

You don't often get email from algonquins@tanakiwin.com. Learn why this is important

Good Afternoon, Alex,

Thank you for contacting the Algonquins of Ontario Consultation Office in relation to the design activities and **Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay**.

Please note that this office has determined that your project is not located within the unceded Algonquins of Ontario Settlement Area. Requests such as this may impact the rights of other Indigenous groups. As such, were recommend that you contact the appropriate community responsible for the area in question.

**This message may not be relied upon to fulfil, in whole or part, any duty to consult with the Algonquins of Ontario or any other Aboriginal organization**.

Sincerely,

**The Algonquins of Ontario Consultation Office**

31 Riverside Drive, Suite 101
Pembroke, ON K8A 8R6
Phone: 613-735-3759 Ex. 200
Fax: 613-735-6307
Email: algonquins@tanakiwin.com
Website: www.tanakiwin.com

---

**From:** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Sent:** Wednesday, May 1, 2024 7:27 PM
**To:** algonquins@nrtco.net
**Subject:** 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Good Afternoon,

The City of Kawartha Lakes has retained Ainley Group to undertake the design activities and Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay.

Please find a notice attached that provides details associated with an upcoming Public Information Centre (PIC) for this project. Information pertaining to the project is provided in the attached, and the PIC presentation materials will be available on the City of Kawartha Lakes website (www.kawarthalakes.ca/majorprojects). The PIC is open-house format

and being hosted on May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8.

If you have any questions and/or comments regarding the project, please feel free to contact the project team members identified within the attached notice.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

# Appendix D

## Comments Received At and After PIC

Kawartha Lakes

Ainley CONSULTING ENGINEERS PLANNERS

Public Information Centre #2
May 9, 2024

# Angeline Street North Corridor

**COMMENTS:** 1) FAIRVIEW BAPTIST CHURCH

- IN THE EVENT THAT OUR ACCESS OFF COLBORNE ST. AND ANGELINE ST ARE GOING TO BE IMPACTED, WE WOULD DESIRE AN OPPORTUNITY TO DISCUSS AND NEGOTIATE IN ORDER TO ENSURE OUR INTERESTS ARE CONSIDERED.

Thank you for your participation.

*The purpose of the information being gathered on this form is to ensure that further information, when it becomes available, can be forwarded to those parties who have expressed an interest in this study and to gather information from the public for use in the study. The information collected on this form becomes part of the public record and a copy of this document may be attached to further reports that are submitted to Council.*

**PLEASE PRINT**

Name: [redacted]

Addre: [redacted]

Tel: [redacted]

**Please submit this comment sheet no later than May 31, 2024 to:**


**Mr. Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Fax: 343.266.0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy C.E.T.**
**City of Kawartha Lakes**
12 Peel Street
Lindsay, ON K9V 5R8
Fax: 705.324.2982
Email: cpurdy@kawarthalakes.ca

Public Information Centre #2
May 9, 2024

# Angeline Street North Corridor

**COMMENTS:** COLBORNE LODGE - WEST ACCESS OFF OF ANGELINE IS THE ONLY ACCESS FOR RESIDENTS. WOULD WANT ASSURANCE THAT ENTRANCE WILL BE MAINTAINED AND IS SAFE.

Thank you for your participation.

*The purpose of the information being gathered on this form is to ensure that further information, when it becomes available, can be forwarded to those parties who have expressed an interest in this study and to gather information from the public for use in the study. The information collected on this form becomes part of the public record and a copy of this document may be attached to further reports that are submitted to Council.*

**PLEASE PRINT**

Name: [redacted]

Address

Tel:

**Please submit this comment sheet no later than May 31, 2024 to:**


**Mr. Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Fax: 343.266.0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy C.E.T.**
**City of Kawartha Lakes**
12 Peel Street
Lindsay, ON K9V 5R8
Fax: 705.324.2982
Email: cpurdy@kawarthalakes.ca

## Katrina Fingland

**From:** [redacted]
**Sent:** May 14, 2024 8:14 AM
**To:** Alexander Wilkinson; cpurdy@kawarthalakes.ca
**Subject:** Comments on New Angeline St Design
**Attachments:** CCF_000051.pdf

> You don't often get email from jackie8922@gmail.com. Learn why this is important

Good morning,

I am the new owner of Dentistry on Kent on the corner of Kent and Angeline. Here is my comment sheet from the public information centre. Thank you!

[redacted]

Public Information Centre #2
May 9, 2024

# Angeline Street North Corridor

**COMMENTS:** Is the median a concrete median or just painted? Just curious if we and our patients will be able to turn left onto Angeline from our entrance or turn left into our Angeline parking. Also, for patients exiting right onto Angeline, then wanting to turn left onto Kent, crossing 4 lanes of traffic is ~~quite~~ could be quite difficult.

Thank you for your participation.

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**PLEASE PRINT**

Name: [redacted]

Address: [redacted]

Tel: [redacted]

**Please submit this comment sheet no later than May 31, 2024 to:**


**Mr. Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Fax: 343.266.0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy C.E.T.**
**City of Kawartha Lakes**
12 Peel Street
Lindsay, ON K9V 5R8
Fax: 705.324.2982
Email: cpurdy@kawarthalakes.ca

## Katrina Fingland

**From:** Lori-Jeanne Bolduc <Lori-Jeanne.Bolduc@wendake.ca>
**Sent:** May 10, 2024 2:25 PM
**To:** Alexander Wilkinson
**Subject:** RE: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Vous ne recevez pas souvent de courriers de la part de lori-jeanne.bolduc@wendake.ca. Découvrez pourquoi cela est important

Kwe,

Please note that the Huron-Wendat Nation is interested in participating in all archaeological fieldwork for this project, as well as receiving copies of the draft reports for review and comments.

Tiawenhk,

**NATION HURONNE-WENDAT**
Bureau du Nionwentsïo

**Lori-Jeanne Bolduc, M.ATDR**
Conseillère en aménagement du territoire

255, place Chef Michel Laveau
Wendake (QC) G0A 4V0
T : 418 843-3767
@ : lori-jeanne.bolduc@wendake.ca

**WENDAKE.CA**

**De :** Alexander Wilkinson <alexander.wilkinson@ainleygroup.com>
**Envoyé :** 1 mai 2024 19:27
**À :** consultations <consultations@wendake.ca>
**Objet :** 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

il from alexander.wilkinson@ainleygroup.com. Learn why this is important

Good Afternoon,

The City of Kawartha Lakes has retained Ainley Group to undertake the design activities and Municipal Class Environmental Assessment for the proposed reconstruction of Angeline Street North within the Town of Lindsay.

Please find a notice attached that provides details associated with an upcoming Public Information Centre (PIC) for this project. Information pertaining to the project is provided in the attached, and the PIC presentation materials will be available on the City of Kawartha Lakes website (www.kawarthalakes.ca/majorprojects). The PIC is open-house format and being hosted on May 9, 2024 from 5:00 pm to 7:00 pm in the Victoria Room of City Hall, at 26 Francis Street, Lindsay, ON, K9V 5R8.

If you have any questions and/or comments regarding the project, please feel free to contact the project team members identified within the attached notice.

Regards,

Alex Wilkinson, P.Eng.
Project Engineer

Tel: (343) 266-0002 Ext. 217
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

**WWW.AINLEYGROUP.COM**

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**Ainley Group is committed to providing accessible customer service. Please inform us if you require this information in an alternative format or require communication supports.**

## Katrina Fingland

**From:** Jenna Stephens <jstephens@kawarthaconservation.com>
**Sent:** May 24, 2024 9:59 AM
**To:** Alexander Wilkinson; Corby Purdy
**Cc:** Keith Taylor
**Subject:** City of Kawartha Lakes - Angeline Street North Reconstruction

You don't often get email from jstephens@kawarthaconservation.com. Learn why this is important

Good morning,

After reviewing the proposed reconstruction of Angeline St N in Lindsay, myself and Keith Taylor, Program Coordinator for the Trent Conservation Coalition Source Protection Region, have the following comments:

- The proposed work is partially within the Intake Protection Zone 2 for the Lindsay municipal drinking water system (as shown in the map below)
- During the construction phase, caution should be exercised to prevent any fuel spills
- Trap sediment/turbid materials to prevent them from entering the drainage waters within the IPZ-2

If you have any questions or concerns about these comments, please do not hesitate to reach out.

Take care,

Jenna Stephens
RMO/Source Protection Technician
KAWARTHA CONSERVATION
277 Kenrei Road
Lindsay, ON K9V 4R1

Tel: 705.328.2271 ext. 224
Fax: 705.328.2286

KawarthaConservation.com

**The Kawartha Conservation Administration Centre is open Monday to Friday, 8:30 a.m. to 4:30 p.m. Visitors are encouraged to schedule an appointment in advance to ensure an appropriate member of our team is available to assist you. For more information, visit us online at www.kawarthaconservation.com or call 705-328-2271.**

KAWARTHA CONSERVATION
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## Katrina Fingland

**From:** [redacted]
**Sent:** May 24, 2024 8:40 AM
**To:** Alexander Wilkinson; cpurdy@kawarthalakes.on.ca
**Subject:** Change of Management and Address
**Attachments:** 0339_001.pdf

You don't often get email from [redacted]. Learn why this is important <https://aka.ms/LearnAboutSenderIdentification>

Hello Alexander and Corby,

This letter was sent to us by the previous property manager of this property. Please note that management has changed to [redacted]. Please send all correspondences to [redacted]

Thank you,

[redacted]

Property Manager

[redacted]

Awarded Five Times

[redacted]

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contain information which is confidential and/or covered by legal, professional or other privilege under applicable law.  If you have received this email in error, please notify us immediately by return email.

## Katrina Fingland

**From:** [redacted]
**Sent:** May 28, 2024 9:30 AM
**To:** Alexander Wilkinson; cpurdy@kawarthalakes.on.ca; [redacted]
**Subject:** Re: 18545-2 - City of Kawartha Lakes - Angeline Street North Reconstruction - Notice of Public Information Centre #2

Hi Alex,

It was nice meeting you and the team for the road development in Lindsay.

I was just emailing to send the issues of concern regarding the proposed plan for the intersection at Kent and Angeline.

- The concerns we had were regarding vibrations from the traffic on the structural integrity of the parking garage and building. As the road would be closer to the building with heavy trucks and steady traffic flow, we wanted to make sure that the building would be structurally sound, during construction and in the future, with the continued use of the road. Would any vibration or integrity studies be conducted?
- We were also concerned with the side walk being directly on top of the underground slabs. Would there need to be reinforcements to the building or underground parking, and would the city cover these costs. Would the sidewalk being directly on top cause issues through use. What would happen if the slabs needed to be serviced. Water proofing or otherwise, and how would that construction be done without disturbing the sidewalk if it was in place. Would the sidewalk have an easement to allow use.
- With the redirection of traffic for the undergroud parking garage, what would happen with the heated ramp, the entry key system for the garage door, the garbage disposal for the roadside collection, the snow plow and where snow could be put through winter, and additional parking areas in the back of the building. It would also need to be wide enough to accommodate a large moving truck and fire trucks to get in and out of the back parking lot when the need arises. Would the retaining wall have pedestrian access for the tenants to the sidewalk on Angeline street.
- Would there be restrictions for truck size for the traffic at that corner. Is it possible to limit large trucks such as 18 wheelers from using that corridor and instead have them go from the West end of Kent Street, off highway 7B, to reduce vibration and help with load management in those areas.

These are my concerns right now. If I do think of other issues, I will send a follow up email. Please let me know if you have any questions.

Thank you,
[redacted]

-

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On May 2, 2024, at 1:42 p.m., Alexander Wilkinson <alexander.wilkinson@ainleygroup.com> wrote:

> Good Afternoon,

## Katrina Fingland

**From:** Tse, Kaitlyn (IO) <Kaitlyn.Tse@infrastructureontario.ca>
**Sent:** June 3, 2024 3:12 PM
**To:** Alexander Wilkinson; cpurdy@kawarthalakes.on.ca
**Cc:** Notice Review
**Subject:** Ainley Graham & Assoc. Ltd. - Notice of Second Public Info Centre - Environmental Assessment - Angeline St Kawartha

You don't often get email from kaitlyn.tse@infrastructureontario.ca. Learn why this is important

Good afternoon,

Thank you for sending us the Notice of Commencement for the Angeline Street North Reconstruction Municipal Class Environmental Assessment and Design in the City of Kawartha Lakes.

While our initial scan indicates that there are no properties owned by the Minister of Government and Consumer Services within your project's study area, it is the proponent's responsibility to verify if any provincial government property is within the study area. Title documents may identify owners of provincial government property as any of the following or variations:

- Her Majesty the Queen
- His Majesty the King
- Hydro One
- Hydro One Networks Inc.
- Management Board Secretariat (MBS)
- Minister of Economic Development, Employment and Infrastructure (MEDEI)
- Minister of Energy and Infrastructure (MEI)
- Minister of Government and Consumer Services (MGCS)
- Minister of Infrastructure (MOI)
- Minister of Natural Resources and Forestry (MNRF)
- Minister of Public Infrastructure Renewal (PIR)
- Minister of Public Works
- Minister of Transportation (MTO)
- Ontario Lands Corporation (OLC)
- Ontario Realty Corporation (ORC)

If provincial government property in the study area is not required for the project, please continue to consult us as a directly affected stakeholder. However, if government property is required for the project, the proponent should contact us for a more in-depth review of the land requirement, potential impacts to the government property, and the process for a possible transfer of ownership if deemed appropriate.

Additionally, please remember to send notices to our dedicated notice email address: noticereview@infrastructureontario.ca

Kind regards,

Kaitlyn

Infrastructure Ontario

**Kaitlyn Tse** (she, her)
Infrastructure Ontario
Co-op, Environmental Management

kaitlyn.tse@infrastructureontario.ca
Phone: +1 365-297-4527

www.infrastructureontario.ca
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## Katrina Fingland

**From:** [redacted]
**Sent:** May 22, 2024 4:32 PM
**To:** Alexander Wilkinson; cpurdy@kawarthalakes.ca
**Subject:** Angeline St S Corridor - expansion concerns
**Attachments:** Graham - Angeline St Corridor 2.pdf; Graham - Angeline St Corridor 1.pdf

> You don't often get email from [redacted] Learn why this is important

Good afternoon gentlemen,

I'm attaching two PDF's outlining some concerns we have about the proposed widening of Angeline St South. We live at [redacted] and stand to absorb considerable negative impact from the expansions. While we recognize your statutory authority to build and maintain roads within the municipality, we'd like to speak with someone about our concerns as home-owners and taxpayers.

Thanks,

--
[redacted]

Kawartha Lakes

Ainley CONSULTING ENGINEERS PLANNERS

Public Information Centre #2
May 9, 2024

# Angeline Street North Corridor

**COMMENTS:**

Hello,

Our family lives at [redacted] while we recognize your statutory authority to widen the road, we're concerned. We'd like to know how many beautiful old growth trees you plan on destroying? What are your plans to beautify the area after you cut down all our trees?

How will you remediate our driveway so there's absolutely no change to the functionality? We have classic cars that will currently clear the slope, but may not after you destroy it.

Thank you for your participation.

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**PLEA** [redacted]

Name:

Addres

Tel:

**Please submit this comment sheet no later than May 31, 2024 to:**


**Mr. Alex Wilkinson, P.Eng.**
**Ainley Graham & Associates Limited**
1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
Fax: 343.266.0028
Email: alexander.wilkinson@ainleygroup.com

**Mr. Corby Purdy C.E.T.**
**City of Kawartha Lakes**
12 Peel Street
Lindsay, ON K9V 5R8
Fax: 705.324.2982
Email: cpurdy@kawarthalakes.ca

**ADDITIONAL COMMENTS:**

How will you relocate our gas line?

How will you mitigate the speed issues that will ensue after you add what drivers will inevitably consider "passing lanes"?

How will you ensure the safety of hundreds of children that will walk to school every day next to the new, faster, more-aggressive traffic?

In all fairness, with what the city intends to do to our easement/property I think a visit to our home to go over our concerns as home-owners and tax payers is the least you can do.

Please append to original comment sheet, and provide contact information below:

[redacted]

Principals

Michael Gagnon
Lena Gagnon
Andrew Walker
Richard Domes

**August 13, 2024**

GWD File: 22.3119.00

**Ainley Group**
**1-50 Grant Timmins Drive**
**Kingston, Ontario**
**K7M 8N2**

**Attention: Alexander Wilkinson, Consultant Project Manager**

**City of Kawartha Lakes**
**12 Peel Street**
**Lindsay Ontario**
**K9V 5R8**

**Attention: Corby Purdy, Manager, Infrastructure Design and Construction**

**Subject: Letter of Concern: Municipal Class Environmental Assessment – Angeline Street North**
**Block 16, Plan 57M-782, City of Kawartha Lakes (Lindsay)**
**Sunray Group/2607226 Ontario Inc.**

**Dear Alexander and Corby:**

Gagnon Walker Domes Ltd. ("GWD") acts as planning consultant to 2607226 Ontario Inc. ("Sunray Group"), being the owner of the property legally known as Block 16, Plan 57M-782, City of Kawartha Lakes (Lindsay) – (the "subject site"). The subject site is generally located at the southeast quadrant of Angeline Street North and Colborne Street West and measures approximately 1.6 hectares, with 168.73 metres of frontage along Angeline Street North. The subject site is currently vacant, but is zoned to facilitate commercial development.

Sunray Group initially submitted a Site Plan Approval Application for the purposes of a commercial development on the subject site on December 1, 2022 (City File No: D19-2023-005). The commercial development proposes one (1) hotel and four (4) retail buildings. The Notice of Complete Application was issued by the municipality on May 23, 2023.

Accordingly, Sunray Group has a direct interest in the on-going Municipal Class Environmental Assessment ("MCEA") process for the proposed reconstruction of Angeline Street North. We understand that the MCEA process is being undertaken for the purposes of the reconstruction of Angeline Street North between Colborne Street West and Roosevelt Street, and includes intersection improvements at Angeline Street North/Kent Street, and Angeline Street North/Colborne Street, and the evaluation for



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potential widening of this segment of the road corridor for up to four (4) lanes to address future traffic demands. Although GWD is registered as an official interested party to be provided notice of any public updates pertaining to the MCEA process, a transmission error occurred during the issuance of the public notice for Public Information Centre #2 ("PIC #2") and was not initially received by GWD or Sunray Group. As a result the City and its consultant, Ainley Graham & Associates Limited, have permitted an extended commenting period for Sunray Group.

We have reviewed the materials pertaining to PIC #2 provided to us on July 22, 2024. Through our review of the MCEA information now made available on the municipal website, multiple alternatives have been considered to refine the proposed Colborne Street West/Angeline Street intersection as well as the Angeline Street North corridor and it appears none of the alternatives being considered contemplate any requirement for road widening along the subject site. Sunray Group is satisfied with this conclusion as it relates to the planned corridor width. However, Sunray Group is concerned that the MCEA fails to consider the proposed commercial development of the lands pursuant to its in process Site Plan Application, instead only recognizing the lands as vacant parcel and without any existing or proposed access to Angeline Street North.

**MCEA Public Input**

While Sunray Group acknowledges that a road widening will not be required, Sunray Group requests that the MCEA process consider the proposed commercial development, including access conditions to Angeline Street North, in all future phases of the study. A copy of Sunray Group's updated Site Plan is enclosed.

If you have any questions do not hesitate to contact the undersigned.

**Yours truly,**

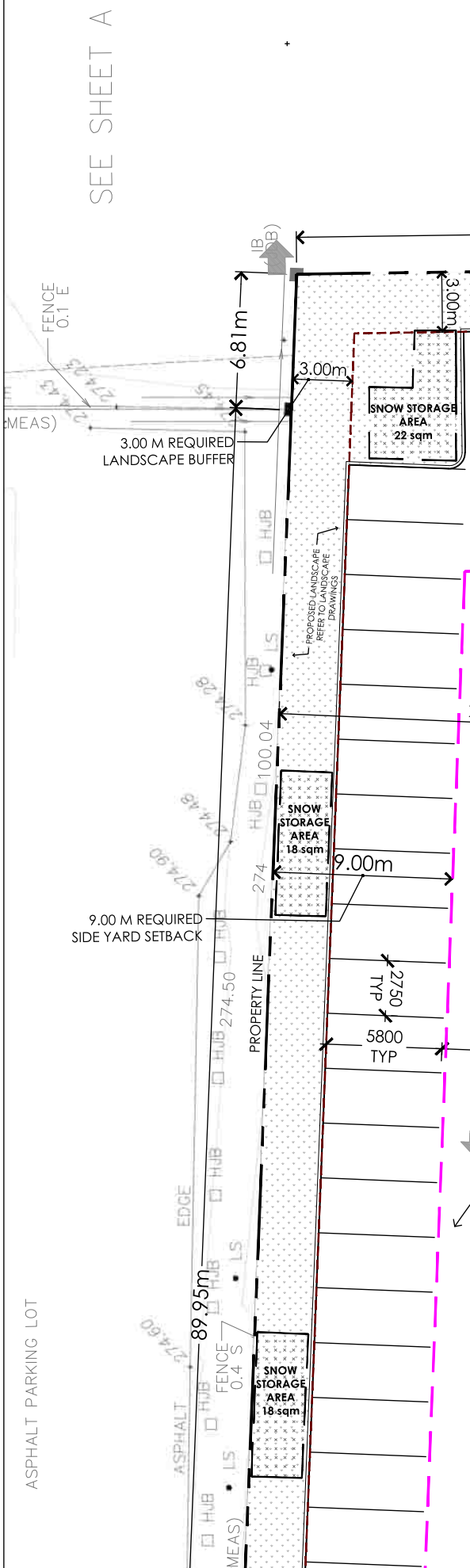
**Richard Domes, B.A., C.P.T.**
**Principal Planner**

**Patrick Soriano, B.U.R.Pl.**
**Planning Associate**

C.C.: Sunray Group
M. Gagnon, Gagnon Walker Domes Ltd.

## LINDSAY SITE STATISTICS

| SITE STATISTICS | | | | |
|---|---|---|---|---|
| ZONING | GC-S11 ZONE<br>General Commercial Special Eleven Zone | | | |
| **COVERAGE CALCULATIONS** | **SM** | **SF** | **ACRES** | **%** |
| TOTAL SITE AREA | 16,116.0 | 173,471 | 3.982 | 100.0% |
| BUILDING AREA (BUILDING A+B+C+D+E) | 2,813.5 | 30,284 | | 17.5% |
| **SETBACKS** | **MIN REQ'D (m)** | **PROVIDED (m)** | | |
| FRONT YARD(By-law #2000-75, Section 16.3.12 iii) | 3.0 | 6.72 | | |
| REAR YARD(By-law #2000-75, Section 16.2.f) | 15.0 | 17.82 | | |
| INTERIOR SIDE-LEFT SIDE (By-law #2000-75, Section 5.15) | 9.0 | 22.48 | | |
| INTERIOR SIDE-RIGHT SIDE (By-law #2000-75, Section 5.15) | 7.5 | 7.86 | | |
| LOT FRONTAGE(By-law #2000-75, Section 16.2.b) | 45.0 | 168.73 | | |
| WIDTH OF LANDSCAPE STRIP | 3.0 | 3.0 | | |
| **HEIGHT OF BUILDING** (Measured between the grade to roof deck) | **REQ'D (MAX)** | **PROVIDED** | | |
| BUILDING A- HOTEL | **10.50** | **16.10** | | |
| BUILDING B- RETAIL | 10.50 | 5.0 | | |
| BUILDING C- DRIVE THROUGH RESTAURANT | 10.50 | 5.0 | | |
| BUILDING D- DRIVE THROUGH RESTAURANT | 10.50 | 5.0 | | |
| BUILDING E- DRIVE THROUGH RESTAURANT | 10.50 | 5.0 | | |
| **CONSTRUCTION AREA** | **SM** | **SF** | | |
| BUILDING A- HOTEL | | | | |
| GROUND FLOOR | 1,214 | 13,067 | | |
| 2nd FLOOR | 1,196 | 12,874 | | |
| 3rd FLOOR | 1,196 | 12,874 | | |
| 4th FLOOR | 1,196 | 12,874 | | |
| 5th FLOOR | 1,196 | 12,874 | | |
| **TOTAL AREA OF BUILDING A** | 5,998 | 64,562 | | |
| BUILDING B- RETAIL | | | | |
| GROUND FLOOR-RETAIL | 1,070 | 11,517 | | |
| BUILDING C- DRIVE THROUGH RESTAURANTS | | | | |
| GROUND FLOOR | 176.5 | 1,900 | | |
| BUILDING D- DRIVE THROUGH RESTAURANTS | | | | |
| GROUND FLOOR | 176.5 | 1,900 | | |
| BUILDING E- DRIVE THROUGH RESTAURANTS | | | | |
| GROUND FLOOR | 176.5 | 1,900 | | |
| **TOTAL AREA-BUILDING A+B+C+D+E** | **7,597.5** | **81,778.7** | | |
| **PARKING REQUIREMENTS** (Section 5.12 k)ii | **REQ'D** | **PROVIDED** | | |
| **GROSS FLOOR AREA (GFA)** MEASURED FROM EXTERIOR WALL TO EXTERIOR WALL, but not included elevator shaft, corridors, mechanical and electrical rooms and storage areas | | | | |
| BUILDING A- HOTEL+RESTAURANT | | | | |
| HOTEL (111 rooms)-1.2 PARKING PER GUEST ROOM | 133.2 | 133 | | |
| BUILDING B- RETAIL | | | | |
| RETAIL-1 PARKING PER 25 SQ M OF GROSS FLOOR AREA | 42.8 | 43 | | |
| BUILDING C- DRIVE THROUGH RESTAURANT | | | | |
| DRIVE THROUGH RESTAURAN-1 PARKING PER 11 SQ M OF GFA | 16.0 | 16 | | |
| BUILDING D- DRIVE THROUGH RESTAURANT | | | | |
| DRIVE THROUGH RESTAURAN-1 PARKING PER 11 SQ M OF GFA | 16.0 | 16 | | |
| BUILDING E- DRIVE THROUGH RESTAURANT | | | | |
| DRIVE THROUGH RESTAURAN-1 PARKING PER 11 SQ M OF GFA | 16.0 | 16 | | |
| **TOTAL NO. OF SPACES** | **224** | **224** | | |
| **ACCESSIBLE PARKING -3.4mX5.8m** | **REQ'D** | **PROVIDED** | | |
| 3% OF THE TOTAL NUMBER OF PARKING SPACES | **6.7** | **8** | | |
| **PARKING SPACES,DRIVEWAYS AND AISLE REQUIREMENTS** | **REQ'D (MIN)** | **PROVIDED** | | |
| DRIVEWAYS | 7.0 | 7.00 | | |
| PARKING SPACE WIDTH | 2.75 | 2.75 | | |
| PARKING SPACE LENGTH | 5.8 | 5.80 | | |
| **LOADING REQUIREMENTS** (SIZE: 4.0W x 15.0L X4.5M VERT CLR) | **REQ'D** | **PROVIDED** | | |
| BUILDING A- HOTEL:1000-4999 SQ M GFA REQUIRE 1 LOADING SPACE | 1 | 1 | | |
| BUILDING B- RETAIL:1000-4999 SQ M GFA REQUIRE 1 LOADING SPACE | 1 | 1 | | |
| BUILDING C,D,E- DRIVE THROUGH RESTAURANTS | 0 | 0 | | |
| TOTAL | 2 | 2 | | |




## CREDIT NOTES:

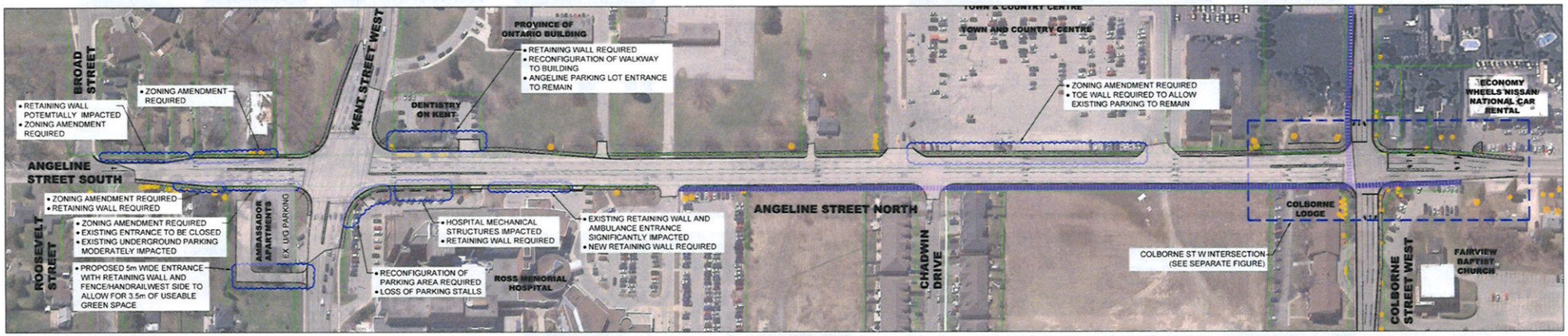
THIS SITE PLAN IS BASED UPON AND MUST BE READ IN CONJUNCTION WITH THE DRAWING SHEET B BY COE FISHER CAMERON LAND SURVEYORS DATED 12/06/2018. MATAJ ARCHITECTS ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY, OR COMPLETENESS OF THE DATA SUPPLIED AND SUCH DATA IS NOT INCLUDED UNDER SEALS OF CERTIFICATION, IF ANY.

## LEGAL LAND DESCRIPTION.

1008

TOPO SURVEYORS INFO

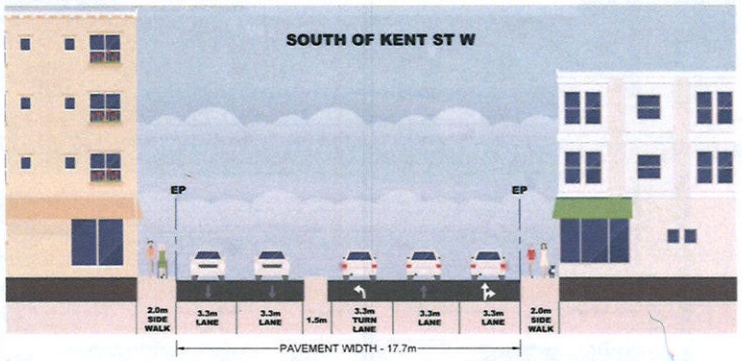
# KENT STREET INTERSECTION AND MAIN CORRIDOR - PREFERRED ALTERNATIVE

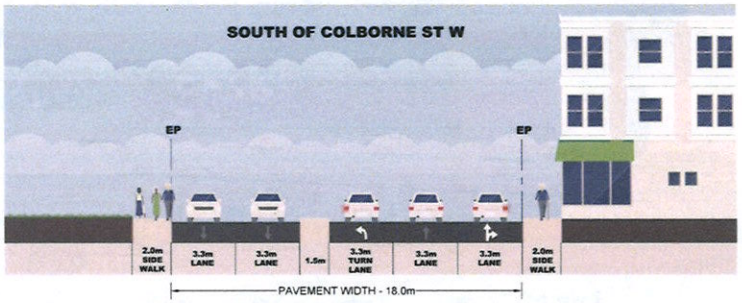


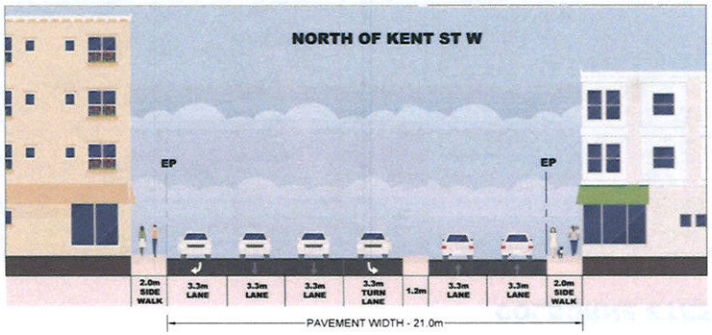

## ALTERNATIVE 2B

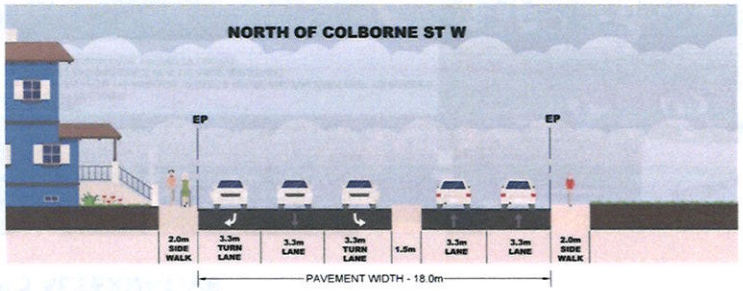
**SOUTH OF COLBORNE STREET W INTERSECTION:**

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).

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# Project File Report

for the

## Angeline Street North
## Municipal Class Environmental Assessment

City of Kawartha Lakes

Prepared by Ainley Group

August 2025

Prepared By:


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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.
- 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 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.

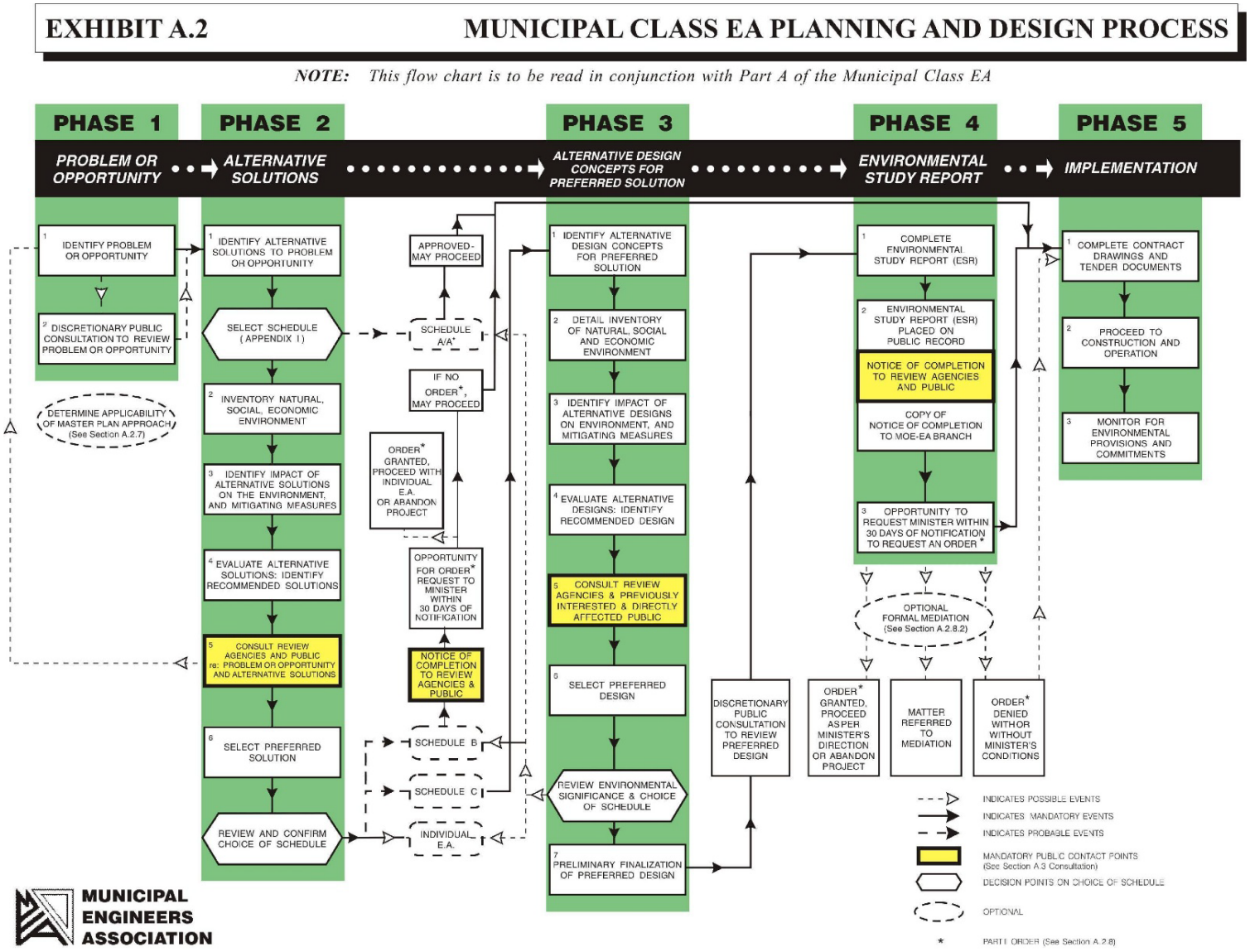


**Figure 2 – MCEA Process Flow Chart (Source: Municipal Engineers Association)**

# 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**.

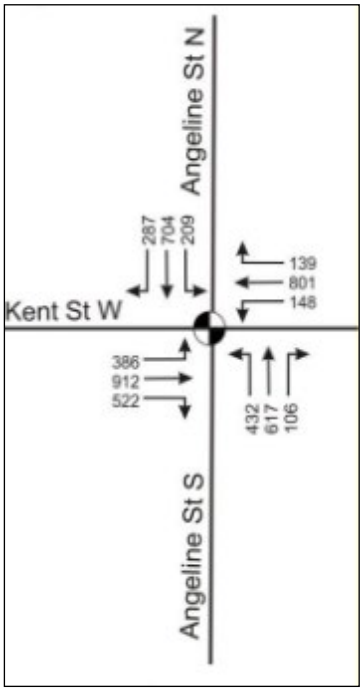


**Exhibit 2** – 2031 Forecast Traffic Volumes, Kent Street/Angeline Street Intersection (HDR, 2016)

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.

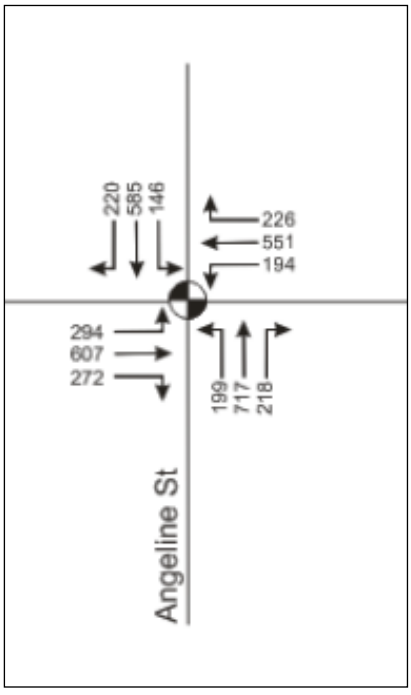


**Exhibit 3** – 2031 Forecast Traffic Volumes, Colborne Street/Angeline Street Intersection (HDR, 2016)

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.

**INSERT FIGURE 3 [Alternative 1]**

**INSERT FIGURE 4 [Alternative 2]**

**INSERT FIGURE 5 [Alternative 3]**

**INSERT FIGURE 6 [Alternative 4]**

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

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | ALTERNATIVE 1<br>WESTWARD SHIFT AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | | ALTERNATIVE 2<br>EASTWARD SHIFT AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | | ALTERNATIVE 3<br>WESTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions. + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | | ALTERNATIVE 4<br>EASTWARD SHIFT AND REDUCED LANES AT KENT INTERSECTION<br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru/RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** Ex. Conditions + 1x Ded. RT<br>**WB:** Ex. Conditions<br>**Angeline Corridor:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRANSPORTATION | TRAFFIC OPERATIONS / PERFORMANCE | Accommodates 2031 traffic volume at Kent Street intersection<br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street intersection<br>Addresses problem statement | ● | 4 | Will not accommodate 2031 traffic volume at Kent Street intersection<br>**Does not address problem statement.** | ○ | 0 | Will not accommodate 2031 traffic volume at Kent Street intersection<br>**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:<br>High Density Res. - relatively lower impact<br>Commercial - relatively higher impact<br>Institutional - relatively lower impact<br>Severe impact to underground parking structure<br><br>Remaining property to north: generally equal impacts | ◑ | 2 | Kent Street :<br>High Density Res. - relatively higher impacts<br>Commercial - relatively lower impact<br>Institutional - relatively higher impact<br>Severe impact to underground parking structure<br><br>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.

**INSERT FIGURE 7 [Alternative 1 Through 3]**

## Table 4: Alternative Solutions for Colborne Street West Intersection

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | ALTERNATIVE 1<br>WESTWARD SHIFT AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 2<br>CENTRED AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** Common among all Alternatives* | | | ALTERNATIVE 3<br>EASTWARD SHIFT AT COLBORNE INTERSECTION<br>**Colborne St. W Intersection*:**<br>**NB:** 1x LT, 1x Thru, 1x Ded. RT<br>**SB:** 1x LT, 1x Thru, 1x Ded. RT<br>**EB:** 1x LT, 1x Thru, 1x Ded. RT<br>**WB:** 1x LT, 1x Thru, 1x Ded. RT<br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>** 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.<br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection.<br>Addresses problem statement | ● | 4 | Accommodates 2031 traffic volume at Kent Street Intersection, the Angeline Street Corridor, and the Colborne Street Intersection.<br>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<br>Commercial - Greatest impact to existing parking area<br>Community Facility - Church parking maintained | ◑ | 1 | Residential - Increased separation from NW property walkway; only parking space eliminared<br>Commercial - Reduced impact to existing parking area<br>Community Facility - Church parking impacted (located within municipal right-of-way) | ◑ | 2 | Residential - Greatest separation from NW property walkway; existing parking space maintained<br>Commercial - Least impact to existing parking area<br>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<br>• Kent Street intersection |
| | Sidewalk – One Side | • Angeline Street between Colborne Street and Chadwin Drive<br>• 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**.

**[Insert Figure 8 – Kent Street West Alternative 2A]**

**[Insert Figure 9 – Kent Street West Alternative 2B]**

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

| CATEGORY | REGULATORY / POLICY / DESIGN REQUIREMENT | ALTERNATIVE 2A<br><br>FULL LANE BUILDOUT<br><br>**Kent St. W. Intersection:**<br>**NB:** 1x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT*<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br><br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | | ALTERNATIVE 2B<br><br>REDUCED NORTHBOUND LANES<br><br>**Kent St. W. Intersection:**<br>**NB:** 2x LT, 1x Thru, 1x Thru/RT<br>**SB:** 1x LT, 2x Thru, 1x Ded. RT*<br>**EB:** Ex. Conditions + 1x Ded. RT*<br>**WB:** Ex. Conditions*<br><br>**Angeline Corridor*:**<br>**NB:** 2x Thru<br>**SB:** 2x Thru<br>**Centre:** 1x Shared LT<br>* *Common among all Alternatives* | | |
|---|---|---|---|---|---|---|---|
| TRANSPORTATION | TRAFFIC OPERATIONS / PERFORMANCE | Accommodates 2031 traffic volume at Kent Street intersection<br><br>Addresses problem statement | | 4 | Accommodates 2031 traffic volume at Kent Street intersection<br><br>Comparitively lower Level of Service<br><br>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 :<br>High Density Res. - relatively higher impacts<br>Commercial - all equal<br>Institutional - all equal<br>Severe impact to underground parking structure<br><br>Remaining property to north: generally equal impacts | | 1 | Kent Street :<br>High Density Res. - relatively lower impacts<br>Commercial - all equal<br>Institutional - all equal<br>Moderate impact to underground parking structure<br><br>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.

# Figure 10

# Figure 11

# Figure 12

# 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

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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.

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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.

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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

# Committee of the Whole Report

| | |
|---|---|
| **Report Number:** | **CLK2025-007** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **Application to Rename Pinewood Park, Pontypool** |
| **Description:** | Application under Council Policy CP2022-001 to rename Pinewood Park (Pontypool) to Richardson Park |
| **Author and Title:** | Joel Watts, Deputy Clerk |

## Recommendation(s):

**That** Report CLK2025-007, **Application to Rename Pinewood Park, Pontypool**, be received;

**That** the application be approved to proceed with appropriate public consultation process with the affected stakeholders;

**That** the results of the public consultation be brought forward to Committee of the Whole and Council by the end of Q4, 2025; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

**Department Head:** _____

**Financial/Legal/HR/Other:**_____

**Chief Administrative Officer:**_____

**Background:**

City Council has adopted Council Policy CP2022-001, being the **Street, Municipal Facility, and Park Naming Policy** for the City of Kawartha Lakes. This policy outlines options for members of the public to bring forward applications to rename either a municipal street or park/facility. The application for renaming can be for any reason, but must be accompanied by an application fee to start a formal renaming process.

On July 17, 2025 an application to Rename an Existing Park in Kawartha Lakes was received from S. Carriere of Pontypool to rename Pinewood Park with the sufficient $297.00 application fee. The applicant is requesting to rename the park from 'Pinewood Park' to 'Richardson Park'. For the application to be deemed complete, it must be signed by three residents/owners adjacent to the park being renamed. The application was duly signed by three property owners (representing 3 adjacent lots to the park) at the following properties:

- 26 Hooper Drive;
- 196 Corbett Drive; and
- 200 Corbett Drive.

On August 6, 2025 City staff reviewed the application and has deemed it complete, and as such, the application is to be considered by City Council in accordance with the policy. This report addresses this application.

## The Existing Name: Pinewood Park

Pinewood Park in Pontypool has access to Propp Drive, Hooper Drive, and Corbett Drive and is mostly surrounded by private residences. Pinewood Park is a passive recreational space featuring amenities such as a playground, internal pathways, and a designated dog park. It serves as a valued community space, primarily used for informal, unstructured recreation by local residents.

Pinewood Park was established in the 1980s as part of the subdivision known as "Pontypool Subdivision" or "Pinewood Subdivision" or "Pinewood Estates". A records request to the City's Records and Archives division returned some limited information about the formal establishment of the park. A resolution of the Manvers Township Council in May of 1986 instigated the creation of the municipally owned park by formally requesting funding for capital works for new recreational facilities in the park to the Ministry of Tourism and Recreation. While the letter formally establishes the park as a municipally owned park in a 'large subdivision' that the Township proposed to

include as a park for the area's residents use, the City cannot find a formal document establishing the park's name: Pinewood Park. It is believed that the working name for the project "Pinewood Park Project" was simply used as the park was in the "Pinewood Subdivision".

Supporting documentation submitted by the applicant also indicates that their research with the Manvers Township Historic Society also returned no response to where the name "Pinewood" came from. It is likely simply a descriptive reference to the many pines in the area.

## The Recommended Name: Richardson Park

The following justification for the proposed name "Richardson" was submitted by the applicant:

> "We are writing to you to request consideration in changing the name of Pinewood Park to Richardson Park.
>
> The Richardson Family have contributed much to the village of Pontypool. Joseph Richardson, his wife Mary and their six children settled in Cavan Twp. and around 1875, they came to Manvers and lived on farm on the sixth line (currently Ballyduff Road).
>
> In 1908, Bert Richardson, with his brothers Harry, Jim and Percy started up a Bakery and Ice Cream business. The bakery, at first was a very small affair and then flourished and it was called Richardson Bros. Bread & Pastries. Their well known products were shipped to many other villages, first by train, then by truck; one of the first delivery trucks in the area.
>
> In 1912, when cars started becoming popular, Bert and Jim opened up a Garage. Soon after (1915), the Richardson Bros, became agents for General Motors products.
>
> Wilfred Richardson (Harry's son) established a tree farm, Richardson Tree Farm, which is known today as Pineneedle Farms located at 423 Hwy 35, Pontypool, ON. Pineneedle Farms is currently owned and operated by Paul (Wilfred's son) & Tracy Richardson and their families.
>
> We have provided this little 'snapshot' of history to showcase the importance of the Richardson family in Pontypool. The Richardson family have a long history in building and supporting the foundations of this town. They played a large role in our past, setting up and maintaining proprietorships in this community. Also, the Richardson family was instrumental in building the Methodist Church and is known today as the Pontypool United Church located on John Street.

When the north subdivision in Pontypool was being developed 50 years ago the first street name was Richardson Drive to pay respects the Richardson Family's contributions to the Pontypool Community. This sign was removed because the name was wanted to be used in Lindsay area and they did not want duplication. Speaking to the Richardson family it was confirmed that they were insulted by this change and were not notified until it was a done deal, commemorative naming is important to smaller communities as it does help preserve the memory of historical families that helped shape the Community's roots.

The Richardson Family history has shaped our community, and they continue to live in the area and the family is currently welcoming the 5th generation. The Richardson's are always supportive of any community event, supporting those in need and providing monetary donations without hesitation. In addition, they give not only through gifts but by their involvement and service. The Pineneedle Farms also offers opportunity for our younger generation to have summer employment at their tree farm. They generously give without asking for a return.

Please consider the renaming of the Pinewood Park to the Richardson Park to honour their name."

P. Hamilton & S. Carriere

The City's Records and Archives Division have conducted some additional research on the Municipal significance of the name Richardson and have offered the following comments:

"In 1922, Bert Richardson ran for a Councillor position and won a seat. You will note from the application background history that Bert and his brother Jim opened a garage in 1912, which evolved into becoming agents for General Motors (1915). Bert Richardson served as a Councillor from 1922-1925, then as Deputy Reeve from 1926-1927. In 1928 & 1929, Bert Richardson ran for Reeve, but was defeated by Fred S. Gray. However, his persistence paid off. In 1930 he was elected as Reeve. Bert was re-elected as Reeve in 1931 as well. In 1932, Bert Richardson did not run for re-election."

The Clerk's Office also notes that Councillor Tracy Richardson is serving her second term of elected office to represent Kawartha Lakes Ward 8 since 2018, and she has served as Deputy Mayor as part of her tenure.

When considering a new name, the Street, Municipal Facility, and Park Naming Policy, requires that the new names meet one of the following requirements:

- Former elected Members of Council (including from pre-amalgamation municipalities);
- Historic or Indigenous uses or persons;
- Service Clubs or Organizations;
- Geographic significance including local landmarks;
- Veterans, as defined by the Royal Canadian Legion;
- Sponsorships or Dedications;
- Federal or Provincial Politicians;
- Prominent Citizens; and,
- Sports Figures.

As the name Richardson not only appears to represent former and current elected members of Council, as well as prominent citizens, the name appears consistent with the Policy's requirements.

## Renaming Process – Next Steps:

As part of the renaming process the following steps in the application process are outlined in the policy as follows:

a) Recommendation of Committee of the Whole to City Council. The following recommendations are in order.

   a. **Refer back to staff or Committee of Council** for further research or collaboration with other agencies/community groups.

   b. **Deferral** of the matter to another Committee of the Whole or Regular Council Meeting.

   c. **Approval** for staff to begin an appropriate public consultation process with the affected stakeholders.

   d. **Denial** of the renaming

b) City Council makes its interim decision based off Committee of the Whole recommendation at the next Regular Council meeting. If denied, return application fee and send letter with Council Resolution.

c) If approved for public consultation, City Clerk to coordinate with the Communications, Advertising and Marketing division and the local Ward Councillor and establish an appropriate public consultation process that determines the following.

   a. That there is sufficient community demand to rename; and

b. The most preferred new name for the Street or facility.

d) In the case of Street renaming, the Public Consultation process shall include one notice via regular mail to all affected property owners that City Council is considering changing the name and shall outline the complete public consultation process.

e) The Office of the City Clerk will present the findings of the public consultation within three months of the original resolution of Council to the next appropriate Committee of the Whole Meeting.

f) Committee of the Whole hears any public comments or deputations and make a final recommendation of a new name to Regular Council.

g) Following the ratification of the Committee of the Whole recommendation at the following Regular Council Meeting, the Office of the City Clerk shall advertise the name change in accordance with the Municipal Act and Notice Requirement By-law (Streets only are legislated) (In the case of a building or park, etc. the same notification should apply).

h) City Clerk to prepare the necessary by-law and present it to the next Regular Council Meeting after the three week notice requirement.

i) If By-law passed, Clerk's office sends out notification to Emergency Services, Canada Post, MPAC, all affected utilities, affected property owners and the by-law is registered where required.

j) City Clerk to notify staff to have signs prepared and installed.

k) If By-law is not passed then the application fee is returned.

## Initial Alternatives for Consideration:

City Council has four options to pursue based on this report. According to the Policy, the following recommendations to City Council are in order:

1. **That** the application be referred back to staff and/or committee of Council for further research or collaboration with other agencies and/or community groups, and be brought forward to Committee of the Whole within 3 months.
2. **That** this application be deferred to the next Committee of the Whole Meeting
3. **That** the application be approved to proceed with appropriate public consultation process with the affected stakeholders, and **that** the results of the public consultation be brought forward to Committee of the Whole within 3 months.

4. **That** the application be denied, and that the application fee be returned to the applicant.

Based on the alternatives, Clerk's Office staff, in consultation with Community Services team members, are confident that the renaming is consistent with City Policy, and could proceed to the next steps if requested by Council.

## Alignment to Strategic Priorities

The Strategic Plan includes a strategic priority of Good Government. By following established City Policy, and giving full consideration of the name change application, this provides effective service delivery for better customer experiences, and providing accountable and transparent government, while effectively and responsibly managing resources.

## Financial/Operation Impacts:

The Street and Facility Naming Policy contemplates a cost-recovery model. The applicant has submitted the application fee of $297.00, which is to be put towards the costs associated with the renaming. The policy outlines that the funds can be used for the following:

i) advertising costs
ii) signage
iii) notification to utilities and MPAC
iv) notification to Emergency Services
v) administration

Funding for the installation of new park signage will be accommodated within the current Parks and Recreation budget. As such, at this time, no additional fees are anticipated being levied to the applicant.

## Consultations:

Director, Community Services
Archives and Records Division

**Department Head email: rtaylor@kawarthalakes.ca**

**Department Head: Ron Taylor, CAO**

# Committee of the Whole Report

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|---|---|
| **Report Number:** | **ED2025-024** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **Discover Downtown Fenelon Falls Action Plan, Report Back on Municipal Actions** |
| **Description:** | A review of the municipal considerations within the Discover Downtown Fenelon Falls Action Plan |
| **Author and Title:** | Carlie Arbour, Economic Development Officer - Community |

## Recommendation:

**That** Report ED2025-024, **Discover Downtown Fenelon Falls Action Plan, Report Back on Municipal Actions**, be received; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

**Department Head:** _____

**Financial/Legal/HR/Other:** _____

**Chief Administrative Officer:** _____

## Background:

At the Council Meeting of July 22, 2025, Council adopted the following resolution:

> **CR2025-243**
>
> **That** Report ED2025-018, **Discover Downtown Fenelon Falls Action Plan**, be received;
>
> **That** members of the Discover Downtown Fenelon Falls Committee, a sub-committee of Fenelon Forward, be recognized for the exemplary community engagement in developing this action plan; and
>
> **That** Staff report back to Council by end of Q3 2025 with a summary and analysis of projects that fall within Municipal responsibility and their associated proposed timelines.

This report summarizes the projects identified in the community Action Plan that fall within Municipal responsibilities.

## Rationale:

The Discover Downtown Fenelon Falls Action Plan (Action Plan), identified four primary goals to focus on over the next five years. These goals were established following the engagement of visitors, residents, businesses and engaged community members by following through the scripted Ontario Ministry of Rural Affairs Downtown Revitalization program. These goals are:

1. **Enable Growth Through Infrastructure:** Lay the foundation for economic and population growth in downtown Fenelon Falls through thoughtful infrastructure investment.
2. **Expand/Build Business Diversity:** Support the growth of a vibrant and varied business community in downtown Fenelon Falls.
3. **Improve Pride of Place:** Foster a strong sense of pride among residents, businesses, and visitors by celebrating the character and identity of downtown Fenelon Falls.
4. **Placemaking:** Create engaging public spaces and initiatives in downtown Fenelon Falls that strengthen the connection between people and their environment.

While ownership of the Action Plan rests with the community through the Fenelon Falls Downtown Revitalization Committee, a sub-committee of Fenelon Forward, a number of actions identified as important to the community fall within the scope of municipal responsibility. These include projects such as street beautification, signage, and improvements to recreation assets. Appendix A, Discover Downtown Fenelon Falls Action Plan (Municipal Actions Identified), outlines the items identified by municipal staff as falling within municipal responsibility and indicates their alignment with current workplans.

To support the implementation of the Action Plan, each initiative is accompanied by key details regarding responsibility, municipal alignment, and anticipated timing. These details provide clarity on who would lead each action, whether it is part of current municipal workplans, and the expected timeframe for completion.

- **Lead Organization:** This identifies the entity responsible for carrying out the action should it proceed. For example, road reconstruction would be the responsibility of the municipality, not the community. Designating a lead organization does not guarantee implementation; rather, it clarifies ownership if the action moves forward.
- **Municipal Workplan:** This column indicates whether the action is currently part of municipal planning or if it would require future Council direction. Actions included in the workplan have allocated resources or identified priorities, while others remain community-driven initiatives that would need additional support to advance.
- **Timeline:** The timeline provides an estimated timeframe for the completion of each action. Initiatives with established workplans and budgets have clear target dates, while those outside current planning frameworks are projected based on long-term capital planning, budget considerations, and Council decisions.

The Action Plan identifies a total of 48 starting actions to guide revitalization efforts in downtown Fenelon Falls. Of these, 34 actions rely on municipal or joint municipal and community input. Of the actions that fall within municipal responsibility, 26 actions are currently part of existing workplans or have been identified as priorities.

In Q1 2027, staff will return to Council to provide an update on the status of all actions, reporting on progress from both the community and the municipality.

## Other Alternatives Considered:

No alternatives considered.

## Alignment to Strategic Priorities

The four strategic priorities within the 2024-2027 Kawartha Lakes Strategic Plan are:

1. A Healthy Environment
2. An Exceptional Quality of Life
3. A Vibrant and Growing Economy
4. Good Government

Downtown Revitalization aligns with the three following Strategic Priorities:

> **Exceptional Quality of Life** – "Maintain community hubs such as parks, buildings and active spaces for social, healthy interactions." This plan identifies a need for developing community gathering spaces in downtown Fenelon Falls.
>
> **Vibrant and Growing Economy** – The Strategic Plan identifies the importance of "support[ing] downtown revitalization, intensification and beautification." This project will touch on all four pillars of downtown revitalization through planning and plan implementation.
>
> **Good Government** – Secure and advocate for provincial and federal funding for municipal infrastructure and service delivery needs, and critical community infrastructure and project investments". This project received provincial funding to engage in evidence-based community action planning initiatives.

Alignment with the Economic Development Strategy includes:

> **Invest in Places of Economic and Cultural Activity**: Engage communities in Kawartha Lakes in the Provincial Downtown Revitalization programming.

## Financial/Operation Impacts:

This report is for information only and does not have financial implications.

## Consultations:

Manager, Economic Development
Manager, Corporate Assets
Manager, Technical Services
Manager, Roads Operations
Manager, Parks and Recreation
Manager, Infrastructure Design and Construction
Manager, Municipal Law Enforcement

## Attachments:

Adobe Acrobat Document

**Department Head email: lbarrie@kawarthalakes.ca**

**Department Head: Leah Barrie, Director Development Services**

Goal 1: Enable Growth through Infrastructure Development: Lay the foundation for economic and population growth in downtown Fenelon Falls through thoughtful infrastructure investment.

| Objective | Starting Actions | Lead Organization | Part of Existing Municipal Workplan | Timeline |
|---|---|---|---|---|
| Objective 1.1: Prioritize the revitalization of bridge infrastructure as a critical and essential investment in the economic future, accessibility, and long-term viability of downtown Fenelon Falls and the broader community. | Advocate for infrastructure solutions that improve downtown access (e.g., bridge improvements/alternate routes). | Community | The CIty has completed a series Municipal Class EA studies outlining infrastructure improvements and network traffic improvements in Fenelon Falls and Council endorsed projects within the municipal class EA have been planned for within the City's Master Capital forecast for existing SGR infrastructure as well as expansionary. | 2026-2030 |
| | Ensure that bridge upgrades allow for two-way pedestrian traffic that will accommodate baby strollers, walkers, and mobility scooters. | City of Kawartha Lakes - Engineering | Fenelon Falls (Lindsay Street) Bridge Reconstruction is part of the Master Capital and Special Projects Forecast. Design elements for this project will be captured during public consultation. | 2029-2030 |
| | Advocate for municipal partners and stakeholders to prioritize long-term planning for critical infrastructure that increases access to the downtown. | Community | Participaction of community groups is a key part of infrastructure planning within the City through its Municipal Class EA process and capital financial planning. | |
| | Work with municipal partners to request a "seat at the table" for collaborative discussion between key stakeholders on timing, mitigating impact of critical infrastructure work, and solutions | Community | | |

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| | for downtown infrastructure challenges. | | | |
| Objective 1.2: Create uniformity throughout the downtown through streetscape design aesthetics already used in Colborne Street improvements. | Identify priority side-streets and areas for consistent streetscape upgrades. | City of Kawartha Lakes - Engineering | Road and sidewalk reconstruction projects are identified in the State-o f-Good-Repair Capital Forecast. The downtown revitalization project area includes Colborne St., Water Street., May Street., Francis St. W., Market St., and Bond St. W. streets are not currently identified for reconstruction. | |
| | Collaborate with municipal partners to improve pedestrian infrastructure, lighting, brickwork, furniture, trees and amenities throughout downtown side streets. | Community | | |
| | Ensure the CKL incorporates consideration of Colborne Street reconstruction in all design planning. | City of Kawartha Lakes - Engineering | The downtown revitalization project area of Colborne St., Water Street., May Street., Francis St. W., Market St., and Bond St. W. streets are not currently identified for reconstruction. Should they be a future part of reconstruction project the streetscape from Colborne Street will be part of the design considerations, in addition to feedback received during public consultation. Outside of the reconstruction capital program, if streets within the ID downtown area are programed for sidewalk replacement, then the design elements would also apply were applicable. | |

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| Objective 1.3: Improve downtown signage. | Work with municipal partners to update and install cohesive street name signage throughout the downtown area (refer to Appendix A). | City of Kawartha Lakes - Public Works | Street signs are replaced when a sign is missing or damaged. The replacement of all downtown street signs is not currently within an existing workplan. New funding would be required to action this. | |
| | Explore a new unified wayfinding system that helps visitors navigate key destinations. | City of Kawartha Lakes - Economic Development | The Municipal and Tourism Wayfinding Strategy is currently in the procurement process. This Strategy will support the navigation to key municipal and tourism assets in Kawartha Lakes. Public consultation is a component of this project. | 2026-2026 Strategy<br>2027 Implementation (to start) |
| Objective 1.4: Increase the use of off-street parking lots. | Promote available off-street parking options using maps, signage, and digital tools. | City of Kawartha Lakes Community | Signage will be incorporated into the Municipal and Tourism Wayfinding Strategy. Additional GIS or online mapping is not in a current workplan. The community may develop local tools to promote parking lot use. | |
| | Explore creative ways to encourage customer-friendly parking (e.g., positive messaging, shopping/dining incentives). | Community | | |
| | Work with municipal partners to assess and improve systemic parking signage. | City of Kawartha Lakes - Economic Development<br><br>Community | The Municipal and Tourism Wayfinding Strategy is currently in the procurement process. This Strategy will incorporate parking signage. | 2026-2026 Strategy<br>2027 Implementation (to start) |
| | Work with municipal partners to assess the viability for downtown parking enforcement. | City of Kawartha Lakes - Municipal Law Enforcement<br><br>Community | Fenelon Falls receives community patrols 1-2x per week throughout May-August (2025). Should the community seek increased enforcement, this will require a request to the division, who would conduct a needs analysis. | |

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| Objective 1.5: Support improvements to public parking infrastructure in line with municipal strategies. | Advocate for the repaving, reconfiguration, and enhancement of existing public lots. | City of Kawartha Lakes - Engineering<br><br>Community | Francis Street East Parking Lot and John Street Parking Lots are identified for construction. | 2026: Francis Street East<br>2030: John Street |
| | Collaborate with CKL and local stakeholders to explore future infrastructure upgrades, including EV charging stations. | City of Kawartha Lakes - Engineering<br><br>Community | The Municipality does not currently operate a formal EV charger program. Should the community wish to pursue installation of EV chargers, this will require direction from Council. | |
| Objective 1.6: Support downtown businesses during major infrastructure projects/construction periods. | Advocate for consideration of business needs during bridge construction or other major infrastructure projects. | Community | | |
| | Encourage digital readiness for businesses to maintain service and sales through online platforms. | City - Economic Development<br>Community | The Kawartha Lakes Small Business Centre (KLSBC) and Economic Development provides small business training programming for businesses as part of its ongoing operations. This action will be coordinated through the KLSBC. | To be determined. |
| | Develop and promote initiatives that help downtown businesses remain visible and accessible during disruption periods. | City - Economic Development<br>Community | Programming to support business visibility and accessibility will be defined and implemented as construction projects arise. | To be determined. |

Goal 2: Expand/Build Business Diversity: Support the growth of a vibrant and varied business community in downtown Fenelon Falls.

| Objective | Status Update / Activity | Responsibility | Part of Existing Municipal Workplan | Timeline |
|---|---|---|---|---|
| Objective 2.1: Welcome and support long-term investment in the downtown area. | Create a long-term plan that supports broad community development (bridge repairs, residential developments, etc.) while showcasing long-term investment opportunities in downtown Fenelon Falls. | City of Kawartha Lakes | Long-term planning is completed through municipal strategies and plans, including:<br>Long-Term Financial Plan<br>Growth Management Strategy<br>Transportation Master Plan<br>Active Transportation Master Plan<br>Transit Master Plan<br>Other Master Servicing Plans<br>Official Plan<br>Public consultation to gather community input is part of the plan development process.<br>Council endorsed State of good repair and expansionary projects are identified in the Master Capital and Special projects forecast. | |
| Objective 2.2: Attract new businesses and investment to the downtown area. | Develop and share information that highlights downtown investment opportunities (e.g., market data, available properties, testimonials). | City - Economic Development<br>Community | Provincial funding is being sought in partnership with the Chamber of Commerce to leverage the Kawartha Lakes operating budget to develop assets that promote downtown investment opportunities. Work is supported through the current project budget, with additional funds to be secured for implementation. | 2026-2030 |
| | Create an investment attraction marketing plan that promotes the benefits of locating a business in downtown Fenelon Falls through | City - Economic Development<br>Community | Provincial funding is being sought in partnership with the Chamber of Commerce to leverage the Kawartha Lakes operating budget to develop assets that promote | 2026-2030 |

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| | targeted outreach and marketing materials. | | downtown investment opportunities. Work is supported through the current project budget, with additional funds to be secured for implementation. | |
| | Explore business retention and expansion opportunities that support long-term sustainability and growth. | City - Economic Development<br><br>Community | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. | 2026-2030 |
| | Support the improvement of development processes by sharing the challenges experienced by new businesses and investors. | City - Economic Development<br><br>Community | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. | 2026-2030 |
| Objective 2.3: Create short-term accommodations within the downtown area for all-season tourists and out-of-town visitors. | Explore opportunities to educate real-estate agents and investors using relevant DR data. | City - Economic Development<br><br>Community | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. | 2026-2030 |
| | Explore opportunities to develop, utilize and promote second floor accommodations. | City of Kawartha Lakes<br><br>Community | The Annual KL Business Count provides data on the current use of upper-story spaces. Further discussions are needed to clarify building ownership, planning and building code requirements, and potential challenges to advancing opportunities for utilizing these spaces. | To be determined. |
| Objective 2.4: Support efforts to improve access to essential services that contribute to a complete community. | Advocate for the need for a second grocery store or expanded food retail options in Fenelon Falls. | City of Kawartha Lakes<br><br>Community | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. Funding is being sought to develop assets that promote downtown investment opportunities. | To be determined. |
| | Share relevant DR data with stakeholders and partners to support business development. | City - Economic Development<br><br>Community | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. | 2026-2027 |

Goal 3: Improve Pride of Place: Foster a strong sense of pride among residents, businesses, and visitors by celebrating the character and identity of downtown Fenelon Falls.

| Objective | Status Update / Activity | Responsibility | Part of Existing Municipal Workplan | Timeline |
|---|---|---|---|---|
| Objective 3.1: Support the use of funding opportunities that enhance downtown businesses and public spaces. | Promote available improvement programs (e.g., Million Dollar Makeover) to business and property owners. | City - Economic Development<br><br>Community | Promotion of Million Dollar Makeover and other funding programs are shared on a bi-weekly and weekly basis through both Economic Development and Chamber of Commerce newsletters (respectively). | Ongoing |
| | Research and identify new funding opportunities. | City - Economic Development<br>Community | Research and promotion of funding programs are shared on a bi-weekly through the Economic Development newsletter. | Ongoing |
| | Provide input into the development of an updated and refreshed CIP. | City - Economic Development<br>Community | The current Community Improvement Plan (CIP) policy, known through implementation as the Million Dollar Makeover, is active until 2028. A subsequent CIP will include community consultation ensure the needs of the community are considered. | 2028 |
| | Collaborate with downtown stakeholders to seek future funding to implement projects and initiatives that enhance downtown (i.e., Rural Economic Development Fund). | City - Economic Development<br>Community | Rural Ontario Development (ROD) Fund has intake dates through to 2027. Funding opportunities will be sought to address community and Action Plan priorities. | 2025-27 |
| Objective 3.2: Leverage downtown branding to promote identity and | Explore creative ways to engage the public using the brand (e.g., street-pole banners, social media campaigns, etc.). | Community | | |

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| encourage engagement. | Collect marketing assets to contribute to business investment and attraction strategies. | Community<br><br>City - Economic Development | Assets are currently in development through the current the Downtown Revitalization 2025 program, with provincial funding being sought in 2026 for further development. | 2026-26 |
| | Explore collaborative marketing opportunities between downtown stakeholders, partners and funders. | Community<br><br>City of Kawartha Lakes - Economic Development | Within the scope of City and Chamber initiatives. Will be developed in partnership with community needs. | 2026-2030 |
| Objective 3.3: Celebrate the people, businesses and stories behind downtown Fenelon Falls. | Share stories that highlight the impact of local businesses and community members. | Community | | |
| | Expand relationships with local media to promote stories online and in print. | Community | | |
| | Explore opportunities to host a celebratory community pride event in the off-season. | Community | | |
| | Maintain and strengthen positive relationships and engagement with downtown stakeholders. | Community<br><br>City of Kawartha Lakes | Relationships and strong community leadership are vital to a successful Downtown Revitalization program. Municipal staff from various divisions have been integral into the development of the Action Plan, with intent to maintain discussion to move the interests of the community forward where it aligns with the corporate strategy. | Ongoing |
| Objective 3.4: Continue to promote Fenelon Falls as a | Support and promote seasonal events, signature experiences, and activities that draw visitors year-round. | Community<br><br>City of Kawartha Lakes - Economic Development | The Kawartha Lakes Tourism program includes event promotion and the development of Signature Experiences known as the Knapsack program. The events | Ongoing |

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| year-round destination. | | | calendar, social media, and marketing program can be further used to promote year-round visitation. | |
| | Investigate, encourage and support grassroots off-season events and attractions within the downtown area. | Community | | |
| | Investigate ways to activate vacant second-storeys and/or underutilized downtown spaces. | City of Kawartha Lakes<br><br>Community | The Annual KL Business Count provides data on the current use of upper-story spaces. Further discussions are needed to clarify building ownership, planning and building code requirements, and potential challenges to advancing opportunities for utilizing these spaces. | To be determined. |

Goal 4: Placemaking: Create engaging public spaces and initiatives in downtown Fenelon Falls that strengthen the connection between people and their environment.

| Objective | Status Update / Activity | Responsibility | Part of Existing Municipal Workplan | Timeline |
|---|---|---|---|---|
| Objective 4.1: Create a dedicated community gathering place that encourages community involvement and civic enjoyment within the downtown area. | Explore opportunities to design a public gathering space in the downtown area. | Community<br><br>City of Kawartha Lakes-Parks and Recreation | The community is encouraged to speak with City Staff to explore the including the scope, scale and potential location. | |
| | Engage the community in defining the public gathering space purpose, programming, and design. | City of Kawartha Lakes | | |
| | Explore opportunities to utilize vacant land available in the downtown. | Community<br><br>City of Kawartha Lakes-Economic Development | The community is encouraged to work with City Staff in identifying spaces and opportunities to utilize vacant land in the downtown. The annual KL Business Count can be used to support this activity. | |
| | Explore opportunities for public washrooms. | City of Kawartha Lakes<br><br>Community | Public washrooms are available at the Fenelon Falls Library, Garnet Graham Beach Park and during the navigation season at Lock 34. | |

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| | | | Additional municipal washroom facilities in the downtown would require Council direction. | |
| Objective 4.2: Support the development of recreation-based activities and active transportation infrastructure downtown. | Identify and implement infrastructure that supports walking, biking, and active living (e.g., bike racks). | City of Kawartha Lakes - Parks and Recreation Public Works, and Engineering<br><br>Community | The Trails Master Plan Update recommends trail head amenities that support active living.<br><br>Requests for additional street furniture items (bike racks, benches, waste receptacles, etc.) are reviewed on an as requested basis through customer service requests for the respective piece. | To be determined. |
| | Promote connections between recreational assets and the downtown (e.g., Victoria Rail Trail). | City of Kawartha Lakes - Parks and Recreation | The Trails Master Plan recommends wayfinding signage to link the Victoria Rail Trail through Fenelon Falls. | To be determined. |
| | Collaborate with partners to enhance downtown recreation options for youth and families. | City of Kawartha Lakes - Parks and Recreation | The Parks and Recreation Strategic Plan recommends actions to address recreation programming. | To be determined. |

# Committee of the Whole Report

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| **Report Number:** | **ENG2025-027** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **CP2021-004 Right of Way Widths Policy Update** |
| **Description:** | Update Council Policy |
| **Author and Title:** | Kirk Timms, Manager of Development Engineering |

## Recommendation(s):

**That** Report ENG2025-027, **CP2021-004 Right of Way Widths Policy Update**, be received;

**That** the Right of Way Widths Policy, attached as Appendix A to Report ENG2025-027, be adopted and numbered for inclusion in the City's Policy Manual, replacing all predecessor versions; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

**Department Head:** _____

**Financial/Legal/HR/Other:**_____

**Chief Administrative Officer:**_____

## Background:

In 2005, the City adopted a Council Policy for Right of Way Widths to support the creation of right of ways and other corridors for public purposes.

In order to protect the City's interests in operation, maintenance and future replacement of municipal assets minimum widths were established for right of ways and for all other corridors (blocks) of land with public purposes such as drainage, servicing, or pedestrian connectivity.

In 2017, the City established Municipal Infrastructure Guidelines through report ENG2017-007 and subsequent annual updates with the latest update being report ENG2025-003 following completion of the City's Transportation Master Plan and Water and Wastewater Servicing and Capacity Master Plan. The current Municipal Infrastructure Guidelines establish minimum widths for right of ways and for other blocks of land with public purposes.

With the current growth projections and the City's housing target of 6500 new housing units by 2031, the City is seeing an increase in both the volume of applications and sheer size of the proposed developments. A number of developments that are either draft plan approved or seeking draft plan approval include right of ways with the collector road classification. Collector roads may have moderate traffic volumes and are designed to balance local access with the need to move traffic efficiently. As a result of collector road classifications, there are applicants seeking draft plan approval that introduce window streets. A window street is a road that runs parallel to an arterial or collector road, designed to limit direct access from properties and to provide visual screening or a buffer between the arterial or collector road and the properties it serves. The collector or arterial road and the window street would share a mutual boulevard as identified in the draft cross-section detail attached as Appendix 'B'.

To provide consistency across City policies, guidelines, master plans and through the review and approval of planning applications, there are some amendments recommended through this report for the policy attached as Appendix 'A'.

## Rationale:

As a result of the various City policies, guidelines and master plans as well as the planning applications received to date it is recommended that the Council Policy be updated to align and be consistent with other City documents while understanding and protecting for the City's interest in operation, maintenance and future replacement of municipal assets.

The following amendments are recommended and included in the attached draft policy and cross-section detail, as Appendix 'A' and 'B':

- Update definitions for local roads, collector roads and arterial roads to align with the current Transportation Master Plan
- Include definition and minimum width for a window street
- Update the minimum width for a local road from 18.5 metres to 20.0 metres to align with current Municipal Infrastructure Guidelines and for City operational needs
- Minor and Major Collector road classification merged into Collector with a minimum width of 26.0 metres to align with current Municipal Infrastructure Guidelines
- Arterial minimum width reduced from 30.0 metres to 26.0 metres
- Other Corridors updated to a minimum width of 6.0 metres and to be sized in accordance with current Municipal Infrastructure Guidelines.

## Other Alternatives Considered:

Council could choose to continue with the status quo and the current policy, however this would not support growth and development and would not align various City documents for consistency.

## Alignment to Strategic Priorities

This report for updating CP2021-004 Right of Way Widths Council Policy aligns with the City's Strategic Priorities:

- A Healthy Environment – provide minimum widths for right of ways and other blocks of land required for public purposes to ensure adequate space for all applicable Public Services including but not limited to: street trees, low impact development, storm and stormwater infrastructure, sanitary infrastructure, water infrastructure and pedestrian connectivity which all have a role in maintaining a healthy environment

- An Exceptional Quality of Life – minimum widths provide for the opportunity to include multi-use paths for active transportation, trail connectivity and other green initiatives
- A Vibrant and Growing Economy – provide support for new development and housing opportunities
- Good Government – to be consistent and align various City documents

## Financial/Operation Impacts:

This report has no immediate financial implications.

## Consultations:

Director, Public Works

## Attachments:

Appendix A – Draft CP2021-004 Right of Way Widths Policy

CP2021-004 Right of Way Widths Policy - T

Appendix B – Draft 18.0 metre Urban Window Street Cross-Section Detail

DRAFT 18.0m Urban Window Street Cros

**Department Head email: jrojas@kawarthalakes.ca**

**Department Head: Juan Rojas, Director of Engineering and Corporate Assets**

# Council Policy

| | |
|---|---|
| Council Policy No.: | CP2021-004 (formerly CP2018-011) |
| Council Policy Name: | Right of Way Widths Policy |
| Date Approved by Council: | May 10, 2005 |
| Date revision approved by Council: | April 20,2021<br>CW2021-095/CR2021-195 |
| Related SOP, Management Directive, Council Policy, Forms | |

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## Policy Statement and Rationale:

Right of ways are common public lands and provide space for the placement of common services such as roads, sidewalks, water and sewer and utilities such as telephone, electricity and natural gas. Because we are in a northern climate, right of ways must also provide sufficient volume for the storage of snow plowed from the streets.

The widths recommended in the policy are considered the minimum necessary to provide for the placement of common services for the public. They represent a reasonable balance between the needs of the road authority to provide for the services and desires of the development community to minimize the allocation of lands for such common purposes.

## Scope:

This policy applies to all existing and proposed right of ways within the City of Kawartha Lakes.

**Definitions:**

Local Roads – These roads provide access to individual properties and neighborhoods, offering convenience and connectivity for daily activities. Local streets typically have lower speed limits, fewer lanes, and are intended for local traffic within neighborhoods or communities. ~~Roads whose primary function is to provide access to adjoining properties. Local roads connect to other local roads and collector roads.~~

Collector Roads – Collector roads form the backbone of the local transportation system, providing essential connections between arterial roads and local streets. They play a crucial role in distributing traffic within the City and ensuring accessibility to residential, commercial, and recreational areas. Collector roads may have moderate traffic volumes and are designed to balance local access with the need to move traffic efficiently. ~~Roads whose purpose is to provide access to property and move traffic. They connect local roads to the arterial system. Collector roads place equal priority on these two functions. Minor Collectors provide service to a small number of local roadways, typically less than five. Major Collectors service larger numbers of roadways and hence carry higher volumes of traffic.~~

Arterial Roads – Arterial roads are major roads designed to carry high volumes of traffic over long distances. They serve as primary routes for the movement of vehicles between different areas, often connecting major centers such as cities or neighborhoods. Arterial roads typically have high speed limits, multiple lanes, and limited points of access.
~~Roads whose function is primarily to move traffic. Property access is a secondary consideration and may be restricted to avoid interference with the flow of traffic.~~

Window Street – is a road that runs parallel to an arterial or collector road, designed to limit direct access from properties and to provide visual screening or a buffer between the arterial or collector road and the properties it serves.

## Policy:

~~1.0 That the City adopt a policy on minimum right of ways.~~

~~1.01~~ The City of Kawartha Lakes adopts the following minimum widths for public purposes:

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| Road Classification | Urban | Rural |
|---|---|---|
| Local | 20.0~~18.5~~ metres | 20.0 metres |
| Window Street | 18.0 metres | -- |
| ~~Minor Collector~~ | ~~20.0 metres~~ | ~~--~~ |
| ~~Major~~ Collector | 26.0 metres * | -- |
| Arterial | 26~~30~~.0 metres * | 26.0 metres* |

* Additional widths may be required if additional lanes are warranted as a result of a traffic management plan.

**Other Corridors/Blocks**

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All other corridors/blocks of land for drainage, servicing, utilities and pedestrian connectivity are to be a minimum of 6.0m in width and are to be sized in accordance with current City of Kawartha Lakes Infrastructure Guidelines.

~~Drainage Corridors 4.5 to 6.0 metres~~
~~Utilities Corridors 4.5 to 6.0 metres~~
~~Pathways 3.0 to 4.5 metres~~

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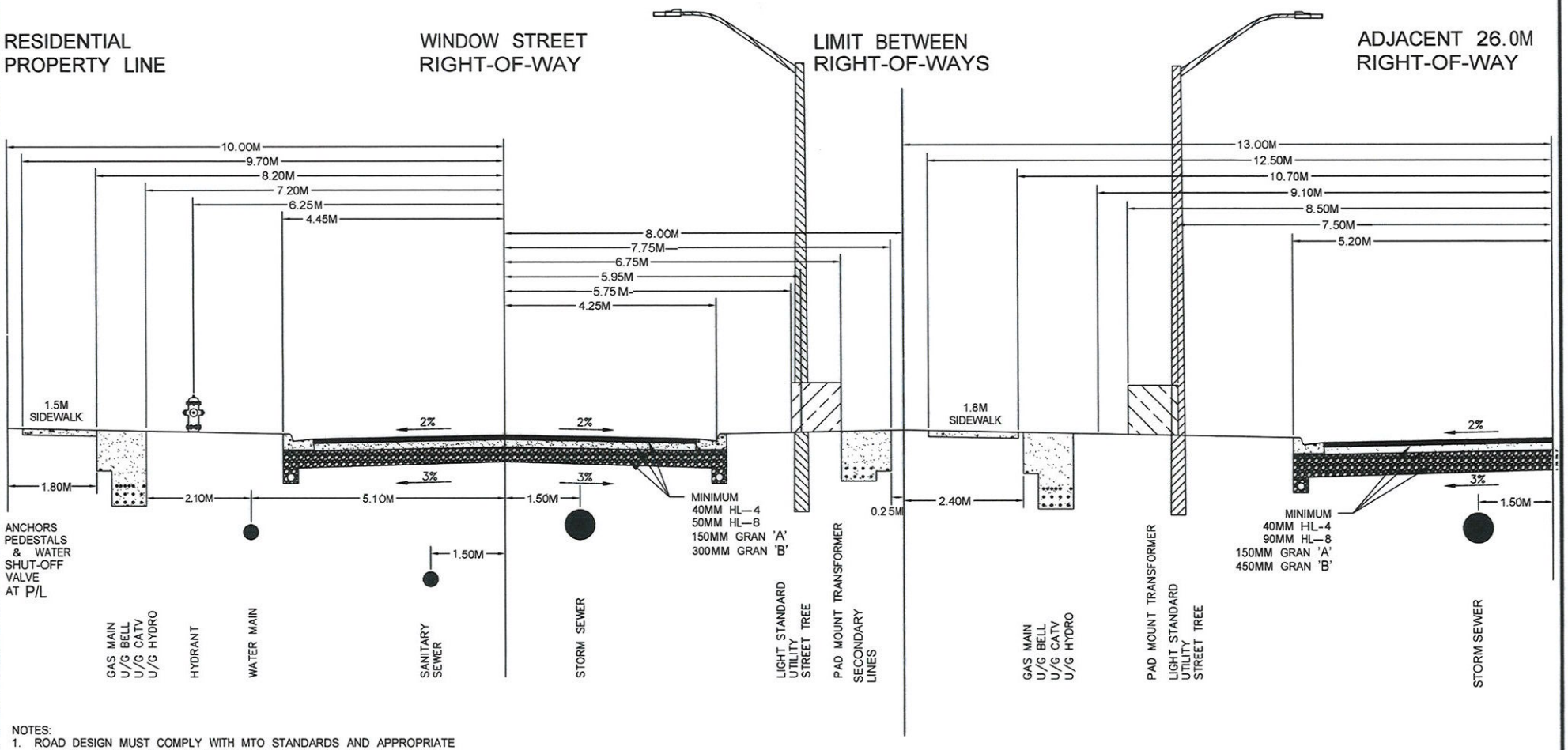
## Revision History:

Proposed Date of Review:

| Revision | Date | Description of Changes | Requested By |
|---|---|---|---|
| 0.0 | May 10, 2005 | Initial Release as 115 EPW 008 | Kenneth Becking |
| 1.0 | July 17, 2018 | Renumbered as per new Policy System | Juan Rojas |
| 2.0 | April 20, 2021 | Policy Number Updated | Council |
| 3.0 | October 21, 2025 | Policy Definitions and Minimum Widths Updated | Juan Rojas |




NOTES:
1. ROAD DESIGN MUST COMPLY WITH MTO STANDARDS AND APPROPRIATE CKL CROSS SECTION. REFERENCE THE TAC MANUAL AND CKL ROADS INFRASTRUCTURE GUIDELINES FOR STANDARDS.
2. GRANULAR ROAD BASE TO BE COMPACTED TO 100% S.P.D.
3. BOULEVARD AREAS TO RECEIVE 150MM TOPSOIL AND NUMBER 1 NURSERY SOD.
4. ADJACENT ROAD IS TO BE DESIGNED AS PER APPLICABLE CITY OF KAWARTHA LAKES STANDARD DRAWING.

# 18.0 METRE URBAN WINDOW STREET RIGHT-OF-WAY

REVISIONS

| NO. | COMMENTS | BY | DATE | APPROVED BY | DATE APPROVED |
|---|---|---|---|---|---|
| | | | | | |

CITY OF KAWARTHA LAKES
ENGINEERING AND CORPORATE ASSETS
322 KENT ST. W, Box 9000, LINDSAY ON. K9V 4T7, (705) 324-9411

| DRAWN BY: AK | CHECKED BY: KT | DATE: 2025/09/16 |
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| APPROVED BY: | | DATE: |

Kawartha Lakes

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# Committee of the Whole Report

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|---|---|
| **Report Number:** | **WM2025-007** |
| **Meeting Date:** | October 7, 2025 |
| **Title:** | **Source Separated Organics Update and Considerations** |
| **Description:** | Proposal to Amend Waste Bylaw Limits and Provide Same Day Collection of Garbage and Organics |
| **Author and Title:** | Heather Dzurko, Manager, Waste Management |

## Recommendation(s):

**That** Report WM2025-007, **Source Separated Organics Update and Considerations**, be received;

**That**; the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, to reduce the limit of food and organic materials permitted in garbage to 0%, where there is a source separated food and organic material collection service available; and

**That** the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, to reduce the weekly bag limit to one untagged clear bag of waste per unit, where there is a source separated food and organic material collection service available; and

**That** staff pursue the option to provide curbside collection of food and organic waste once a week on the same collection day as garbage collection, including the consolidation of organics at the Lindsay Ops Landfill, starting June 15, 2026; and

**That** the By-Law for Collection and Management of Waste and Recyclables within the City of Kawartha Lakes (By-Law 2024-235) be amended starting June 15, 2026, so that organics collection days are scheduled on the same day as garbage collection; and

**Department Head:** _____

**Financial/Legal/HR/Other:**_____

**Chief Administrative Officer:**_____

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

## Background:

At the Council Meeting of July 23, 2024, Council adopted the following resolution:

**CR2024-423**

Moved By Councillor Warren
Seconded By Deputy Mayor McDonald

**That** Request for Proposal 2024-050-OP Curbside Collection and Transportation of Source Separated Organics, be awarded to Miller Waste Systems Inc.;

**That** Option A curbside collection and transportation of source separated organics be collected in all four urban areas (Lindsay, Bobcaygeon, Omemee and Fenelon Falls) on Fridays;

**That** Council authorize the option to renew the contract, after the initial term (January 1, 2025 to September 23, 2027) for an additional two - one year terms, based on successful completion of the initial term and each subsequent renewals, annual budget approval, an annual Consumer Price Index (All Items Excluding Energy) increase of not more that three percent (3%) and mutual agreement; and

**That** subject to the receipt of the required documents that the Director of Public Works be authorized to execute the agreement.

Furthermore, at the Council Meeting of May 20, 2025, Council adopted the following resolution:

**CR2024-423**

**That** Report WM2025-005, **Making Waste Matter: Integrated Waste Management Strategy Update (2025-2029)**, be received; and

**That** the Integrated Waste Management Strategy Update be approved for implementation.

Staff are implementing both of these resolutions, including monitoring of the SSO program. This report addresses that, based on program evaluation and changes to the recycling service provider, there are opportunities to improve program performance.

## Curbside Source Separated Organics Program Implementation

On January 1, 2025, The City of Kawartha Lakes implemented a curbside Source Separated Organics (SSO) collection program to comply with Ontario's Food and Organics Waste Policy Statement that:

Municipalities in Southern Ontario, target 50% waste reduction and resource recovery of food and organic waste generated by single family dwellings in urban settlement areas by 2025.

The Policy Statement provides direction to encourage interest in waste reduction and resource recovery of food and organic waste. The Policy aims to achieve provincial interest outlined in the Resource Recovery and Circular Economy Act, 2016, including to minimize environmental impacts from waste disposal and foster circular economy.

The City's SSO program was rolled out to residences with 5 units or less in the Urban Settlement Areas of Bobcaygeon, Lindsay, Fenelon Falls, and Omemee. To support program implementation, roll-out cart packages were delivered to residences included in the program between November and December 2024. Each package contained promotional information and a 7L kitchen catcher.

In March 2025, the City outlined a gradual enforcement program, to provide time for residents to adjust to the program. The City provided a grace period for participation until May 1, 2025. Starting May 1, as per the City's by-law, residents included in the organics collection program cannot have more than 10% of organics in their garbage, or their garbage will not be collected.

## Program Performance

In May 2025, the City finalized the Integrated Waste Management Strategy Update (2025-2029) (IWMS), which includes two initiatives focused on organics waste programming. Specifically, a recommendation to improve access to food and organic waste recycling in rural communities, and secondly a recommendation to monitor performance of the new curbside organics program. To inform next steps in the organics program, staff completed some preliminary work evaluating performance of the existing curbside SSO program through participation and compliance audits.

Since January 2025, the urban areas of Lindsay, Bobcaygeon, Omemee, and Fenelon Falls have successfully diverted over 800 tonnes of organic waste material from City landfills.

To assess program performance, staff conducted a series of audits in June, aimed at assessing how many residence are participating in the curbside SSO collection program. A sample of over 14% of households eligible for the program were included in the initial audits. The results of the audits suggest that 37.83% of eligible households are currently participating in the SSO program. This is below the goal of 50% reduction set in the Provincial Policy.

Another way to more quantitatively assess performance against the Provincial Policy would be to conduct waste audits in areas included in the SSO program to determine quantity of organics in the SSO program compared to total quantity of waste disposed (SSO program and in the garbage stream). Staff are planning to hire a consultant to conduct these audits in 2026, pending budget approval.

Implementation of a new program is expected to see fluctuation in success rates and difficulties with adaptation. Some factors to consider that may affect the overall participation are alternate sources of organic processing (backyard composters) and small amounts of organics generation by some households. Other factors that we can influence to increase participation include increasing the desire to comply by updating enforcement limits, and changing the day of organics collection.

Staff presented information about Source Separated Organics program performance and opportunities for improvement to the Waste Management Advisory Committee (WMAC) on September 3, 2025. Based on a review of the memo and discussion at the meeting, the committee passed the following:

**WMAC 2025-31**
Moved By Councillor D. Joyce
Seconded By Councillor P. Warren

**That** the Committee support amending the by-law to allow no SSO program organics in the garbage for locations eligible for the curbside organics program.

**WMAC 2025-32**
Moved By Councillor P. Warren

Seconded By Councillor D. Joyce

**That** the Committee support adjustments to the collection schedule to accommodate co-collection of organics and garbage in urban settlement areas, including the option to consolidate organic materials at the Lindsay Ops Landfill;

**WMAC 2025-33**
Moved By B Junkin
Seconded By Councillor D. Joyce

**That** the Committee support the continuation of program evaluation through audits and surveys, subject to budget approval;

**WMAC 2025-34**
Moved By B Junkin
Seconded By Councillor D. Joyce

**That** the Committee support reducing the bag limit to one clear bag per week for locations eligible for the curbside organics program;

Furthermore, staff presented information about the proposal to consolidate organics at the Lindsay Ops landfill site on September 17, 2025. Based on the presentation from staff and discussion at the meeting, the committee passed the following resolution:

**LOPRC 2025-15**
Moved By C. Appleton
Seconded By T. Blake

**That** the Committee support the consolidation and transfer of organics at the Lindsay Ops landfill site to support co-collection of organics at the curb.

## Rationale:

In order to realize the full potential of the SSO program, staff are recommending opportunities for program improvement. Four primary reasons to implement change are as follows:

1. The City has made a commitment to meet the provincial target of 50% waste reduction and resource recovery of food and organic waste generated by single family dwellings in urban settlement areas.
2. Program Improvement offers the ability to reduce our carbon footprint
3. We have invested in a SSO curbside collection program, by purchasing and distributing green bins for organics collection, and entering into a curbside collection contract for this material stream.
4. As noted in the IWMS, several of the City's landfill sites are going to reach capacity in the next 10 years, including the Lindsay Ops landfill which receives 70% of the waste generated in the City. As such, it is important to prioritize diversion programs, to ensure effective use of landfill space.

Through research and consultation with the WMAC, the following actions are being recommended to increase SSO program participation.

**Amend the Waste By-law to reflect lower percentage of organics permitted in the garbage**

One program change being recommended is eliminating the 10% allowable quantity of organics in the garbage stream. Based on recent compliance audits conducted at the same time as the participation audits, it was found that over 97% of locations included in the audit comply with the current bylaw limits. This means that although participation rate is less than 40%, the existing bylaw permitting 10% organics in the garbage, is limiting staff and contractors ability to encourage participation in the program through bylaw enforcement. Lowering the percent of organics permitted in the garbage stream would encourage more residents to participate in the program and provide a compliance criteria that would be easier for the contractor to enforce as the suggested 0% limit is less subjective than 10% limit. The intent would be to tag garbage where it was evident there was no intention to separate divertible waste streams from regular garbage.

Simcoe County's bylaw includes the ability to refuse collection of any waste materials based on size, weight, quantity, improper set out, improper materials in the stream, improper sorting, and/or safety hazards.

The City of Peterborough allows 10% divertible materials in the garbage bag (all materials combined).

**Reduce Bag Limit**

Following discussions with the WMAC, a second recommendation to increase organic program performance is reducing bag limit in urban settlement areas. As residents in urban settlement areas are now permitted to set out a cart of organics a week, residents are expected to generate less garbage than residents who are not participating in the program. Reducing bag limits would encourage residents to participate in the program to avoid a requirement to purchase bag tags. The recommendation is to reduce the limit from two untagged bags of garbage per week to one untagged bag of garbage per week for residents in urban settlement areas. Residents requiring additional bags for garbage will be required to purchase bag tags, available at service centres and libraries.

Bag tags are required in many municipalities. Northumberland County, as an example, implemented a curbside organics program and require bag tags on all garbage bags set out for collection.

**Change organics collection day to the same day as garbage collection.**

There are several benefits to making this change that would result in increased participation including: improved ability to enforce, resident preference for one day waste collection, and eliminating challenges associated with Friday collection (managing missed collections and shifts to Saturday on holiday weeks). In addition to the expected improvements in program participation, because of the change in recycling contractor in January, co-collection of garbage and organics on the same day is expected to result in net cost savings of an estimated $225,000 per year. The estimated savings considers changes to City's operating costs from consolidating materials, changes to processing costs, and changes to curbside collection costs. There would be one-time costs in 2026 of roughly $110,000 to complete site upgrades. The following actions would be required to implement this change:

- Approval would be required from Council to change the program, and the MECP to consolidate organics material at the Lindsay Ops Landfill Site prior to transfer to the processing facility.
- Minor site upgrades in Lindsay Ops would be needed to allow consolidation of curbside collected organics.
- An amendment to the curbside collection contract for organics would be required to allow same day collection.
- Residents would need to be educated about the collection day change for organics.

Based on investigations completed to date, staff believe that this is a viable option. However, there are still details to be considered and approvals to be obtained before changes can be confirmed. To ensure sufficient time to receive approvals, complete site alterations, and provide proper notification to the public, staff recommend implementing this change in June 2026.

It should be noted that, staff are proposing several special projects as part of the 2026 capital budget process to support the SSO program development including, a project to look at longer term options for organics management and curbside waste audits. Although the consolidation of organics may move forward with this plan, the longer term options for expanding the SSO program and establishing more permanent infrastructure to manage the material is still recommended.

## Other Alternatives Considered:

### Make no Program Improvements

The City could continue to operate the program status quo. Without program improvements there is a risk that the City will not meet the provincial policy target of a 50% diversion, there will be a missed opportunity for reducing carbon emissions, and there will be a negative impact on waste diversion and landfill capacity.

### Only Implement Some of the Proposed Improvements

Council could decide to only implement one or two of the proposed program improvements (i.e. only reducing the bag limit or amount of organics approved in the garbage stream). To minimize disruption to the public, ensure clear communication, and ensure the best plans in place to promote program participation, staff recommend implementing all options at the same time.

## Alignment to Strategic Priorities

The City's strategic plan places a focus on providing service excellence, using what we learn to **make it better,** and includes a strategic priority of a Healthy Environment including reducing our carbon footprint.

This option would reduce the number of trucks out for waste collection and make the organics hauling process more efficient, thereby reducing carbon footprint of the operation.

## Financial/Operation Impacts:

Implementing co-collection of organics is expected to result in an annual cost savings of about $225,000 per year. There would be a one-time capital cost of $100,000 to complete minor site upgrades at the Lindsay Ops landfill to consolidate organic materials. It should be noted that implementation of co-collection half-way through the year will result in the annual cost savings of ~$225,000 being reduced by 50% (i.e. a cost savings of ~$112,500) which will be offset by the required one-time capital costs of ~$100,000.

There is also the potential to increase bag tag revenue by reducing bag limits for urban settlement areas. Those residents who do not participate in the program and generate more than one bag of waste per week will be required to purchase bag tags for additional garbage bags. The exact impact of this is uncertain and depends on waste generation. However, if 5% of residents in urban settlement areas generate a second bag of garbage every other week the expected revenue would be $71,500/year.

## Servicing Implications:

None identified

## Consultations:

Asset Management Coordinator, Engineering and Corporate Assets

Waste Management Advisory Committee

Lindsay Ops Landfill Public Review Committee

Ministry of Environment Conservation and Parks

**Department Head email: ovigelius@kawarthalakes.ca**

**Department Head: Oliver Vigelius**

# Council Memorandum

| | |
|---|---|
| **Date:** | October 7, 2025 |
| **To:** | Committee of the Whole |
| **From:** | Councillor Ashmore |
| **Re:** | Minimum Maintenance Standards |

## Recommendation

**That** the Memorandum from Councillor Ashmore, **regarding Minimum Maintenance Standards**, be received;

**That** Staff be requested to report back to Council, by the end of Q1, 2026, on increasing standards for all road services, including any staff increases, costs, and new equipment required to achieve a higher standard for each service; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

## Rationale

In Kawartha Lakes and other Municipalities in Ontario, Minimum Maintenance Standards (MMS) for Municipal Roadways are defined in Ontario Regulation 239/02 under the Municipal Act, 2001.

This Regulation outlines the minimum standards that Municipalities must meet when maintaining their roads, including addressing issues like snow and ice accumulation, potholes, and shoulder drop-offs. These standards are crucial for Municipalities to defend against liability in case of accidents related to road conditions.

Municipalities in Ontario can increase the Minimum Maintenance Standards for their roads beyond what is specified in the provincial regulations. While the province sets the Minimum Standards, Municipalities have the flexibility to exceed those standards based on local needs and priorities.

Residents in Kawartha Lakes have asked that we consider an increase to our standards and improve maintenance. These higher standards could improve response time and safety on our roads.