The Corporation of the City of Kawartha Lakes

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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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 - 41

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

Please Note: Appendix A to Report PR2025-009 will be circulated with the Amended Agenda

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 42 - 771

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 CLK2025-007 772 - 778

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 ED2025-024 779 - 794

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 ENG2025-027 795 - 802

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 WM2025-007 803 - 812

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 COW2025-08.9.1 813 - 814

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.

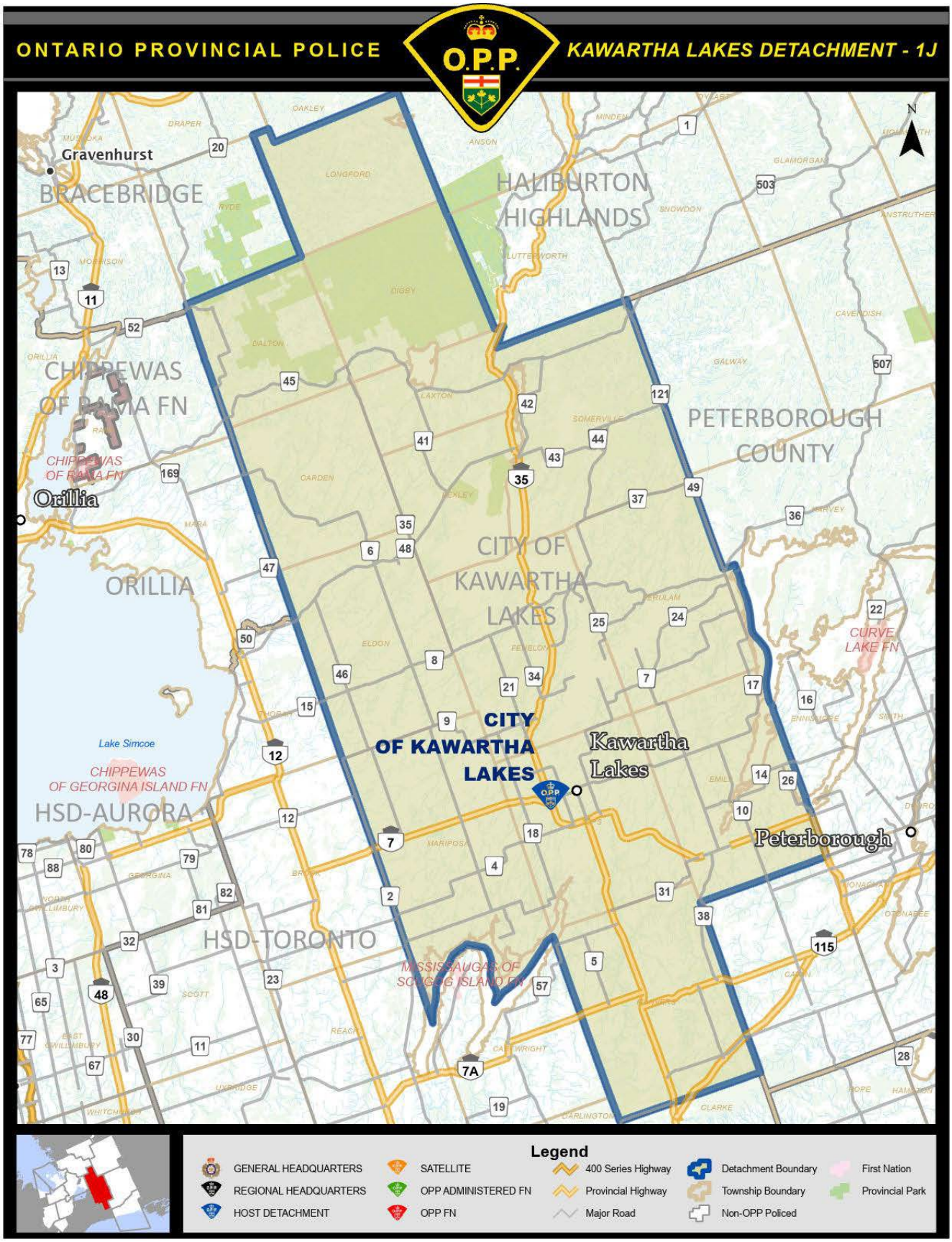
Do you agree to the publication of your contact information (including your address, telephone number and email) on the City's website as part of a meeting agenda? *

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
PETERBOROUGH COUNTY
Orillia
ORILLIA
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. To minimize violent crime and reduce victimization in our communities. 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. Work towards mitigating risk to those utilizing local all-terrain vehicle (ATV) trails. To address the increased presence of commercial motor vehicles (CMV) on local roadways. 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. Identify strategies to actively seek out and recruit qualified candidates from our local community who are interested in a career in policing. Continue building our relationships with all community groups throughout the City of Kawartha lakes. 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. 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. 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. 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. 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. 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. 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. 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.

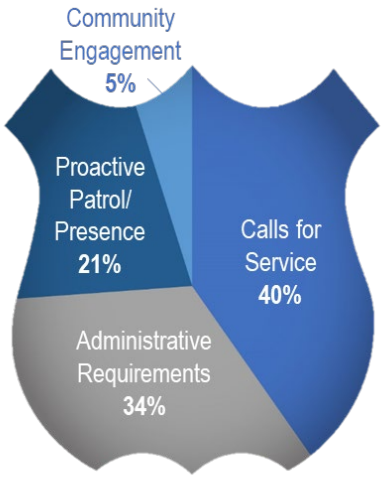


Figure 1: Service Delivery Model Provincial Target

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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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

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

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 • Kent Street West intersection
	Sidewalk – One Side	• Angeline Street North between Colborne Street and Chadwin Drive • 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."
		• Multi-Use Path width:
		  ○ Recommended: 3.5 - 4.0 m
		  ○ Minimum: 3.0 m (2.4 m in constrained areas).
		• Buffer width between roadway and Multi-Use Path (excl. curb):
		  ○ For two-way facility on ≤ 60 km/h posted speed limited
		  ○ Desired: 1.5 m - 2.5 m
		  ○ Suggested minimum: 0.6 m
		• **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."
		• Separated Bicycle Lane width:
		  ○ Recommended: 1.8 m +1.0 m buffer
		  ○ Minimum: 1.5 m + 0.3 m buffer
		• **Resulting absolute min. width requirement: 1.8 m**
		• Note: per the ATMP's guidance, standard bicycles lanes have the same recommended and minimum lane widths but the buffer is considered options
		  ○ 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." • Street furniture – benches, waste bins, bike racks, planters, lighting, signage/wayfinding, public art. • Landscaping – trees, grass, other plantings. • Increased separation between sidewalks and roads, wider sidewalks • 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). • 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." • 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. **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	**<u>Likely</u>** The PPA's road configuration is intended to be supportive of the noted accessibility features (see **Table 2B**) at both intersections. 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. 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. **<u>Unlikely</u>** 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. 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. 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. 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. 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

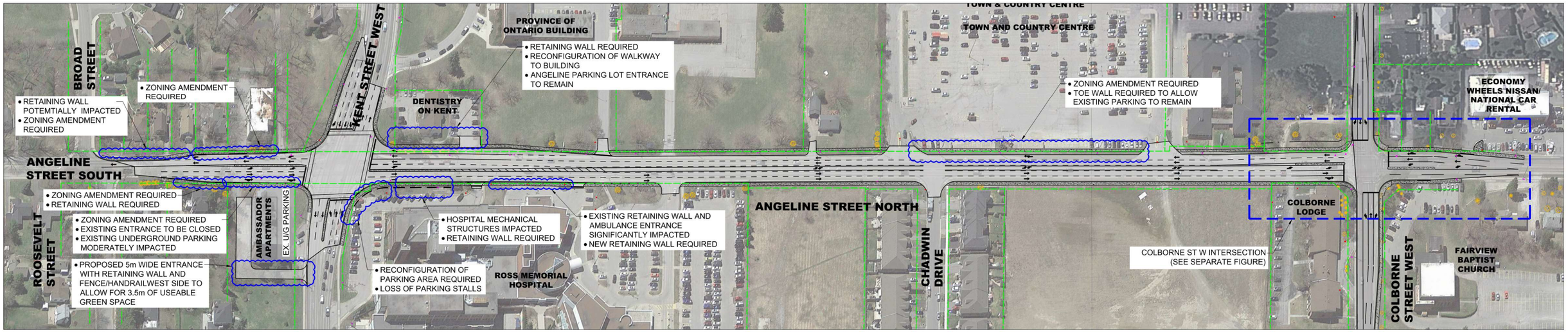
Walking ***(cont.)***	Sidewalk – One Side *(cont.)*	West leg of the Colborne Street West intersection	Partial	The addition of a sidewalk along the north side of the roadway would not increase the land expropriation currently envisioned there by the PPA. The driveway of 115 Angeline Street North is currently 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. 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. 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. 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. For example, speed humps/cushions/tables are not considered appropriate within the approach as it may significantly impact the expected performance of the intersection. Similarly, traffic circles and raised intersections/cross-walks are likely not appropriate for the intersection of two arterial-class roadways. The spatial requirements of a roundabout would be significantly greater than that of the intersection configuration envisioned by the PPA. 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). 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. 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. 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

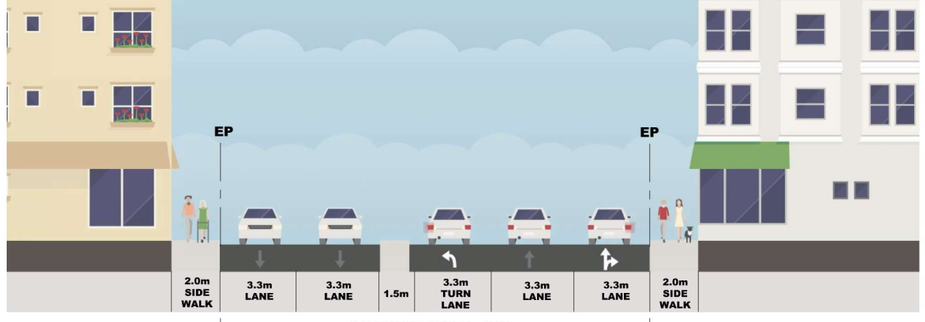


EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

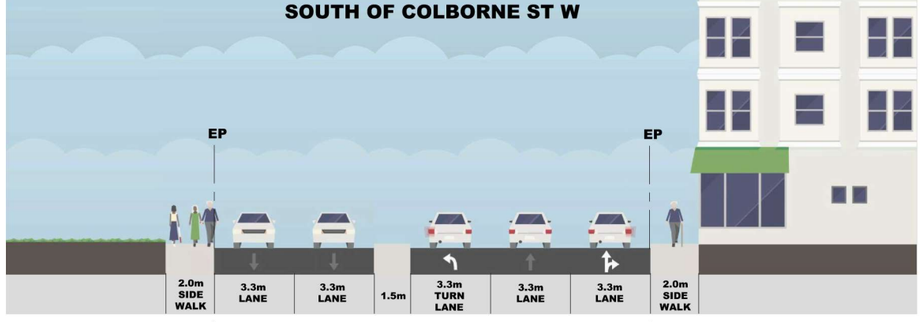
ALTERNATIVE 2B

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

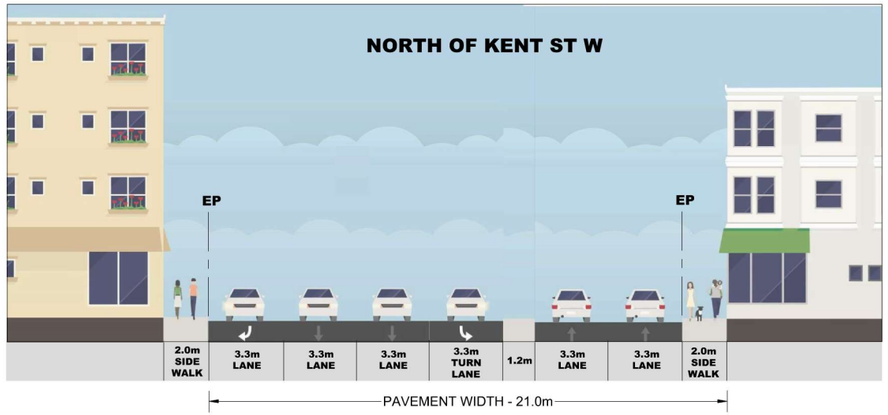
SOUTH OF KENT ST W



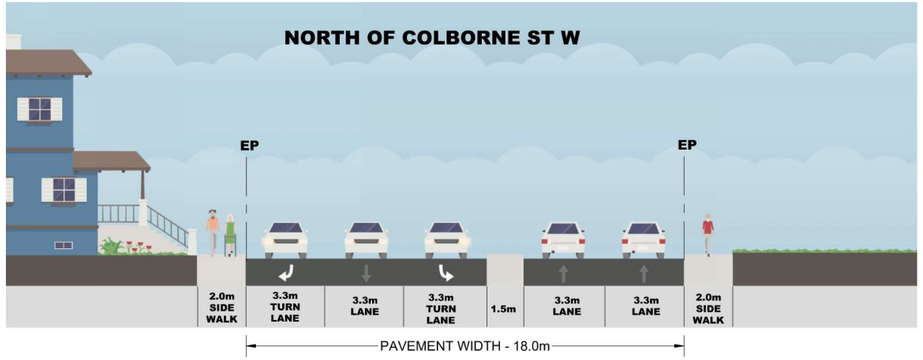
SOUTH OF COLBORNE ST W



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 LODGE

COLBORNE STREET WEST

ECONOMY WHEELS NISSAN/ NATIONAL CAR RENTAL

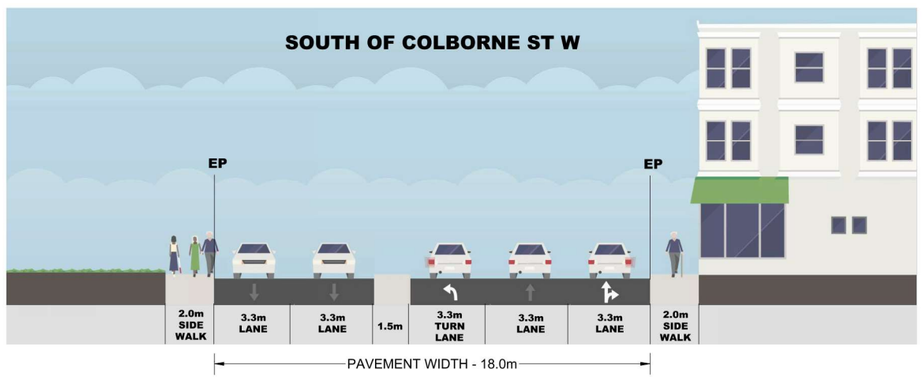
FAIRVIEW BAPTIST CHURCH

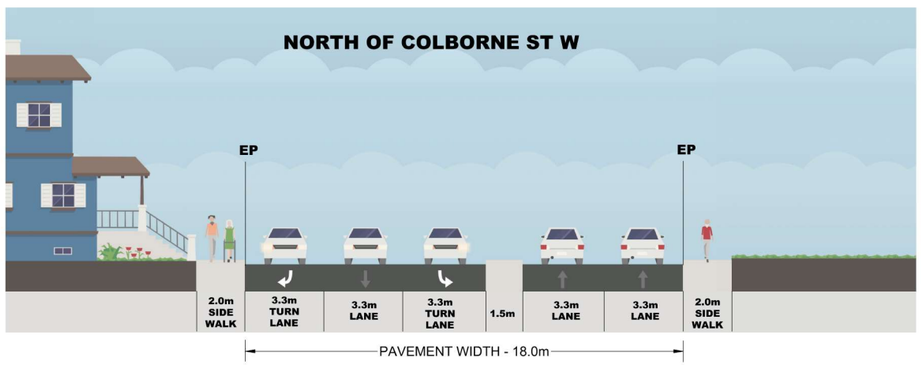
NORTHWEST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- SEPARATION OF ROAD FROM 115 ANGELINE STREET'S HOUSE AND WALKWAY IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- ALTERNATIVES 1 AND 2 ELIMINATE EXISTING PARKING SPACE FOR 115 ANGELINE STREET
- EXISTING COMMERCIAL PROPERTY IMPACTED 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).

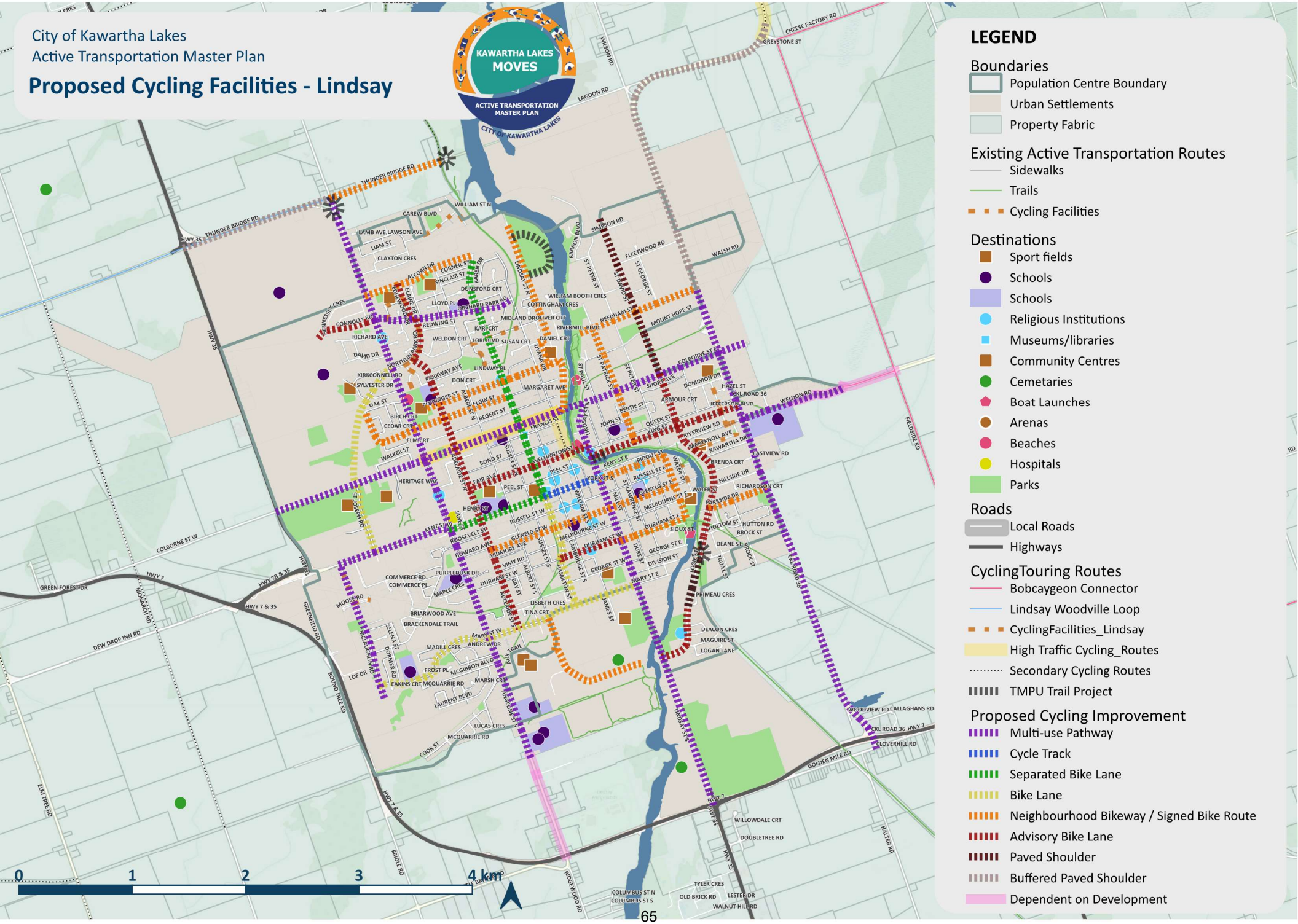
Appendix B

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

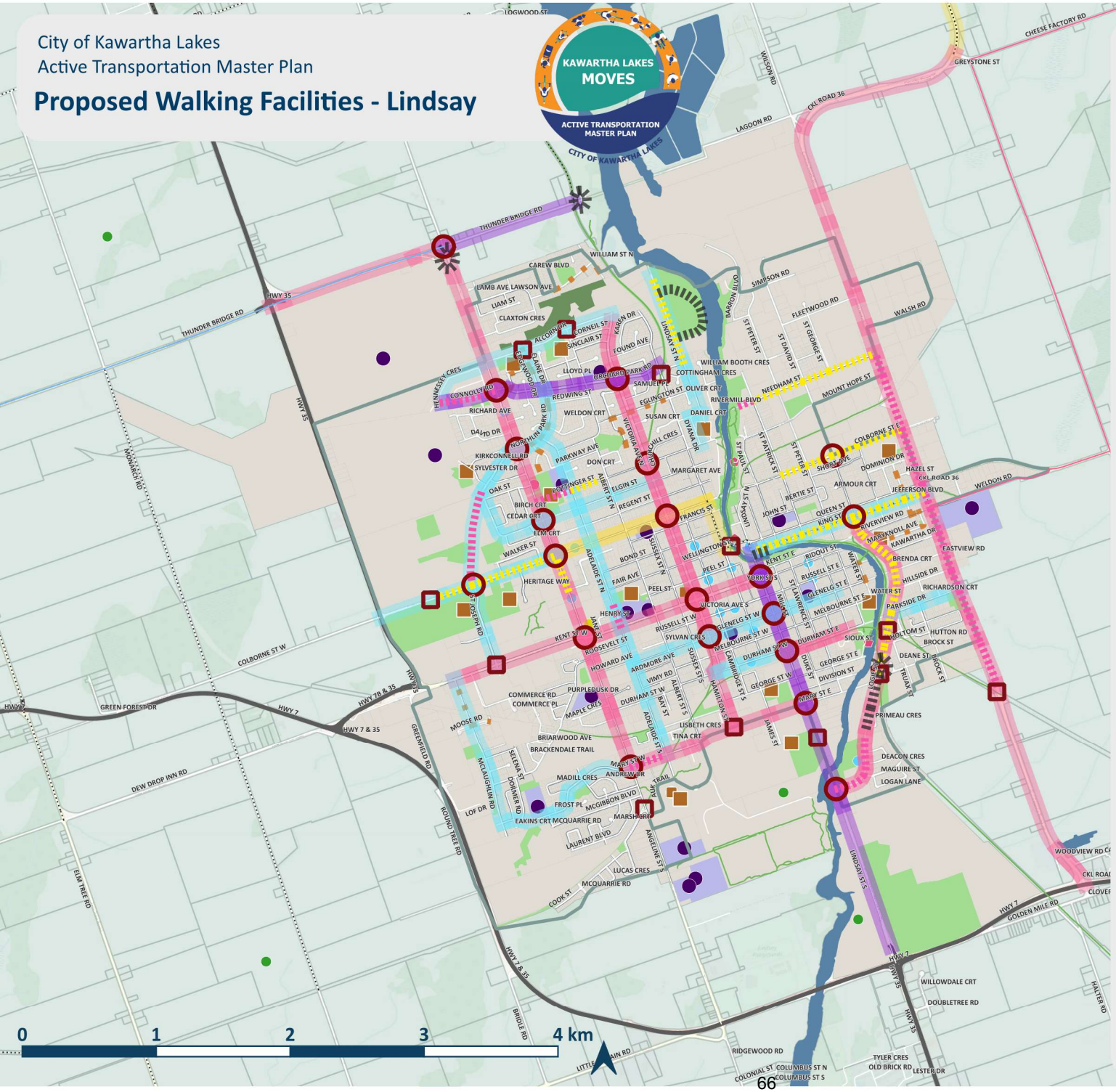
Roads
- Local Roads
- Highways

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,
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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.

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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.

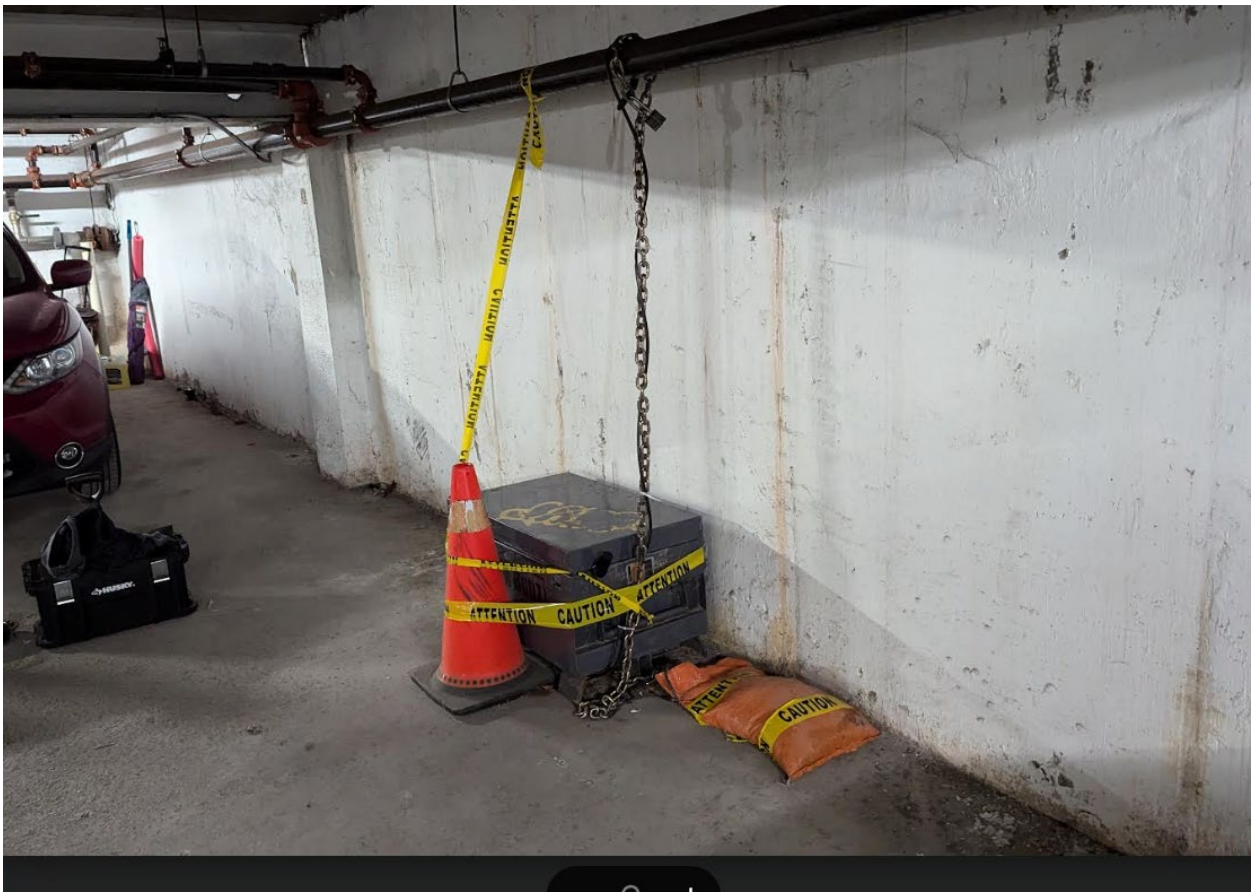
NAPSCI therefore conducted this assessment to assess the potential vibrational impacts from road traffic and construction activities to Ambassador Apartments and its underground parking garage.

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

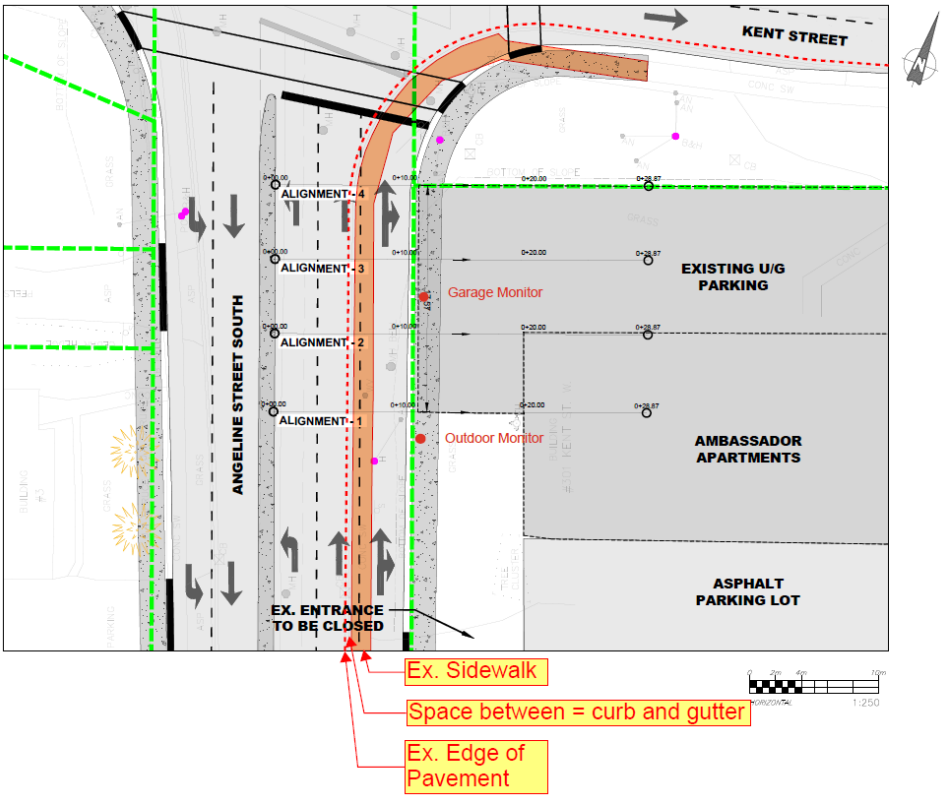
Monitor 1 – Indoors West Interior Garage Wall, closest to Angeline St.; Floor Level



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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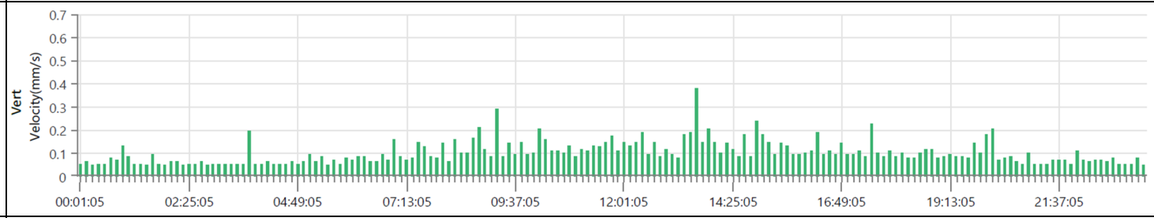
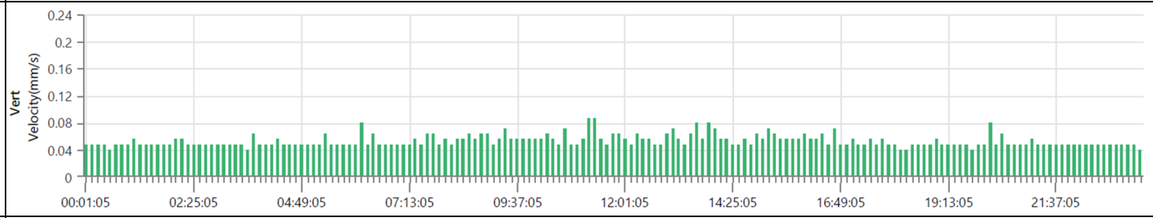
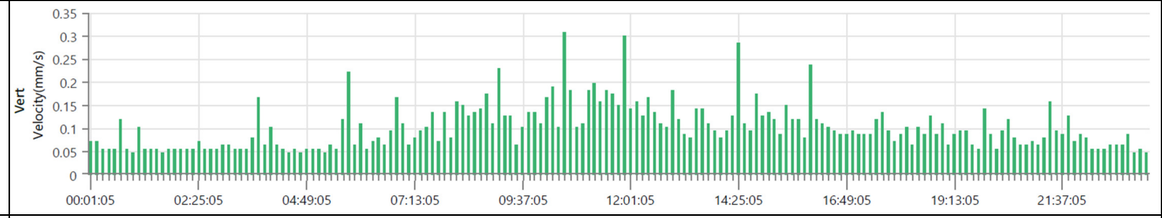
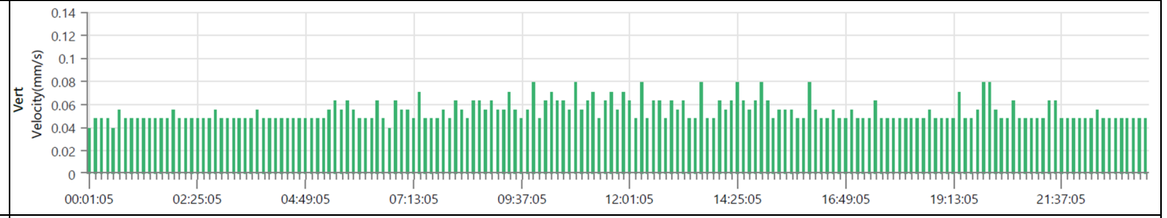
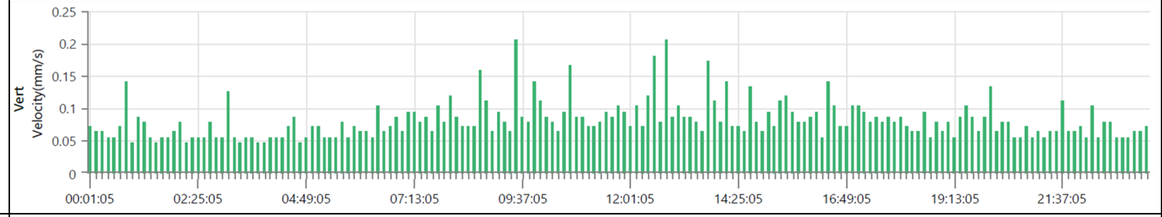
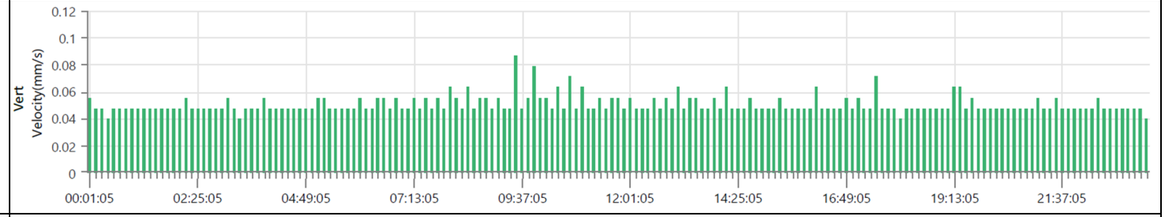
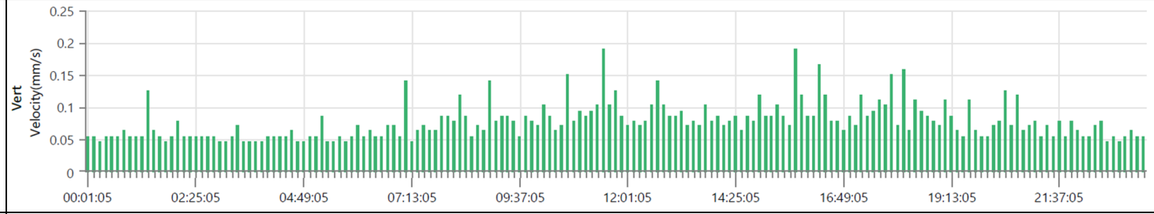
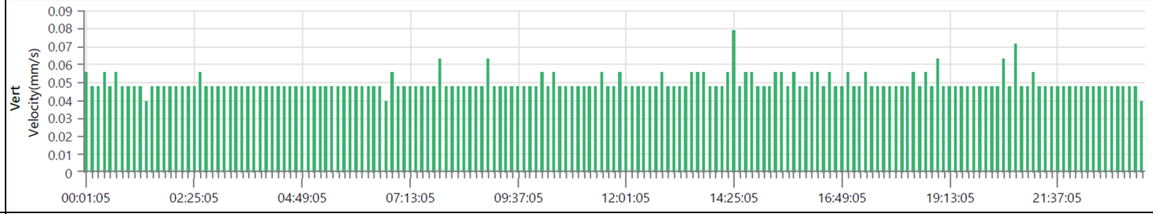
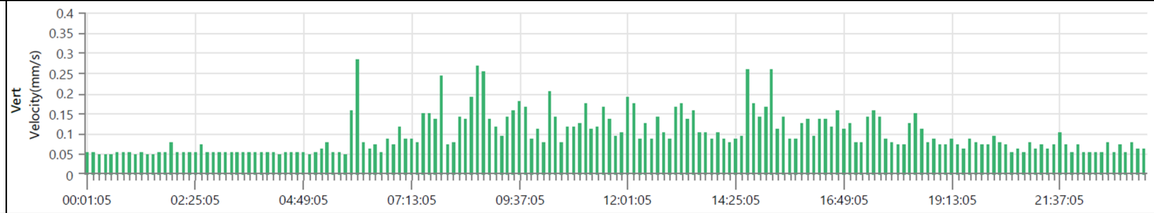
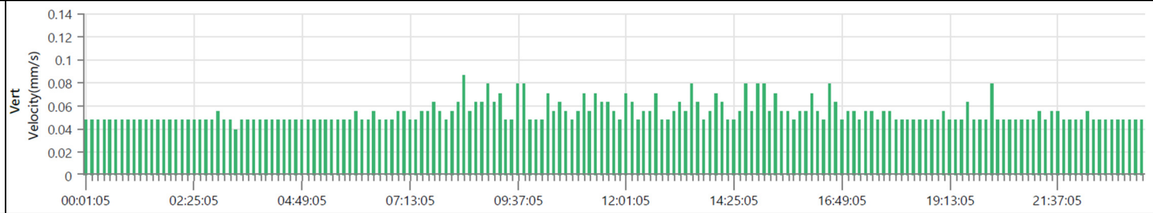
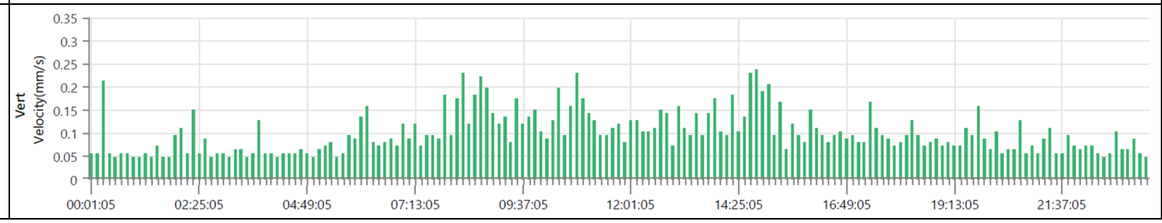
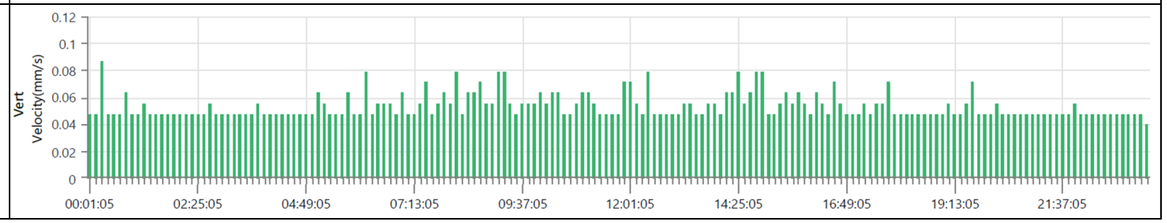
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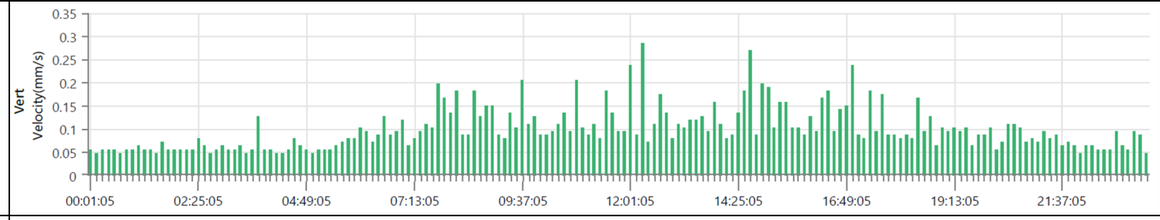
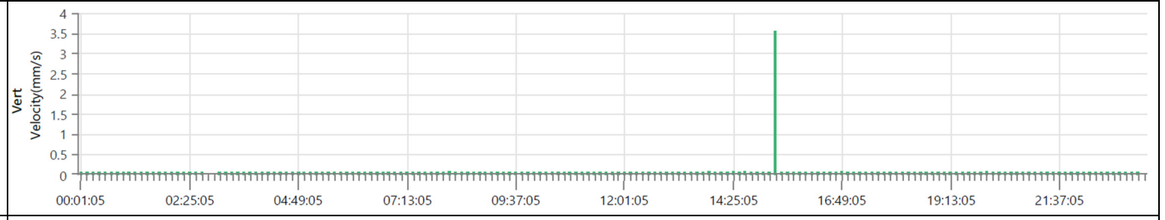
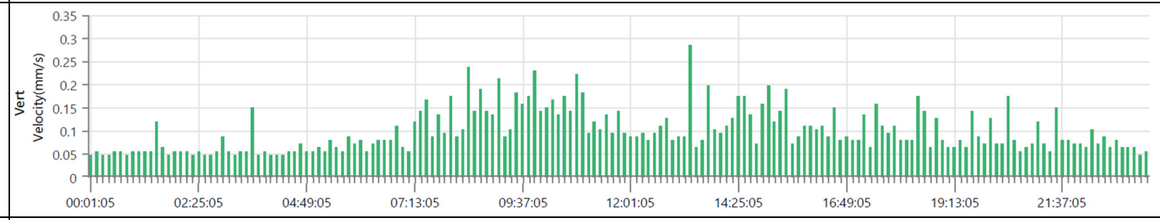
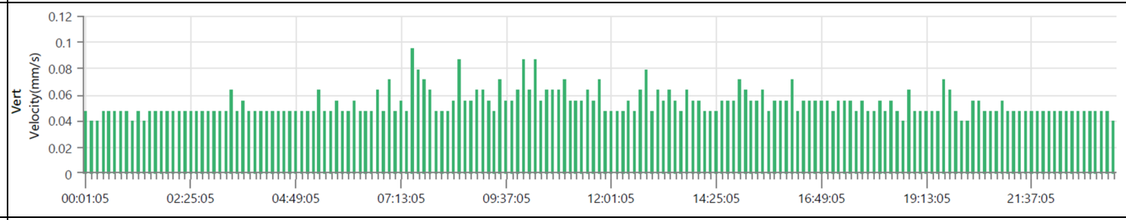
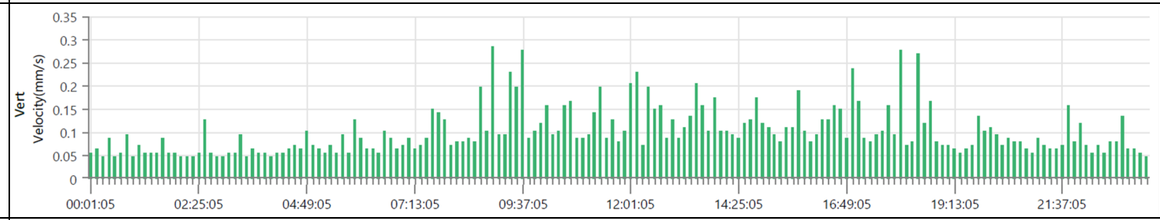
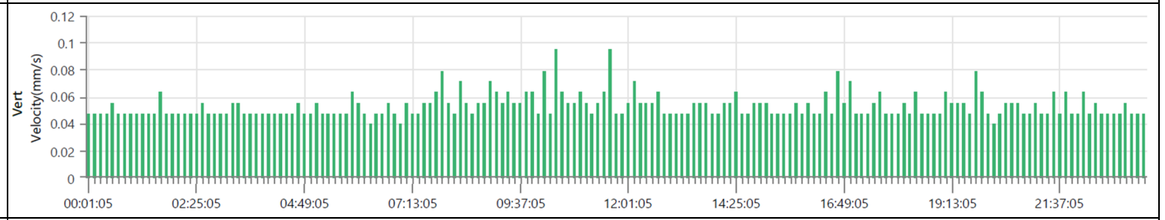
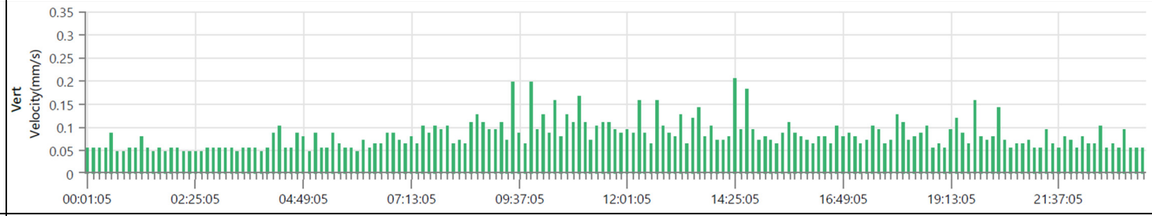
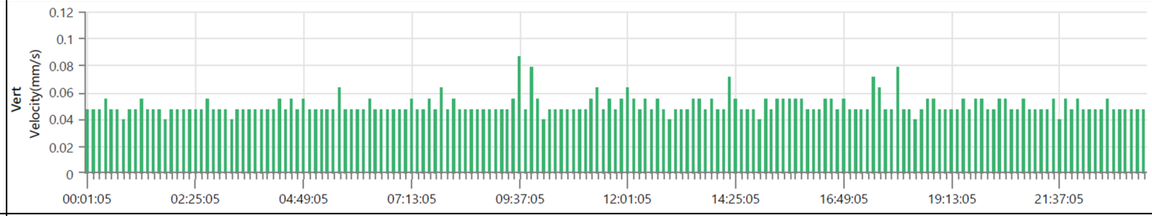
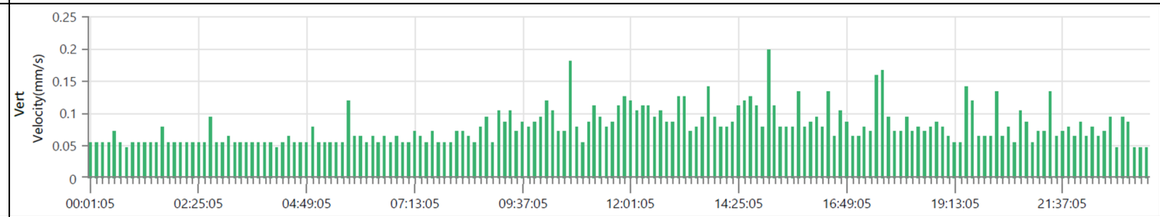
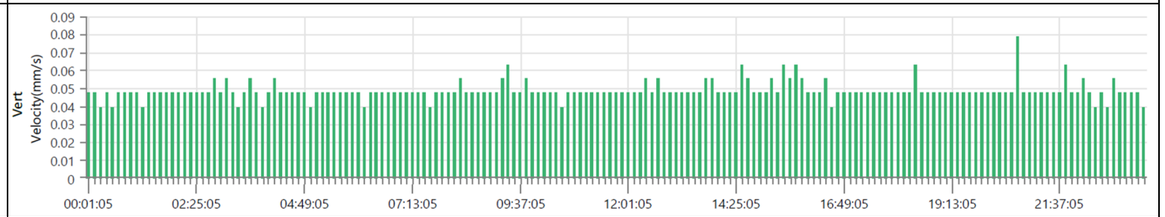
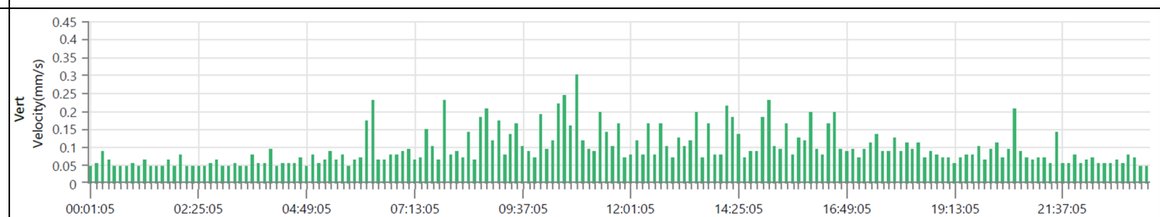
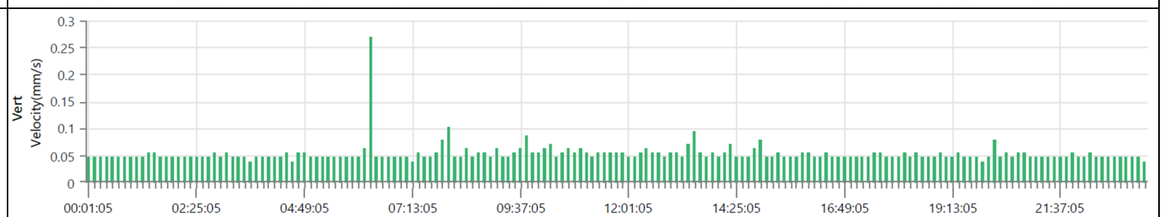
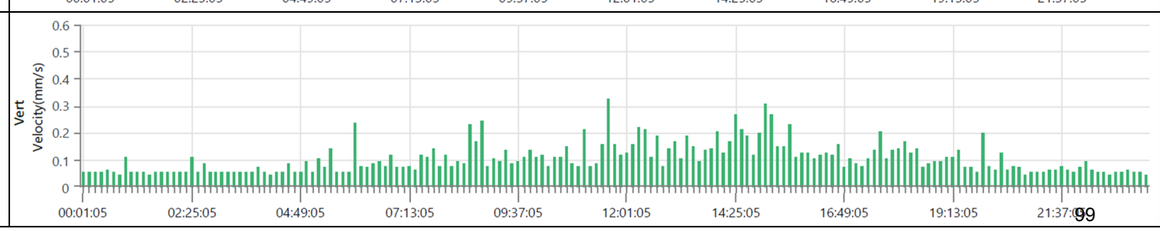
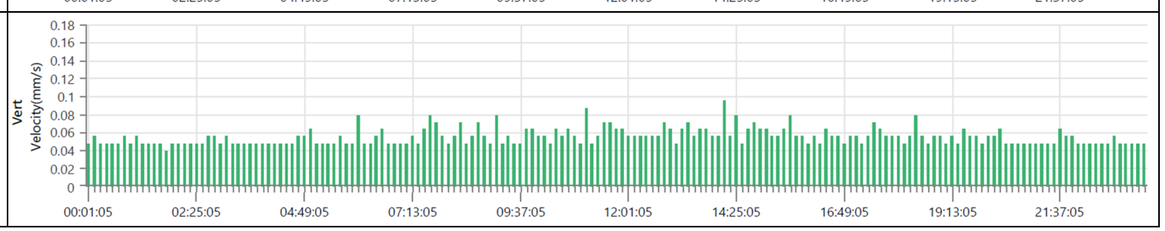
Figure 1 – Vibration Monitoring Plots: Daily Data, Road and Garage Comparison
Attachment 1 – Vibration Monitoring Data from Outdoor Location
Attachment 2 – Vibration Monitoring Data from Garage Location
Attachment 3 – Traffic Data

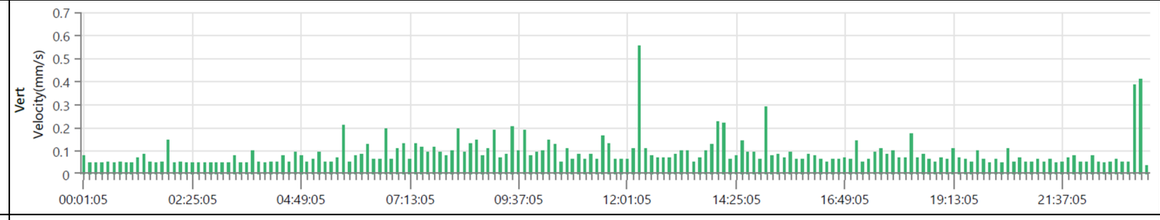
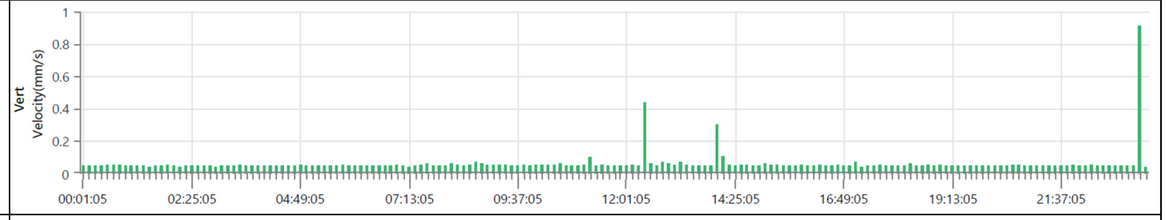
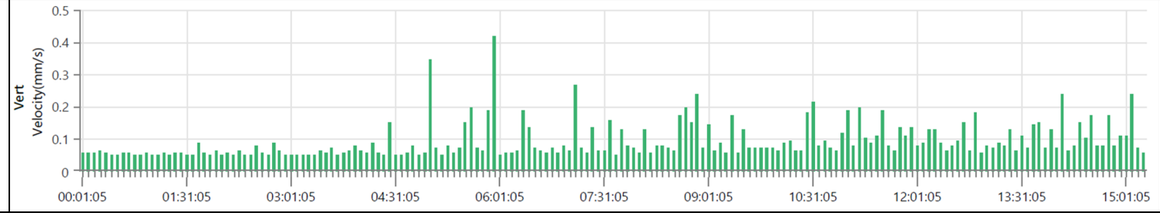
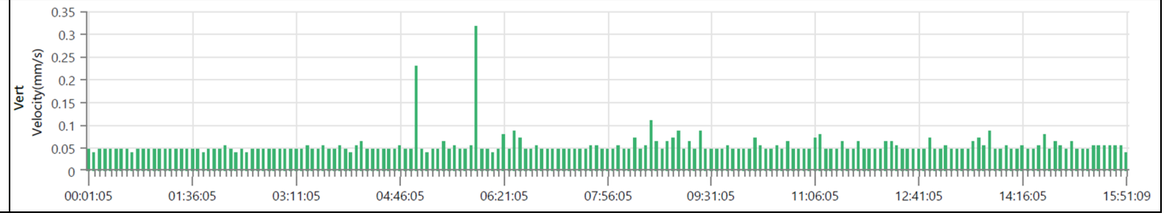
Figure 1

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

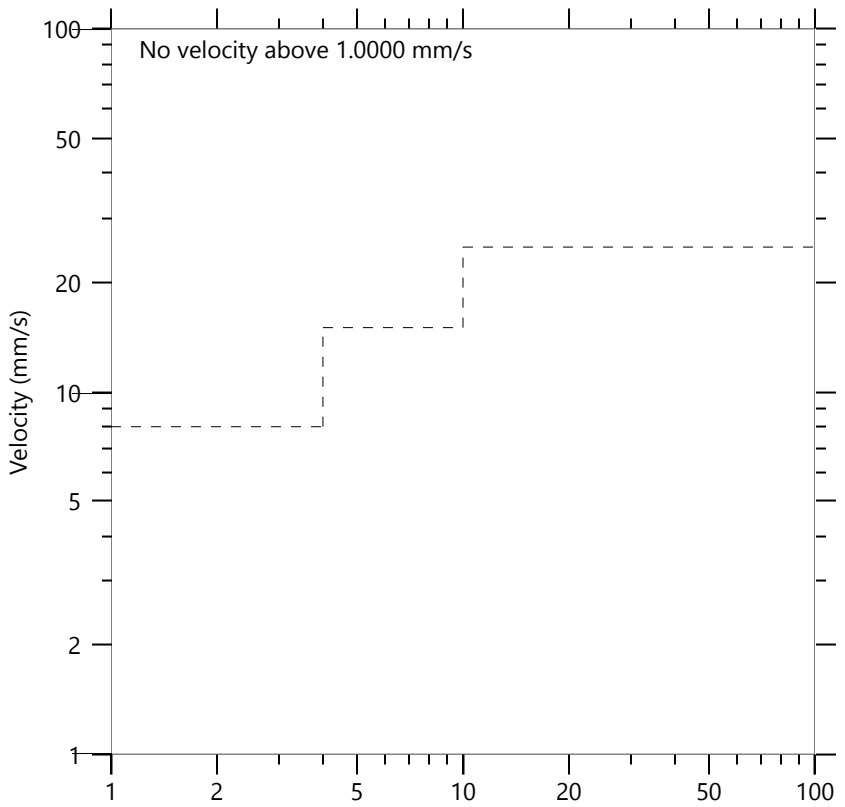
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

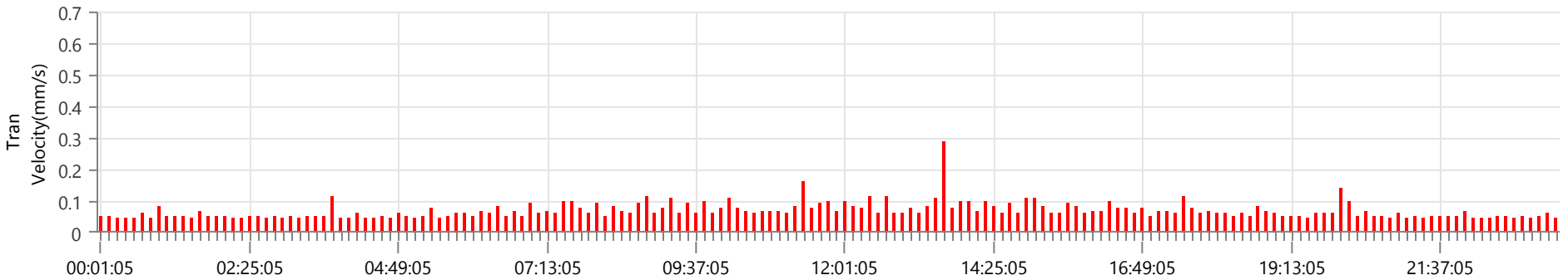
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.292 mm/s	0.378 mm/s	0.583 mm/s
Zero Crossing Frequency	10.9 Hz	13.5 Hz	11.1 Hz
Date	Nov 21, 2024	Nov 21, 2024	Nov 21, 2024
Time	13:38:05	13:38:05	13:38:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.7	4.5	4.7

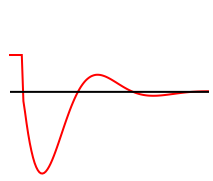
Peak Vector Sum 0.624 mm/s at November 21, 2024 13:38:05

Toronto 514-2008
Velocity versus Frequency (Zero Crossing)

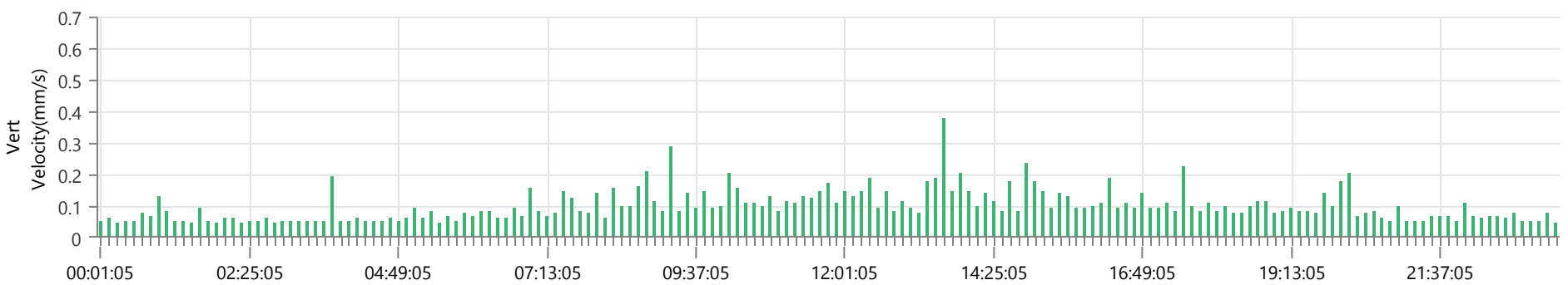


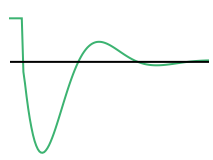
Sensor Check



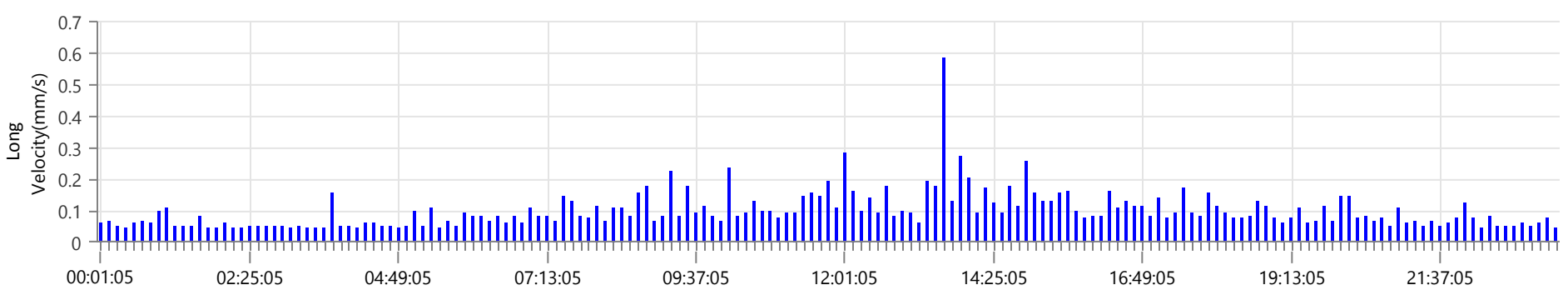


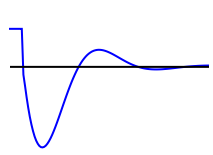
✓ Passed





✓ 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

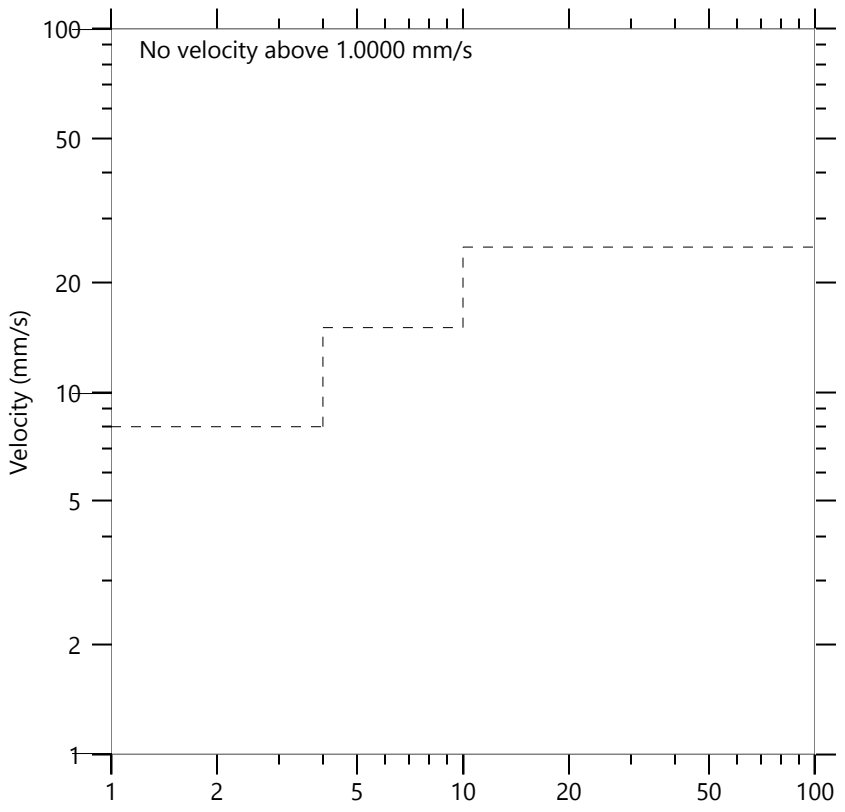
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

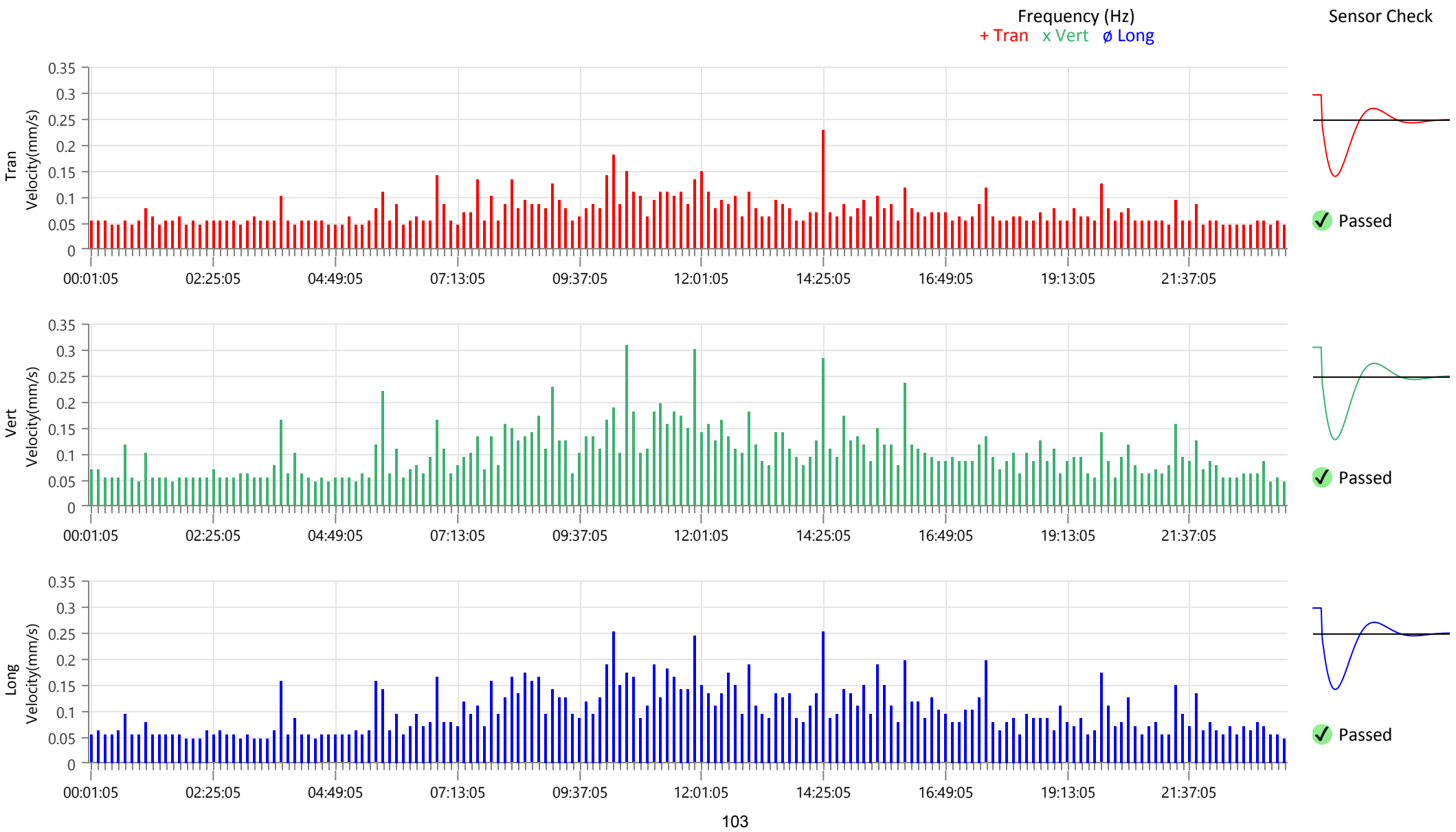
Post Event Notes No text to be displayed.

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)





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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

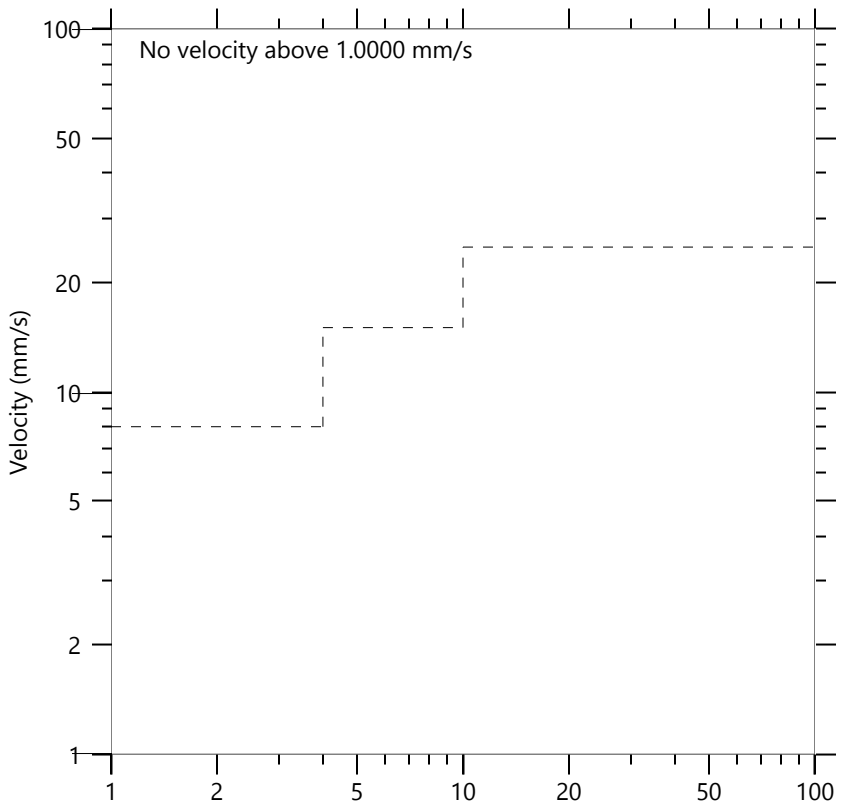
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

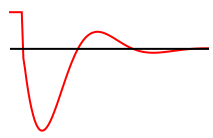
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.197 mm/s	0.205 mm/s	0.197 mm/s
Zero Crossing Frequency	16.5 Hz	17.7 Hz	13.8 Hz
Date	Nov 23, 2024	Nov 23, 2024	Nov 23, 2024
Time	09:30:05	09:30:05	14:48:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.7	4.5	4.7

Peak Vector Sum 0.286 mm/s at November 23, 2024 09:30:05

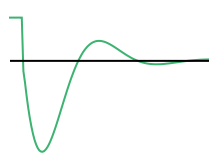
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



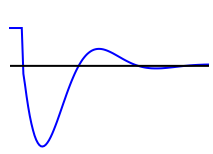
Sensor Check



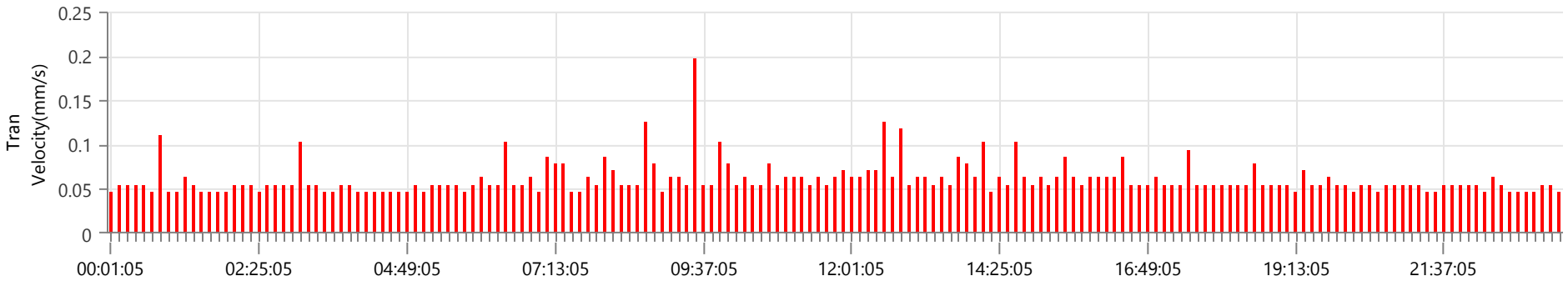
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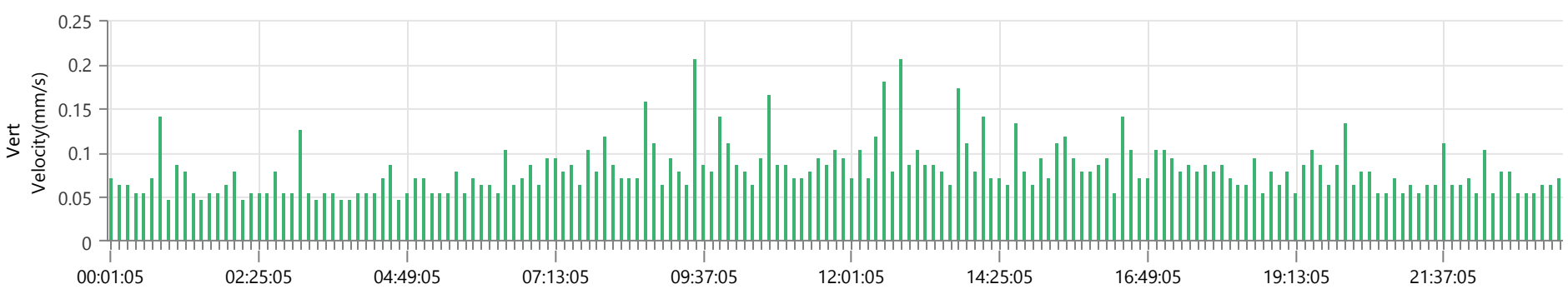


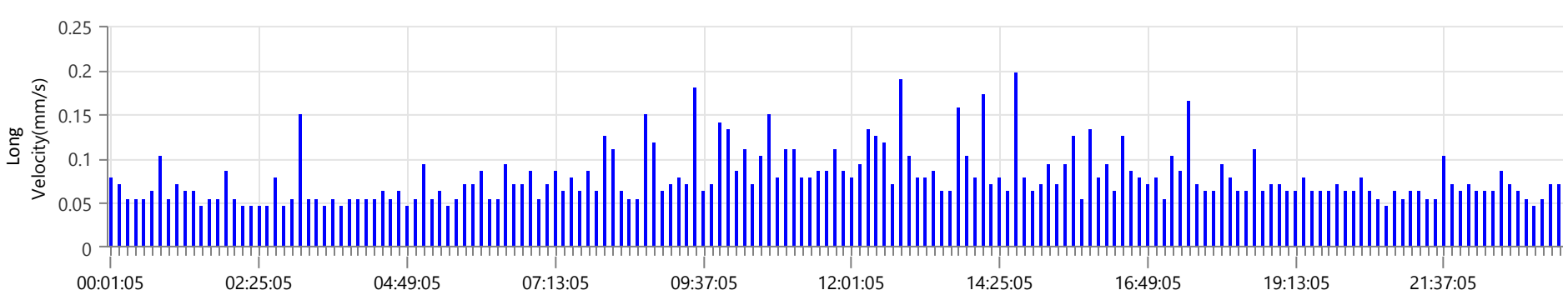
✓ Passed



✓ Passed







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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

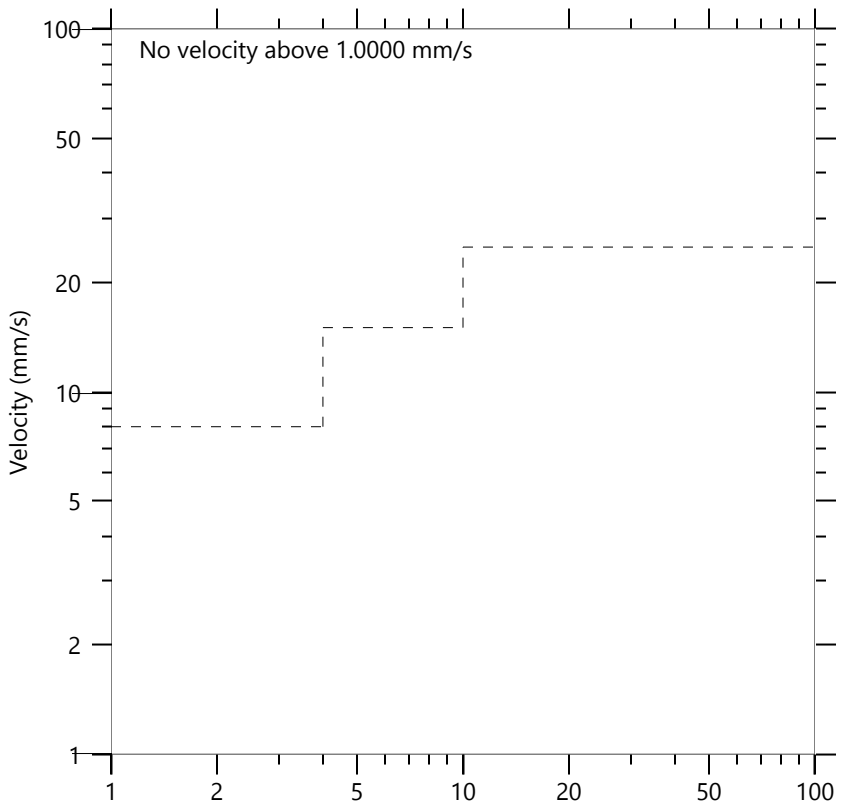
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

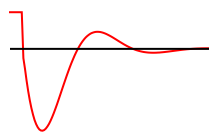
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	<0.127 mm/s	0.189 mm/s	0.181 mm/s
Zero Crossing Frequency	19.0 Hz	17.7 Hz	13.8 Hz
Date	Nov 24, 2024	Nov 24, 2024	Nov 24, 2024
Time	15:47:05	11:31:05	12:47:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.7	4.5	4.7

Peak Vector Sum 0.239 mm/s at November 24, 2024 15:47:05

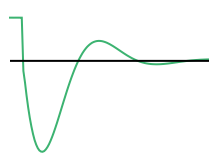
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



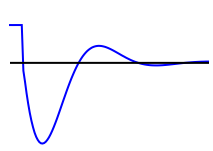
Sensor Check



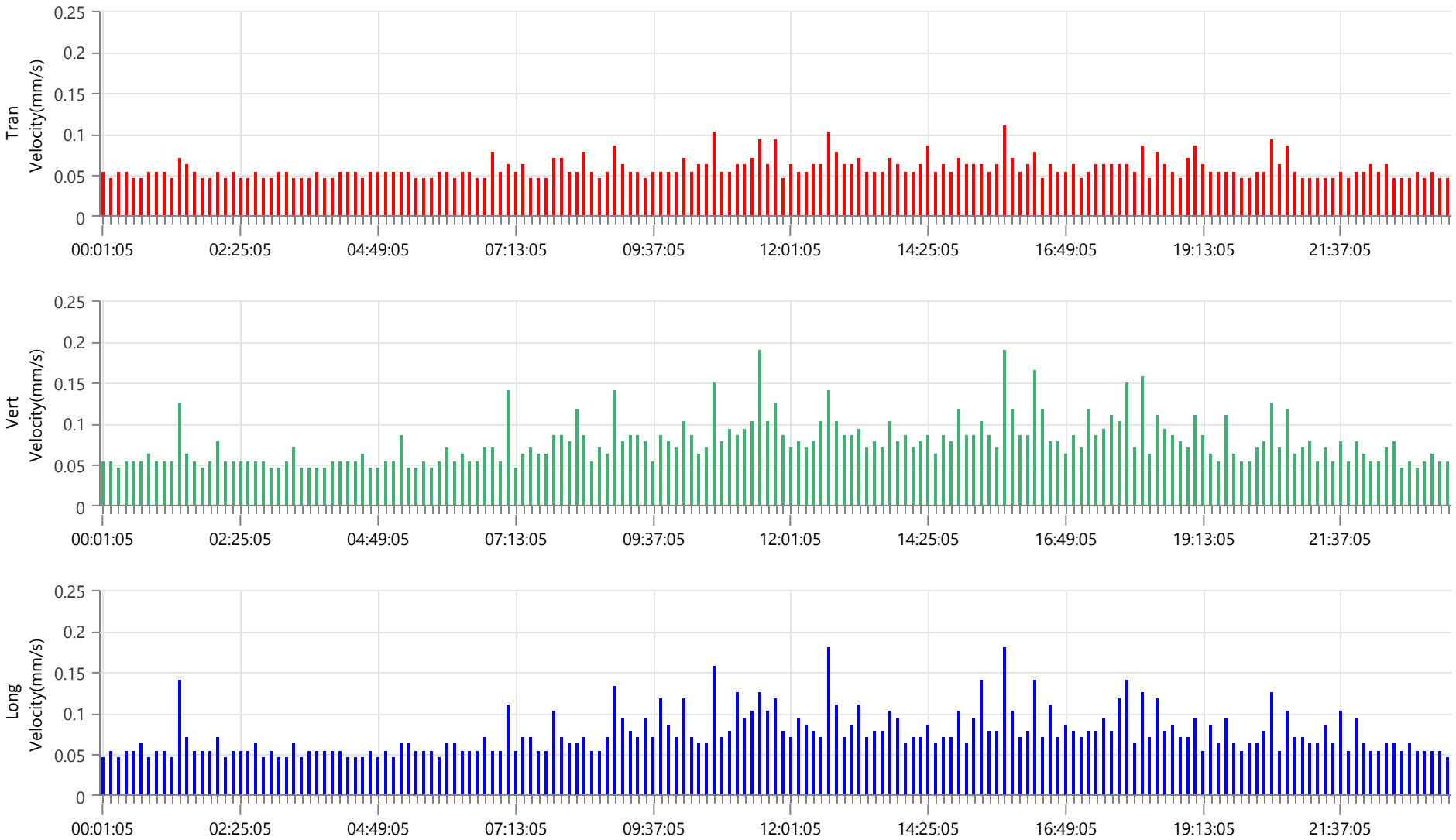
✓ Passed



✓ Passed



✓ Passed



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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

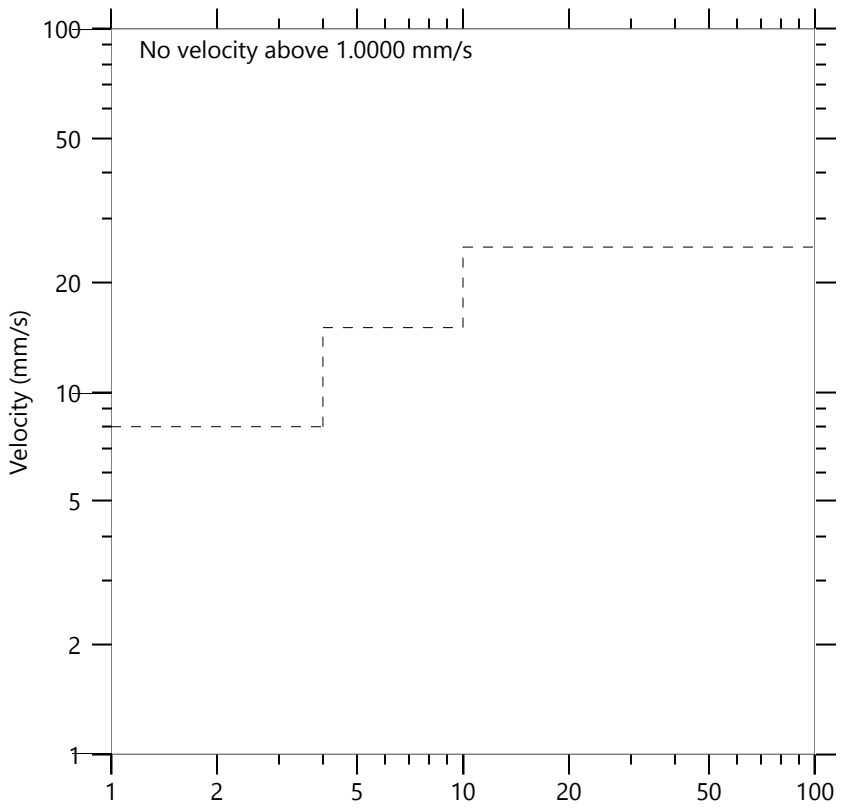
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

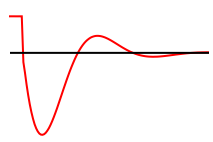
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.189 mm/s	0.284 mm/s	0.331 mm/s
Zero Crossing Frequency	14.2 Hz	16.0 Hz	10.9 Hz
Date	Nov 25, 2024	Nov 25, 2024	Nov 25, 2024
Time	08:35:05	06:05:05	12:02:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.5	4.7

Peak Vector Sum 0.369 mm/s at November 25, 2024 06:05:05

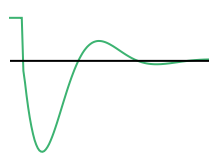
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



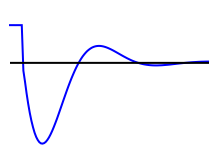
Sensor Check



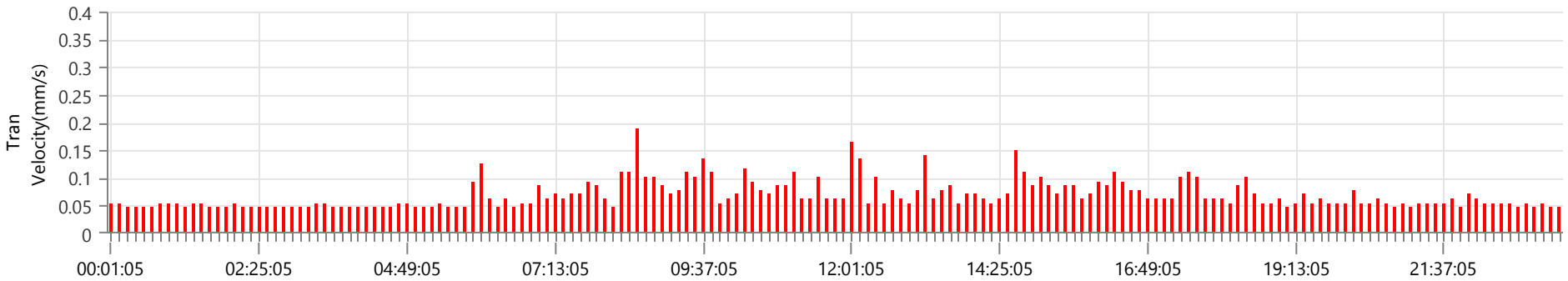
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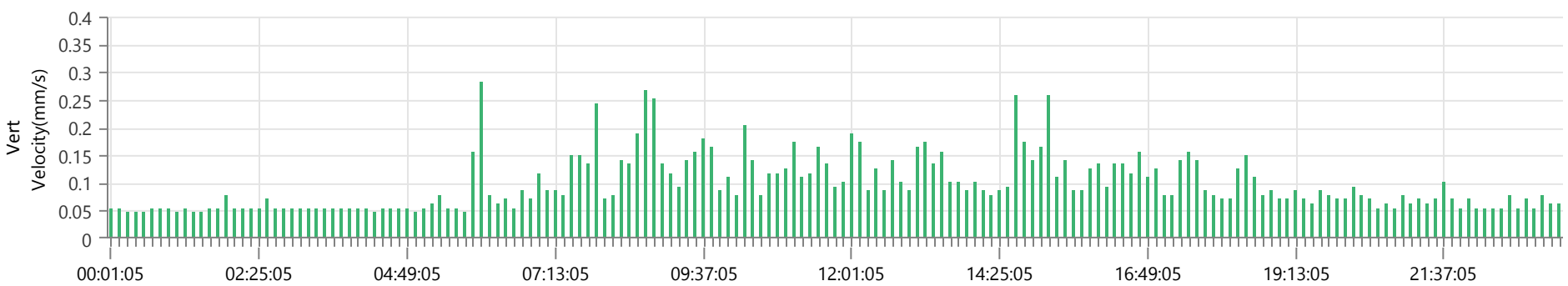


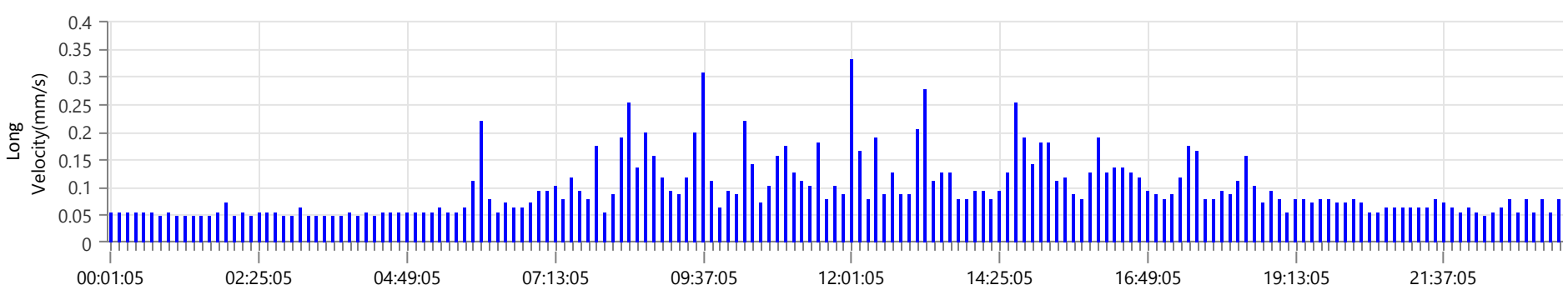
✓ Passed



✓ Passed







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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

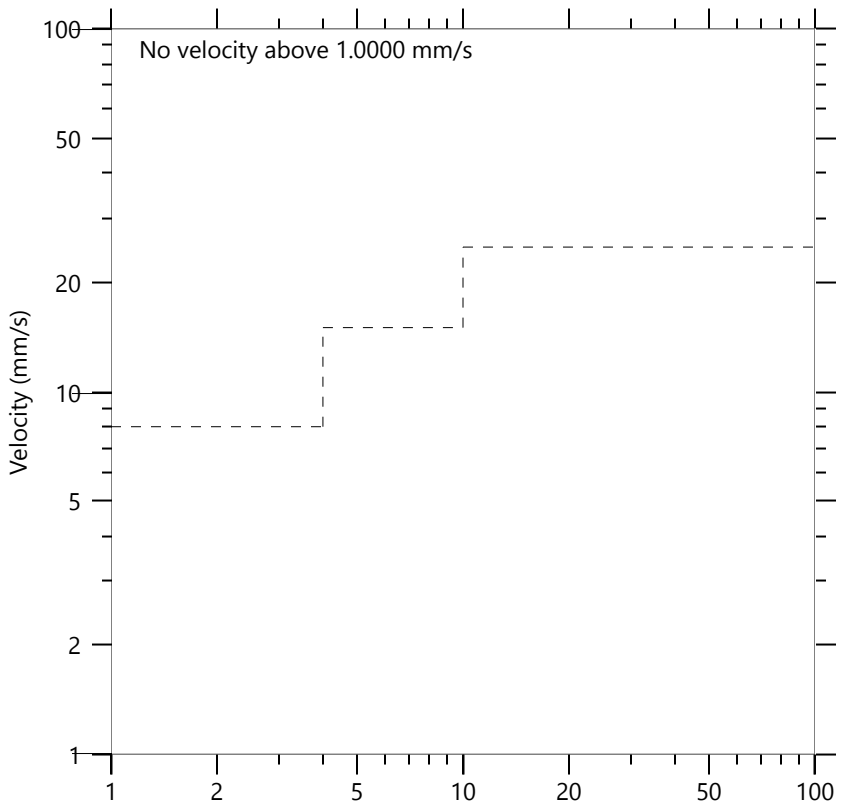
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

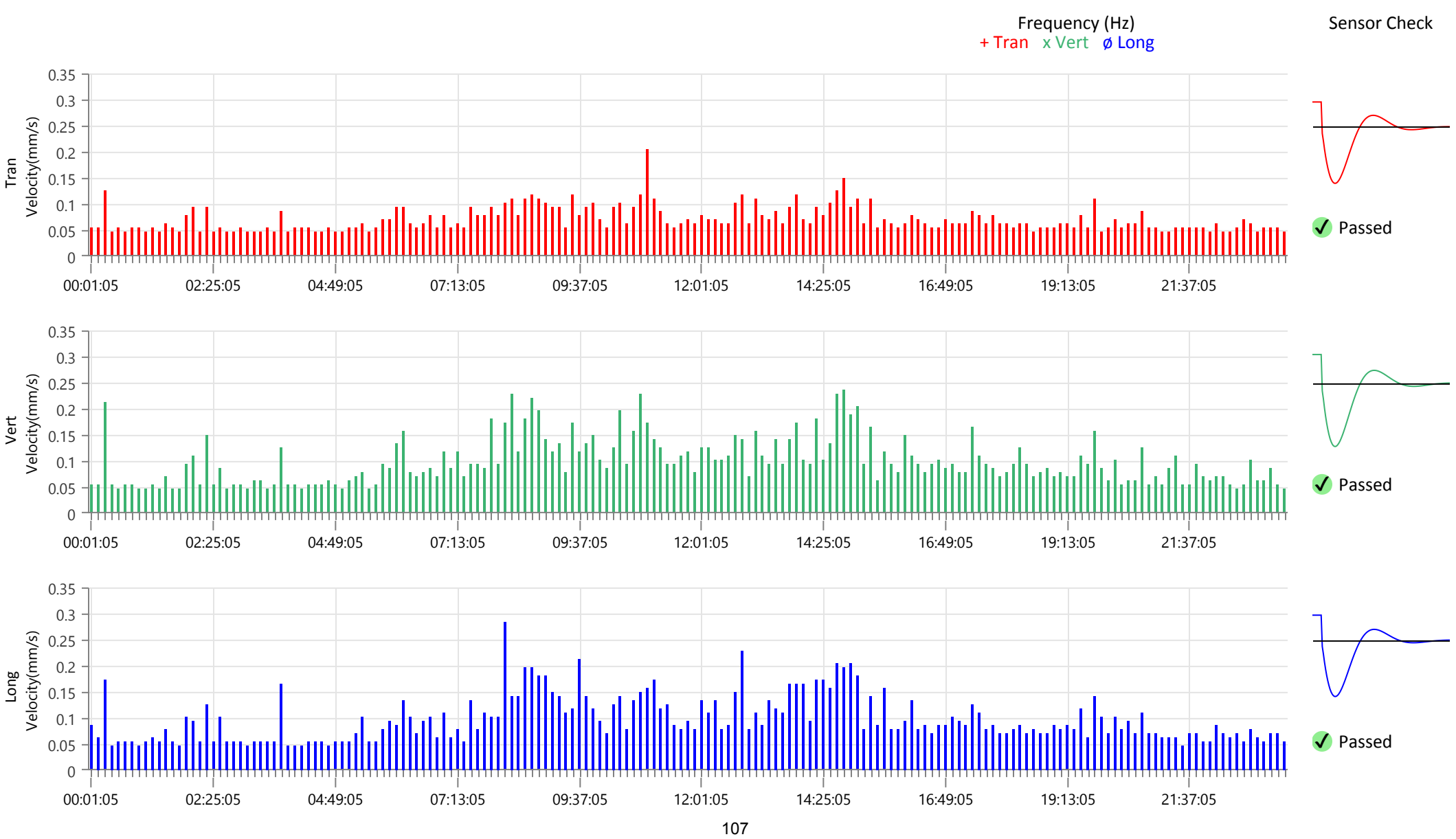
Post Event Notes No text to be displayed.

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

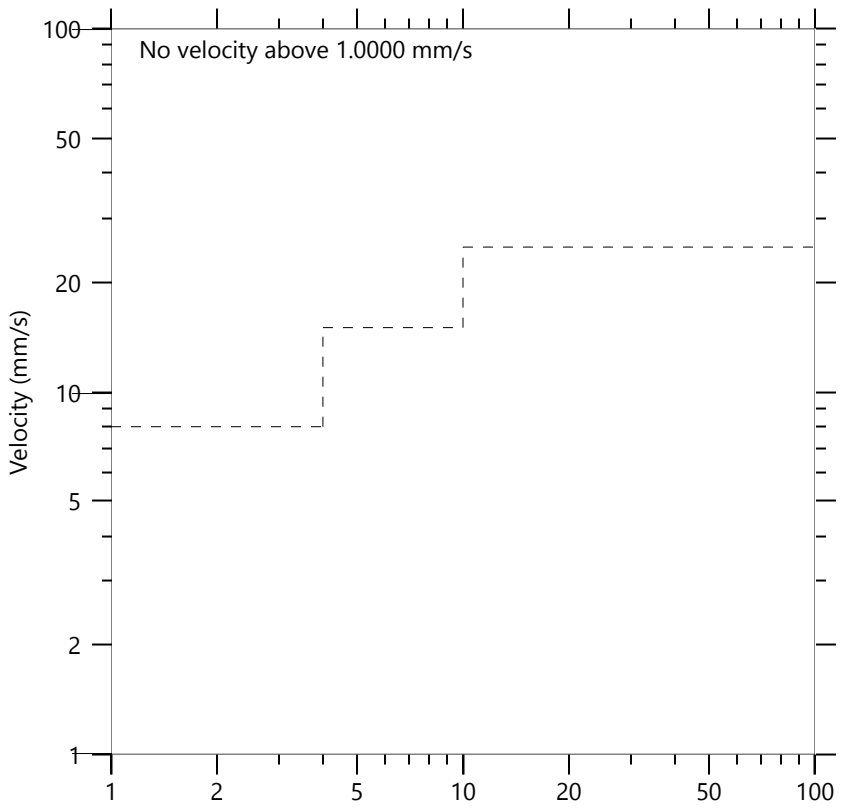
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

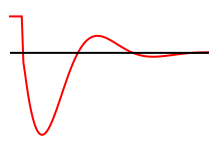
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.189 mm/s	0.284 mm/s	0.260 mm/s
Zero Crossing Frequency	15.1 Hz	15.5 Hz	11.4 Hz
Date	Nov 27, 2024	Nov 27, 2024	Nov 27, 2024
Time	07:46:05	12:19:05	11:32:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.5	4.7

Peak Vector Sum 0.329 mm/s at November 27, 2024 14:44:05

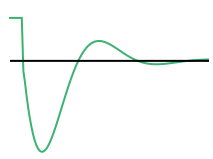
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



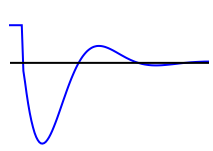
Sensor Check



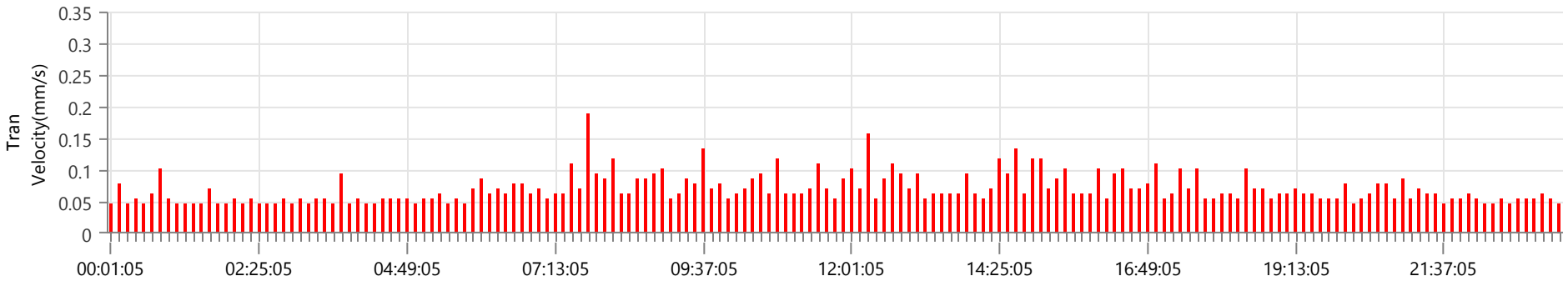
✓ Passed

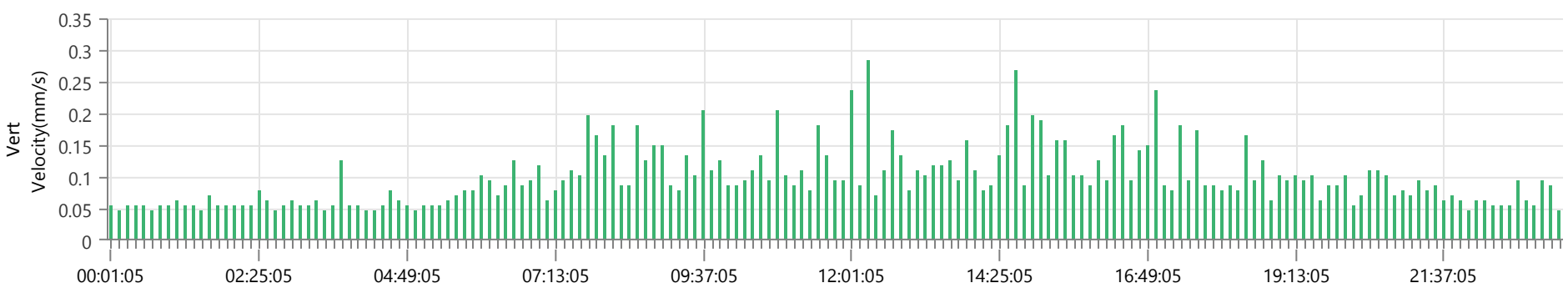


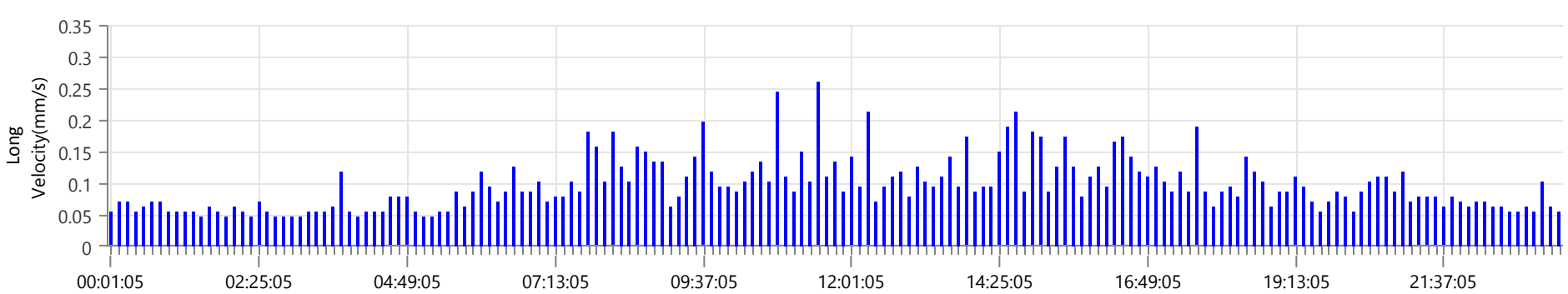
✓ Passed



✓ Passed







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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

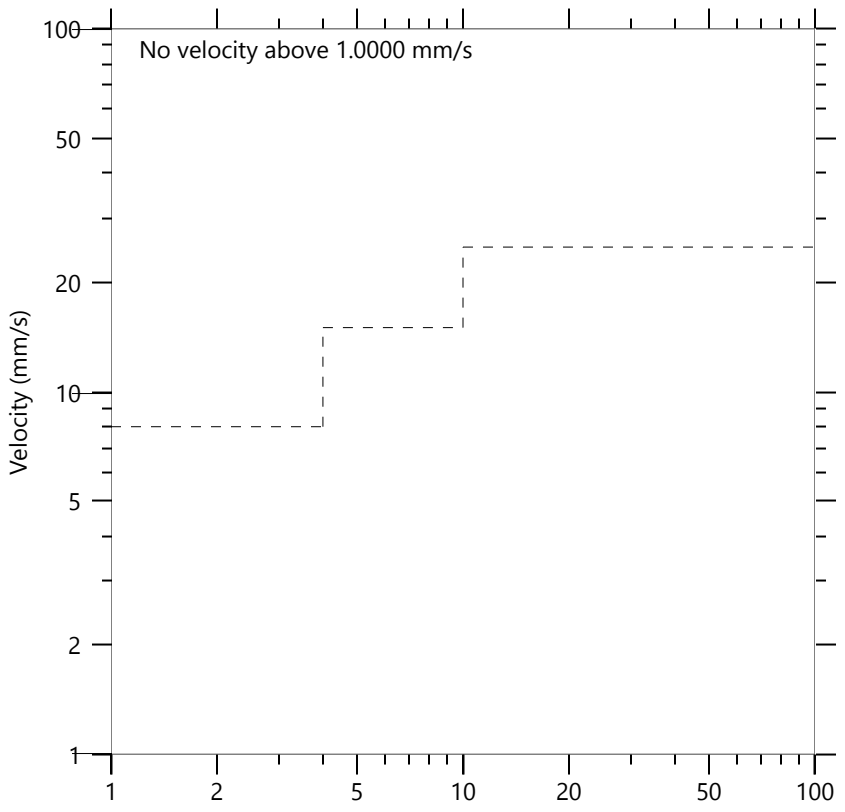
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

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

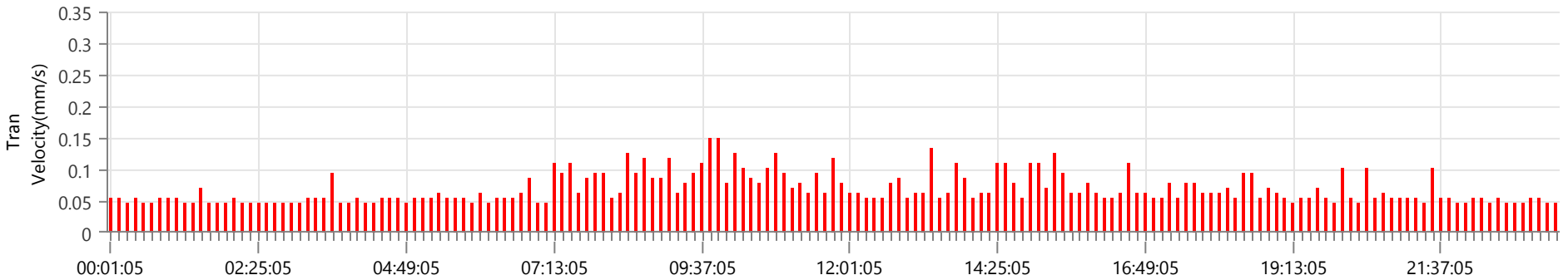
Peak Vector Sum 0.319 mm/s at November 28, 2024 13:24:05

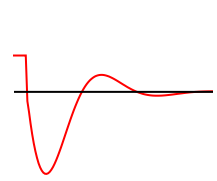
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



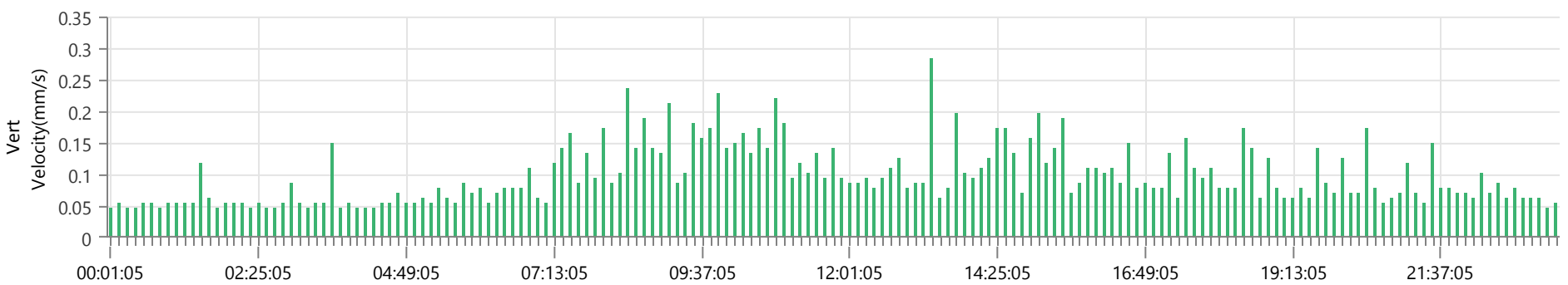
Frequency (Hz)
+ Tran x Vert ø Long

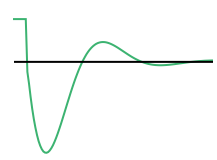
Sensor Check



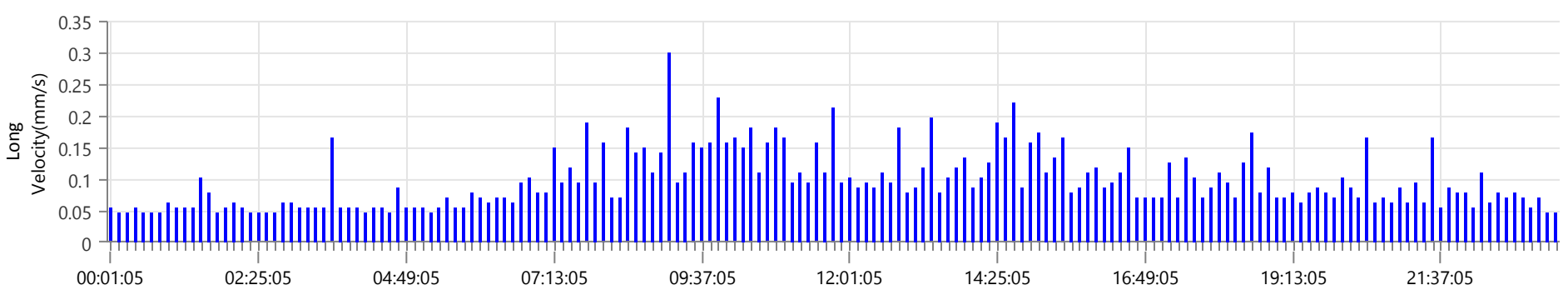


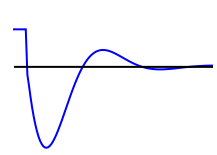
✓ Passed





✓ 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

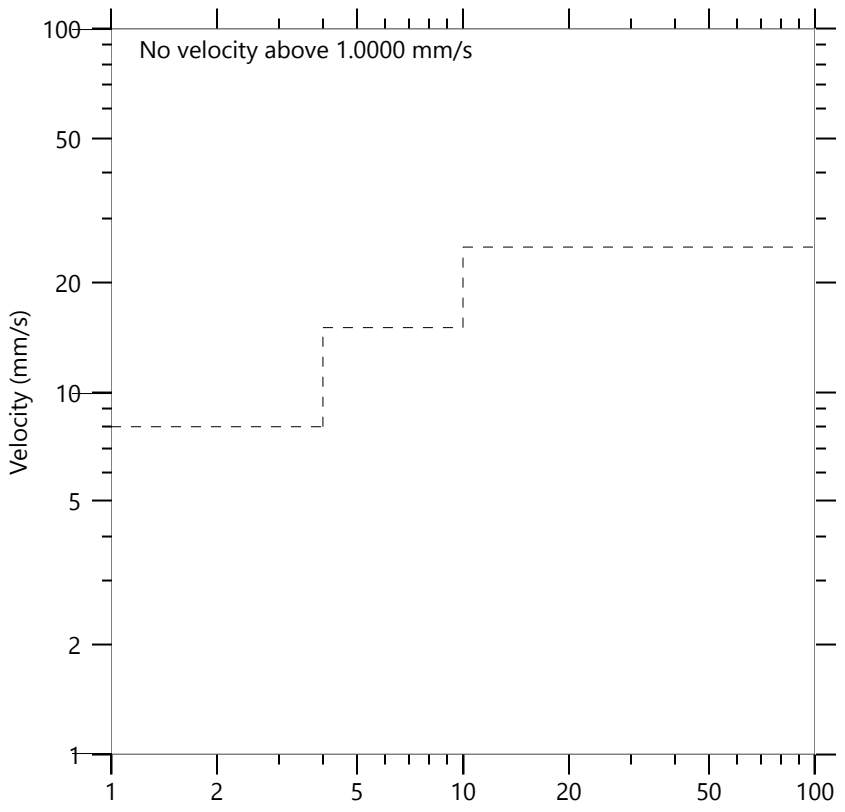
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

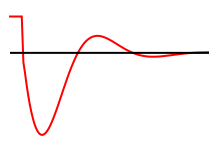
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.166 mm/s	0.284 mm/s	0.236 mm/s
Zero Crossing Frequency	14.6 Hz	36.6 Hz	13.5 Hz
Date	Nov 29, 2024	Nov 29, 2024	Nov 29, 2024
Time	12:05:05	08:58:05	12:30:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.5	4.7

Peak Vector Sum 0.313 mm/s at November 29, 2024 18:04:05

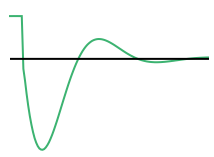
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



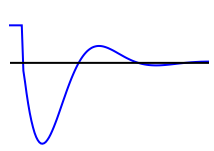
Sensor Check



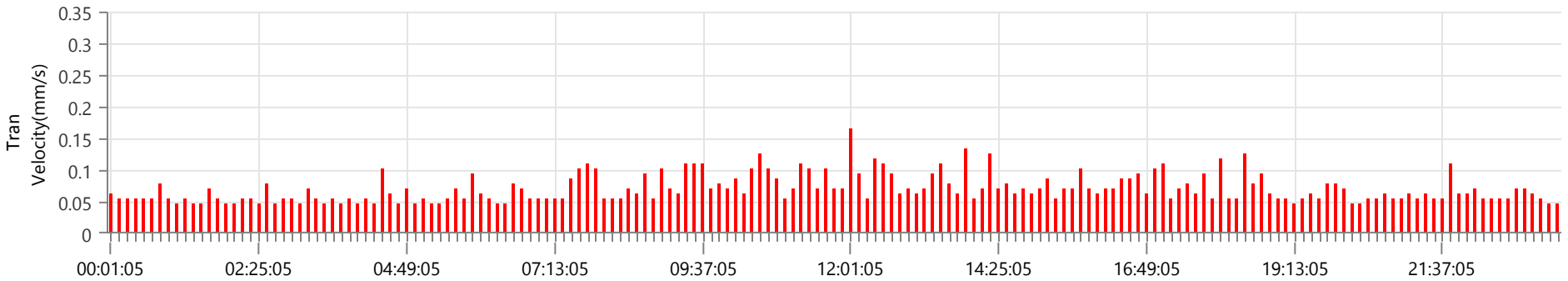
✓ Passed

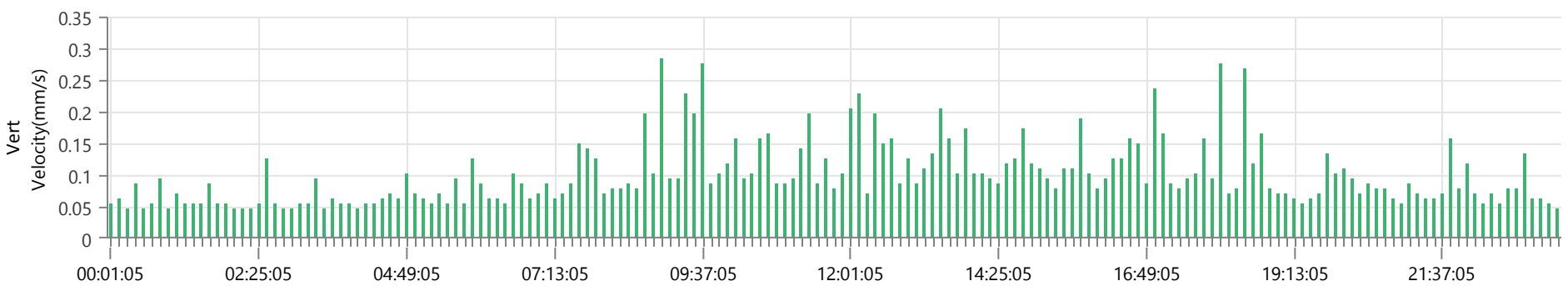


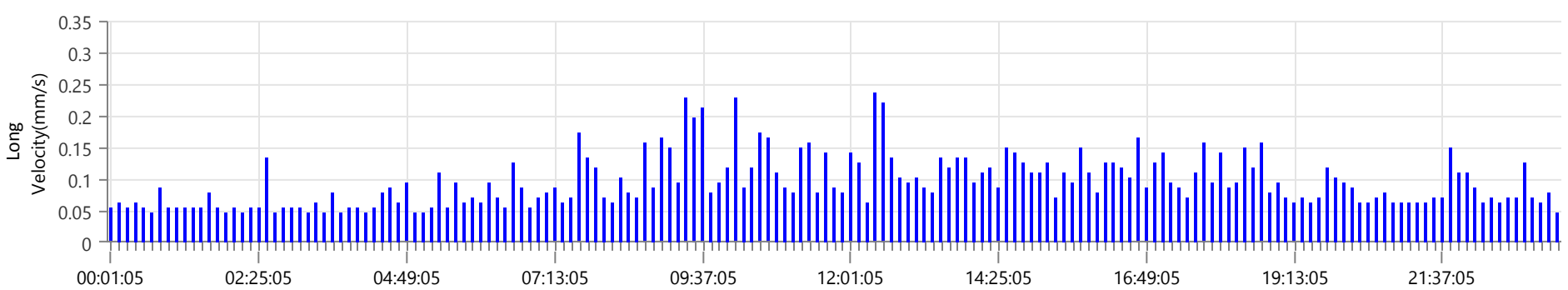
✓ Passed



✓ 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

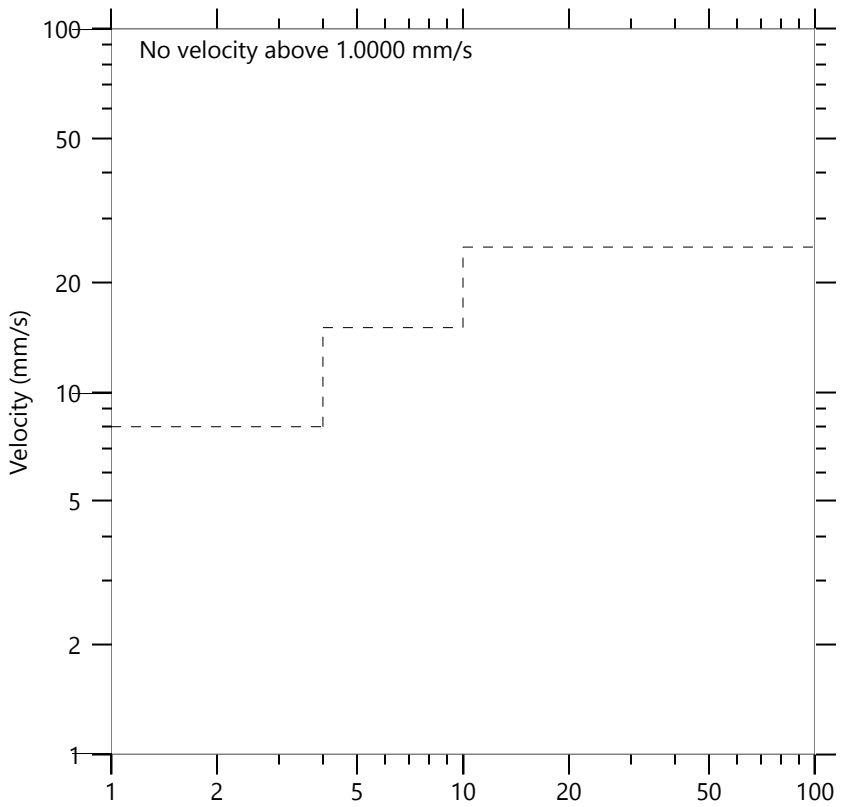
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

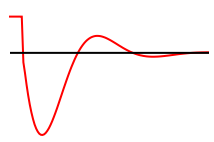
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.166 mm/s	0.205 mm/s	0.315 mm/s
Zero Crossing Frequency	15.5 Hz	18.3 Hz	12.2 Hz
Date	Nov 30, 2024	Nov 30, 2024	Nov 30, 2024
Time	09:36:05	14:32:05	09:56:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.5	4.7

Peak Vector Sum 0.336 mm/s at November 30, 2024 09:56:05

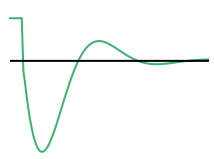
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



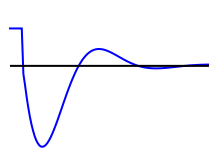
Sensor Check



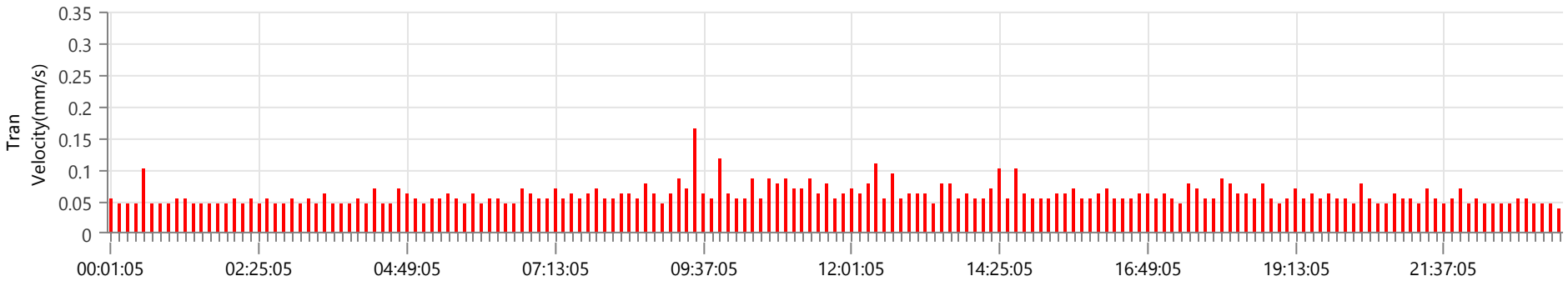
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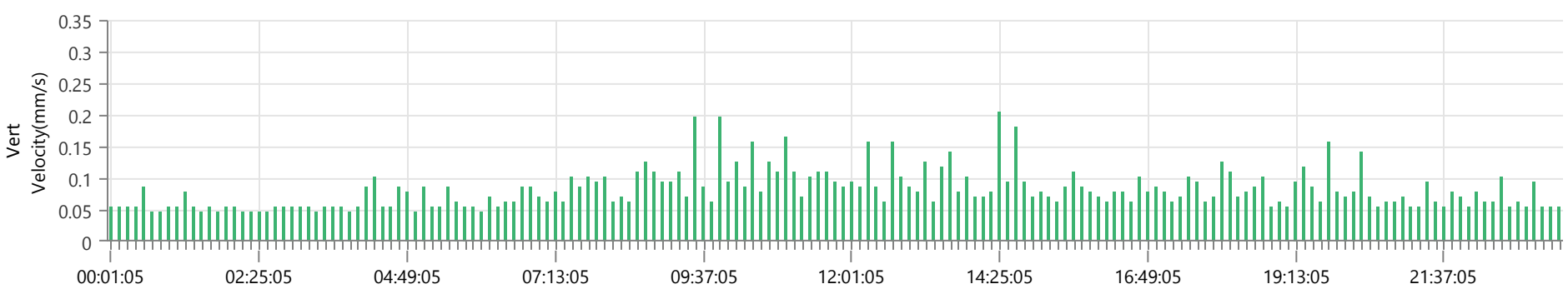


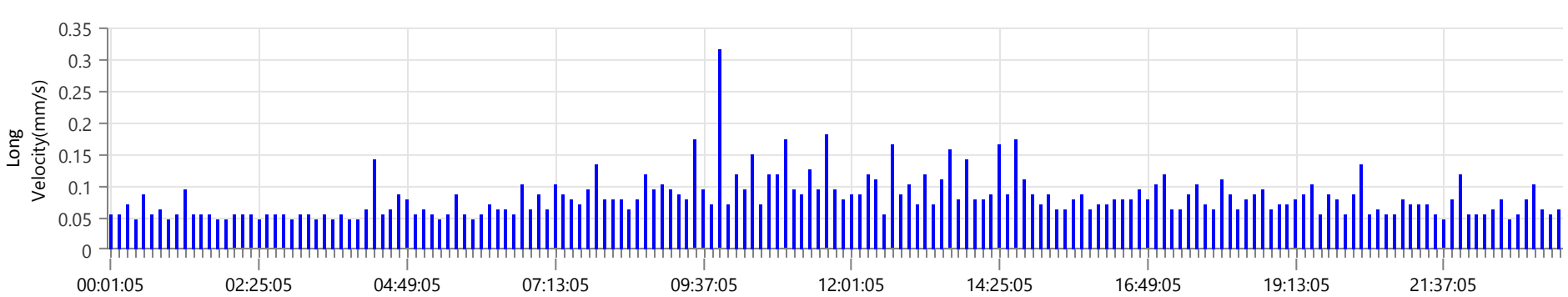
✓ Passed



✓ Passed







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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

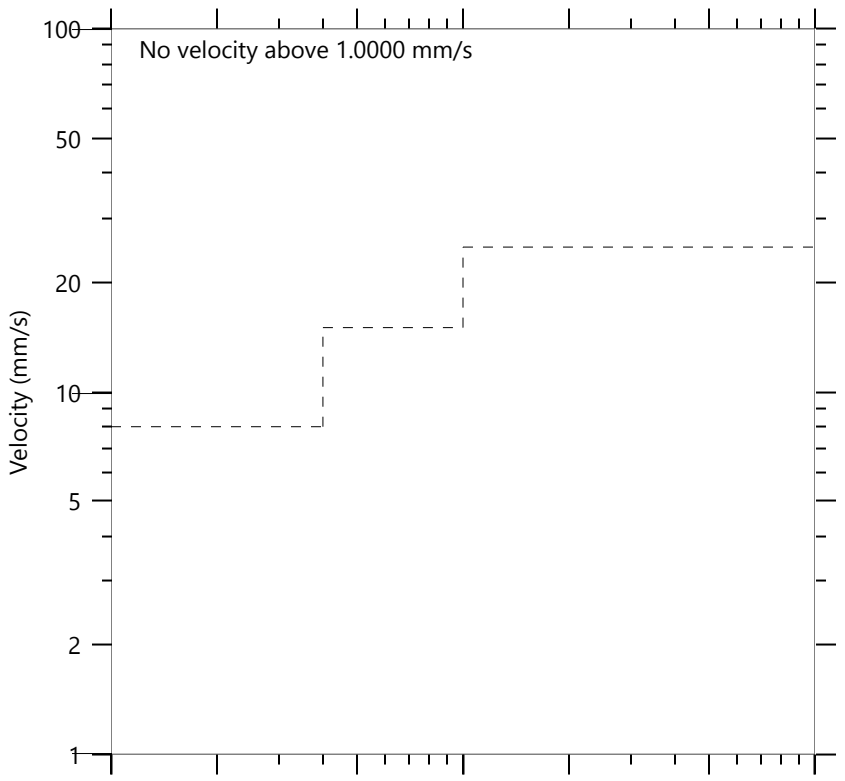
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

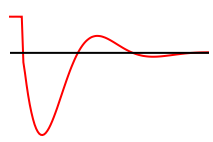
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	<0.127 mm/s	0.197 mm/s	0.197 mm/s
Zero Crossing Frequency	17.7 Hz	16.5 Hz	12.8 Hz
Date	Dec 1, 2024	Dec 1, 2024	Dec 1, 2024
Time	15:05:05	15:05:05	13:45:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.6	4.8

Peak Vector Sum 0.250 mm/s at December 1, 2024 10:46:05

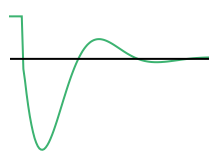
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



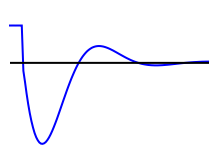
Sensor Check



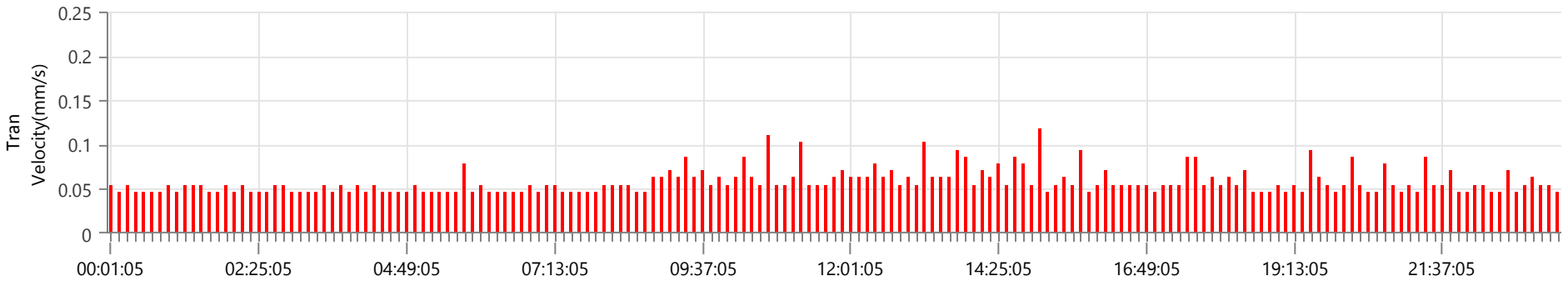
✓ Passed

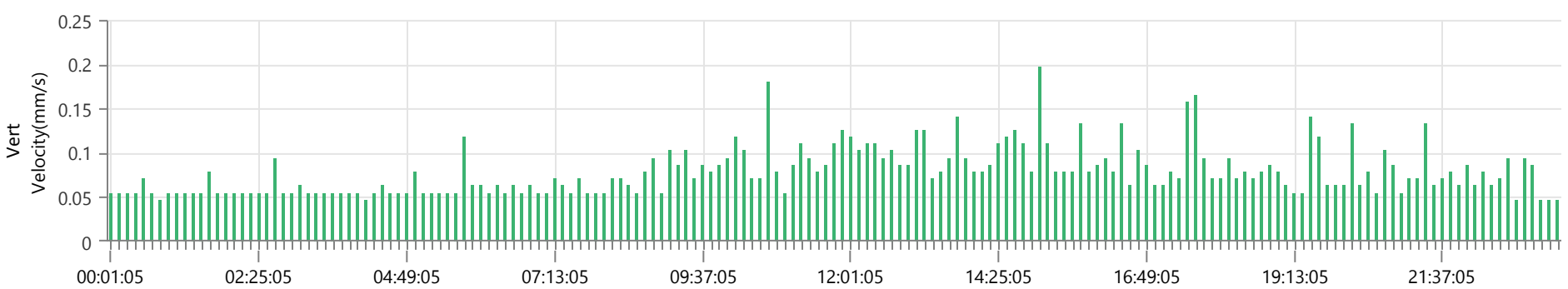


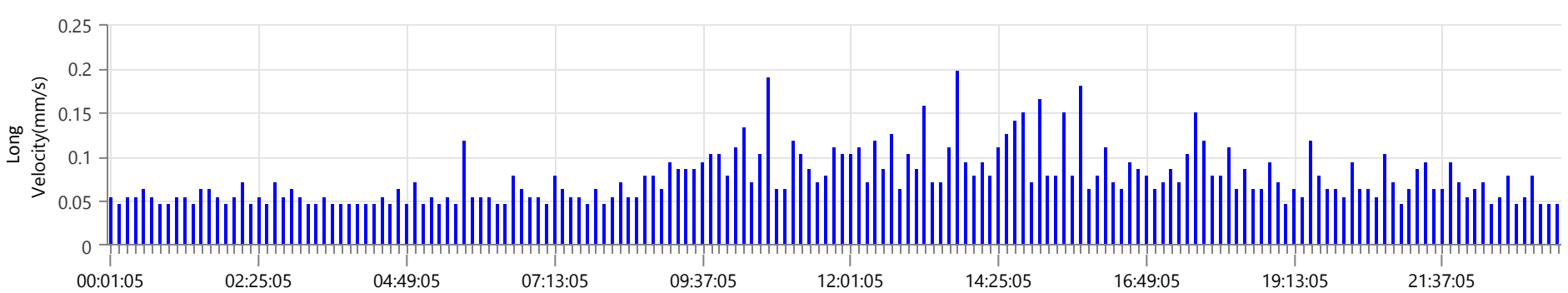
✓ Passed



✓ Passed







Format © 2018 Xmark Corporation

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

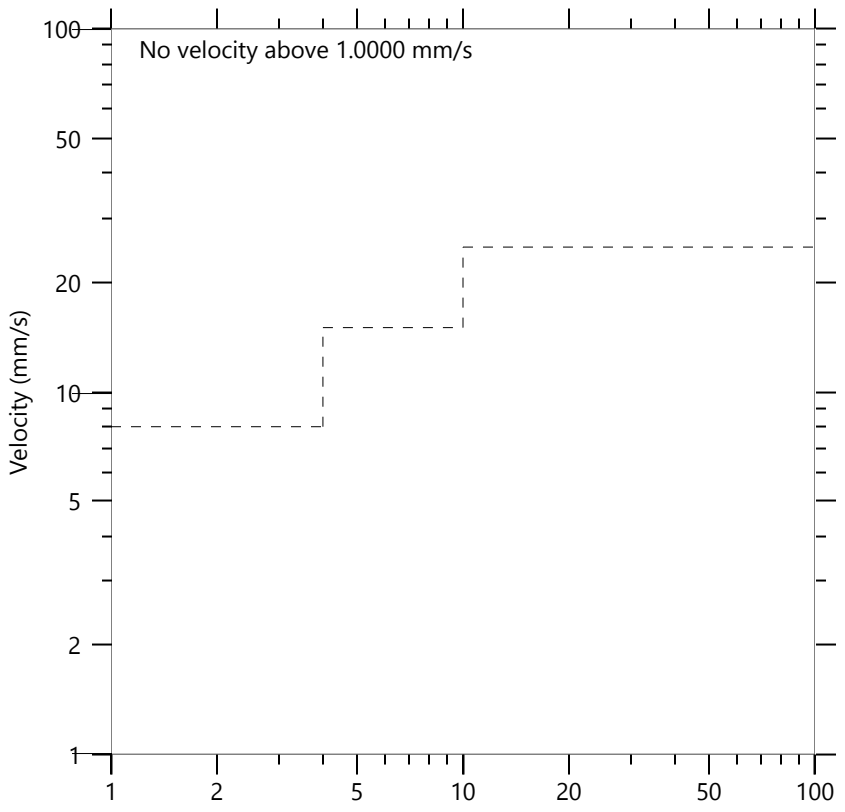
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

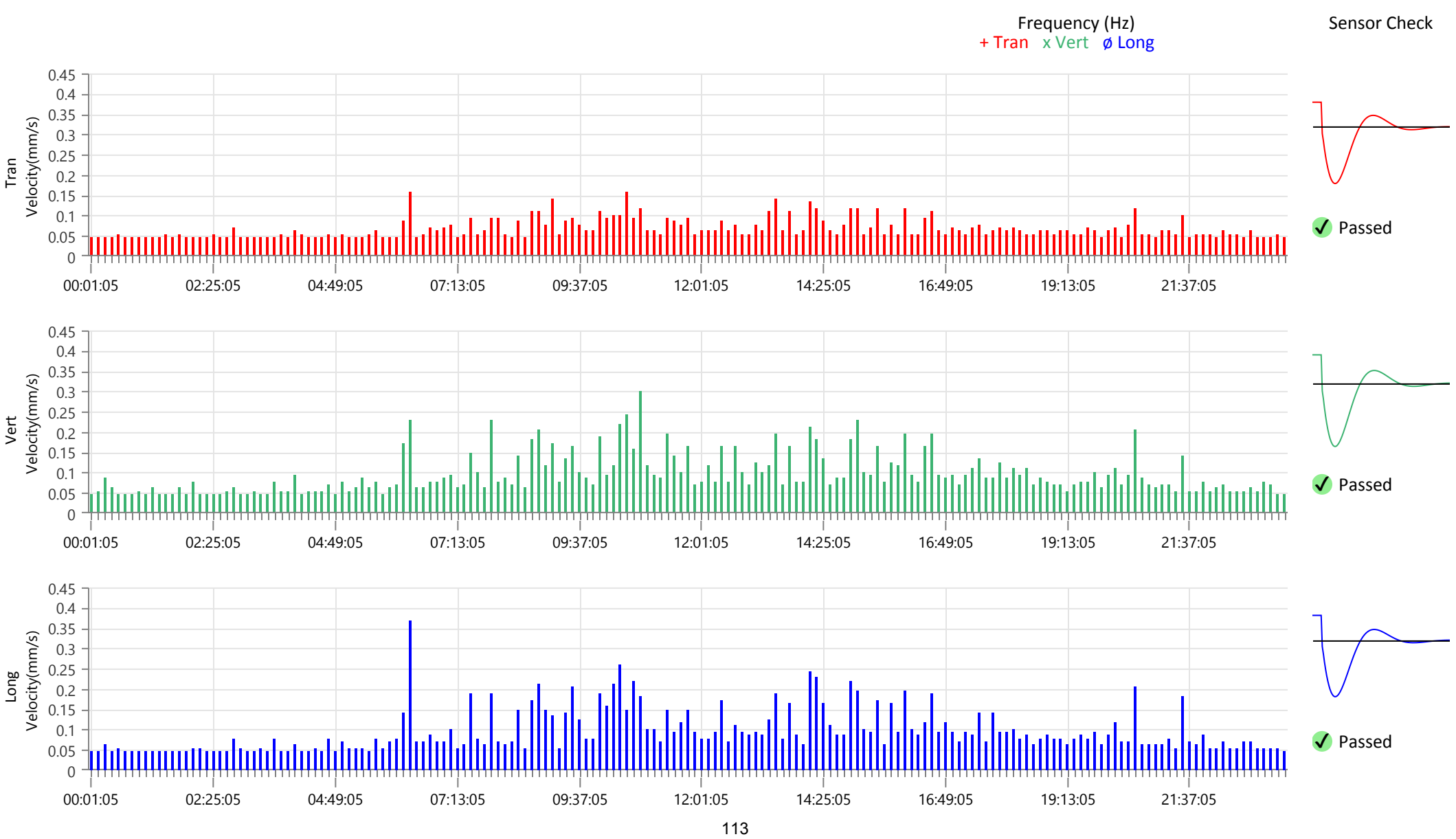
Post Event Notes No text to be displayed.

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)





Format © 2018 Xmark Corporation

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

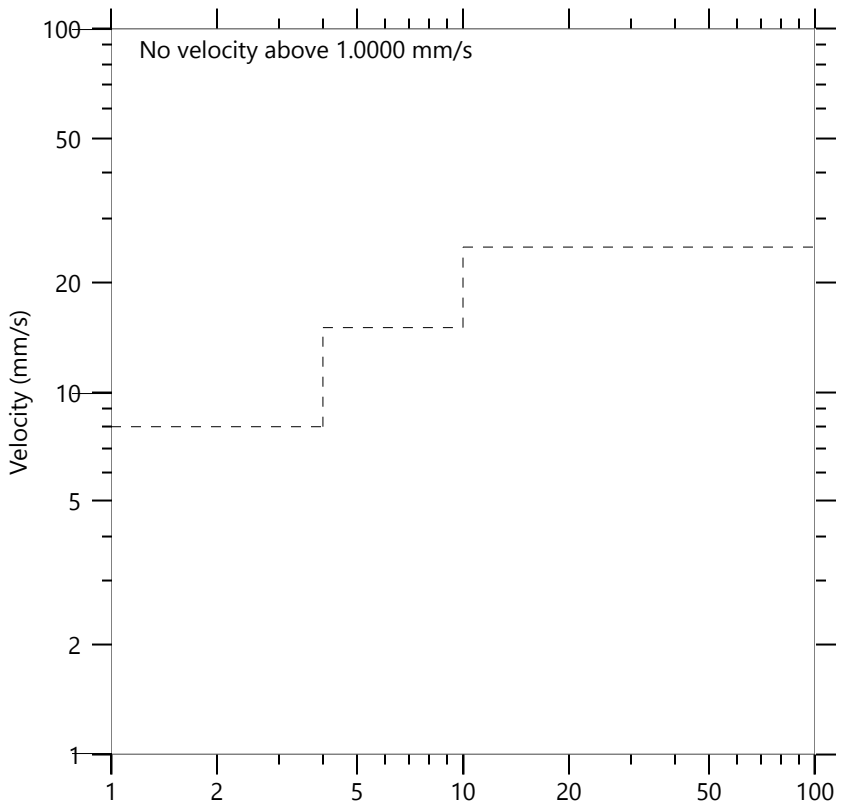
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

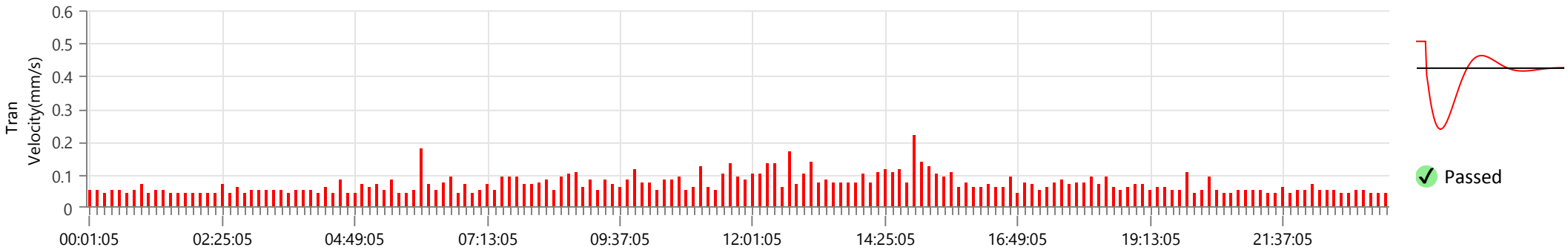
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.221 mm/s	0.323 mm/s	0.457 mm/s
Zero Crossing Frequency	11.6 Hz	15.5 Hz	11.1 Hz
Date	Dec 3, 2024	Dec 3, 2024	Dec 3, 2024
Time	15:04:05	11:44:05	12:48:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	4.6	4.8

Peak Vector Sum 0.467 mm/s at December 3, 2024 12:48:05

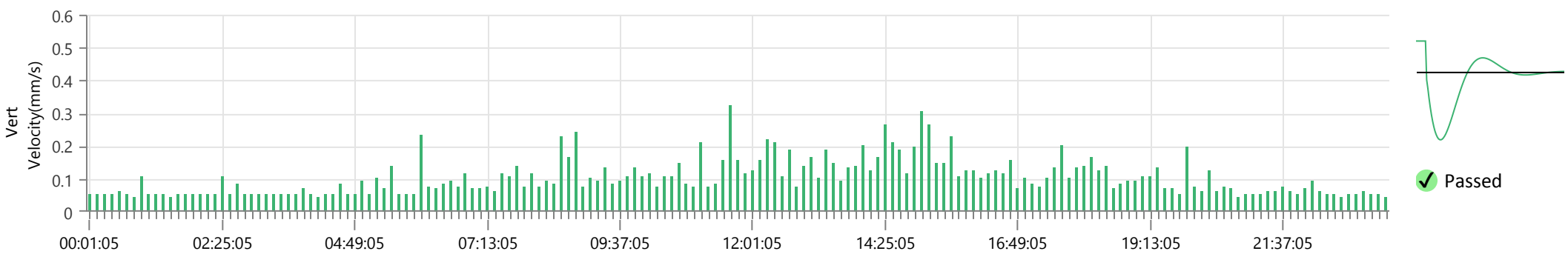
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



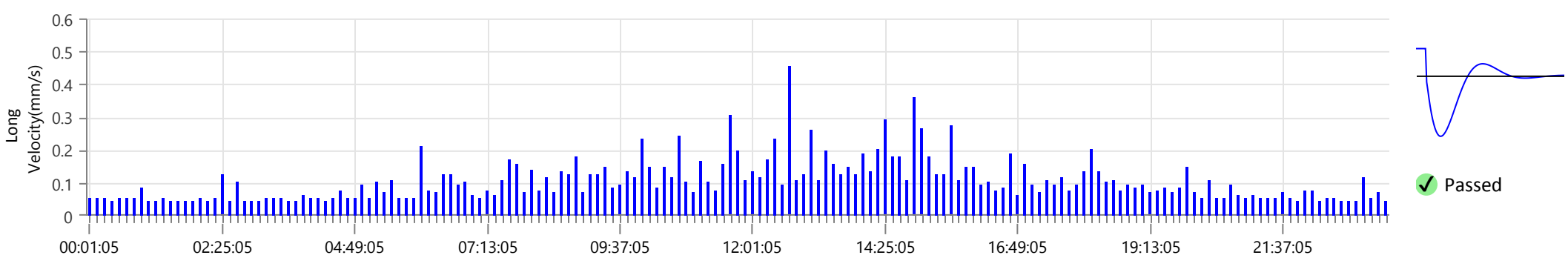
Sensor Check



✓ Passed



✓ Passed



✓ Passed

Format © 2018 Xmark Corporation

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

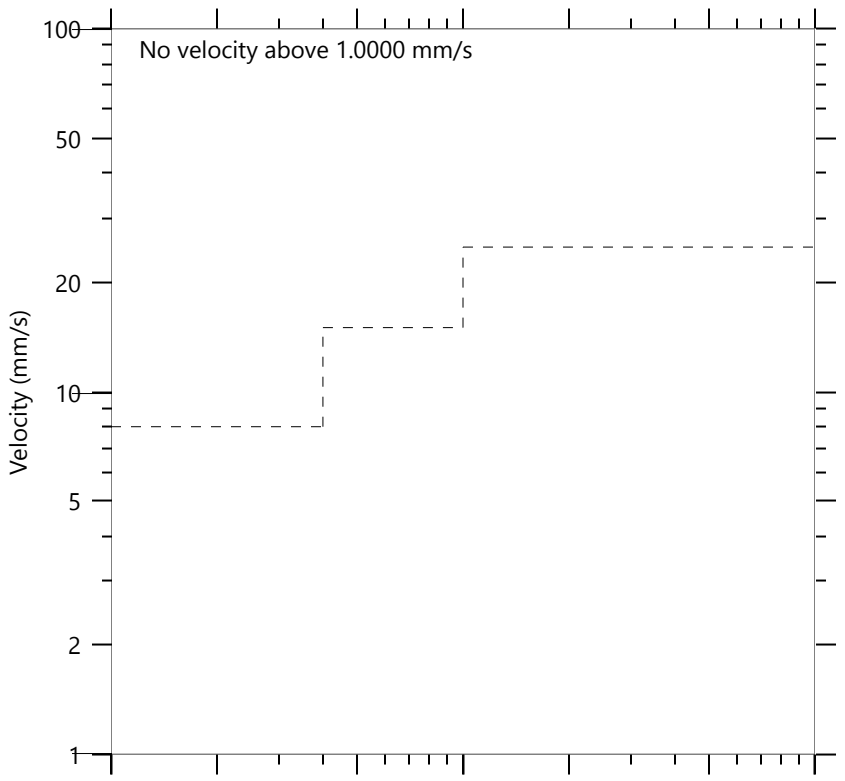
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

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)





Format © 2018 Xmark Corporation

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

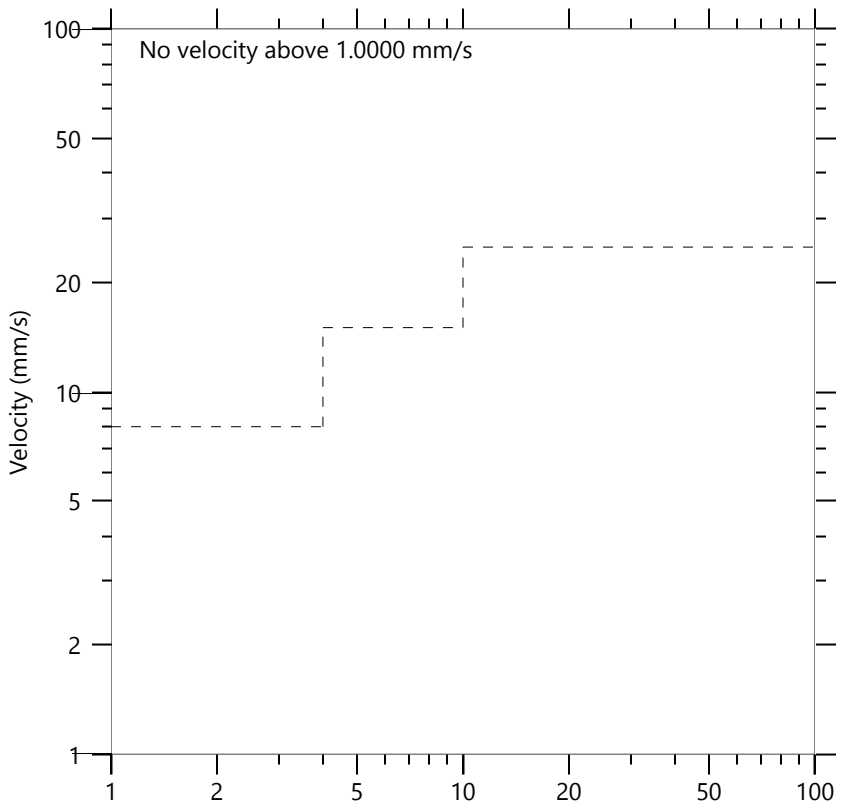
Extended Notes UNIT INSTALLED AT ANGELINE ST, SOUTH SIDE OF KENT. INSTALLED 2M NORTHEAST OF GUY WIRE. SENSOR SETBACK 5.3M FROM ROAD, SENSOR-3.6M FROM SIDEWALK. SENSOR-8.3M FROM WEST WALL BUILDING AND 5.40M FROM NORTHWEST CORNER BUILDING. INSTALLED 6"DEPTH INGROUND.

Post Event Notes No text to be displayed.

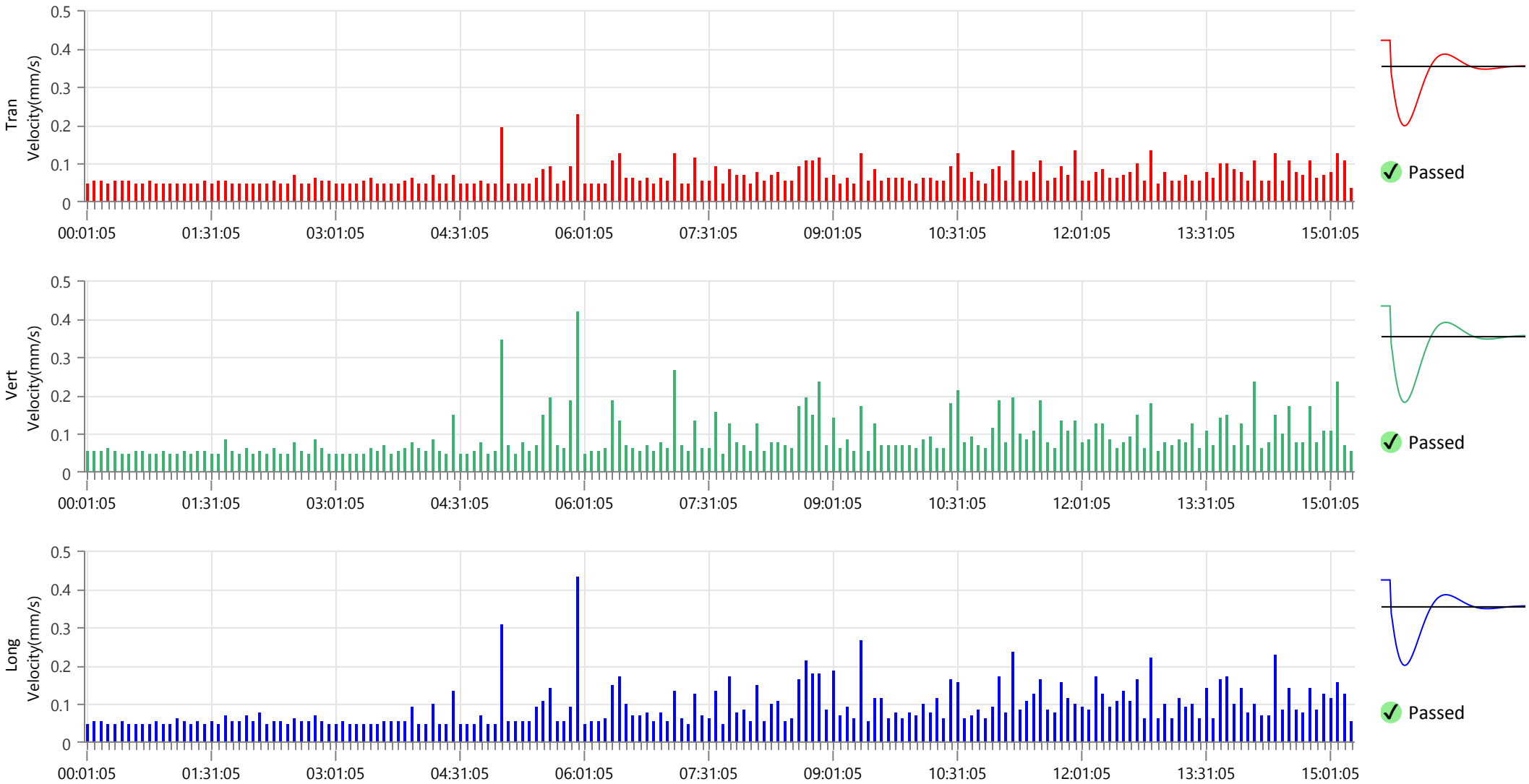
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.229 mm/s	0.418 mm/s	0.434 mm/s
Zero Crossing Frequency	28.4 Hz	30.1 Hz	39.4 Hz
Date	Dec 5, 2024	Dec 5, 2024	Dec 5, 2024
Time	05:57:05	05:57:05	05:57:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.3 Hz	7.3 Hz	7.3 Hz
Overswing Ratio	4.8	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)



Sensor Check



✓ Passed

✓ Passed

✓ Passed

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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

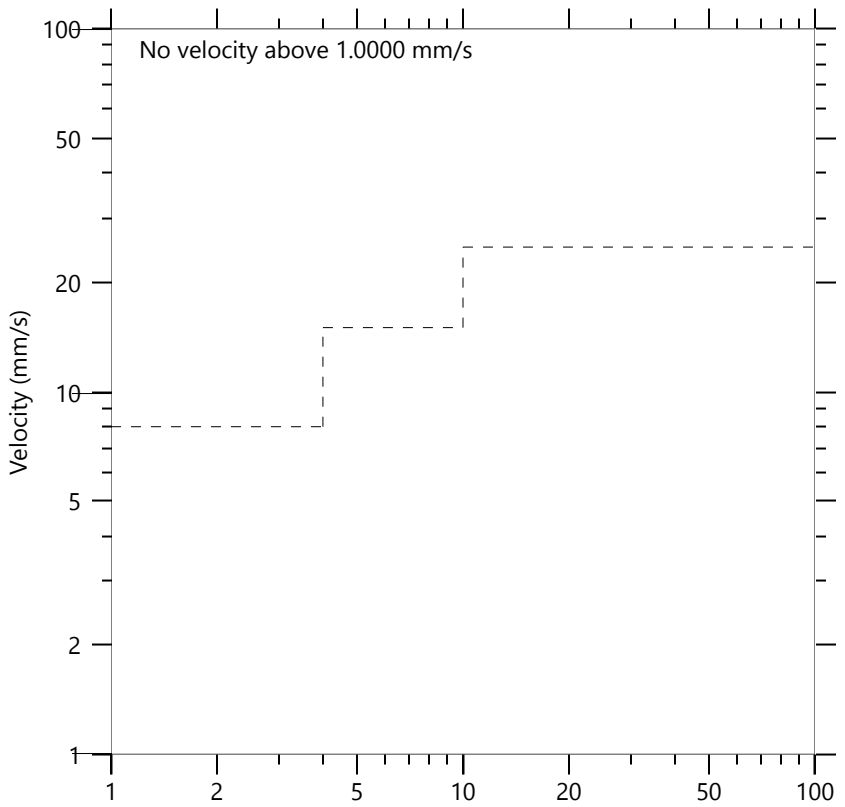
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

Post Event Notes No text to be displayed.

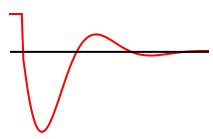
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.150 mm/s	<0.127 mm/s	0.181 mm/s
Zero Crossing Frequency	11.4 Hz	26.9 Hz	10.4 Hz
Date	Nov 21, 2024	Nov 21, 2024	Nov 21, 2024
Time	13:39:05	11:19:05	13:39:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.3 Hz	7.5 Hz
Overswing Ratio	4.5	4.5	4.1

Peak Vector Sum 0.219 mm/s at November 21, 2024 13:39:05

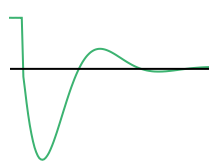
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



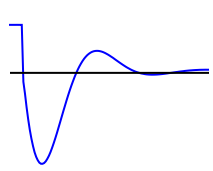
Sensor Check



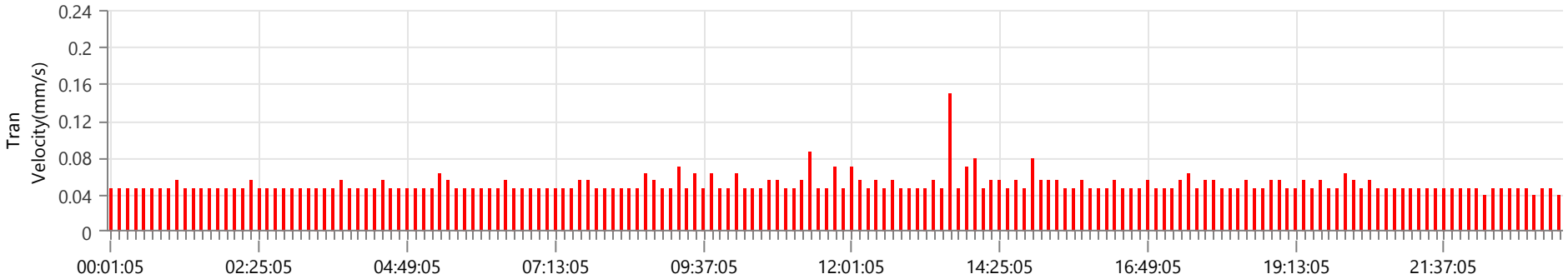
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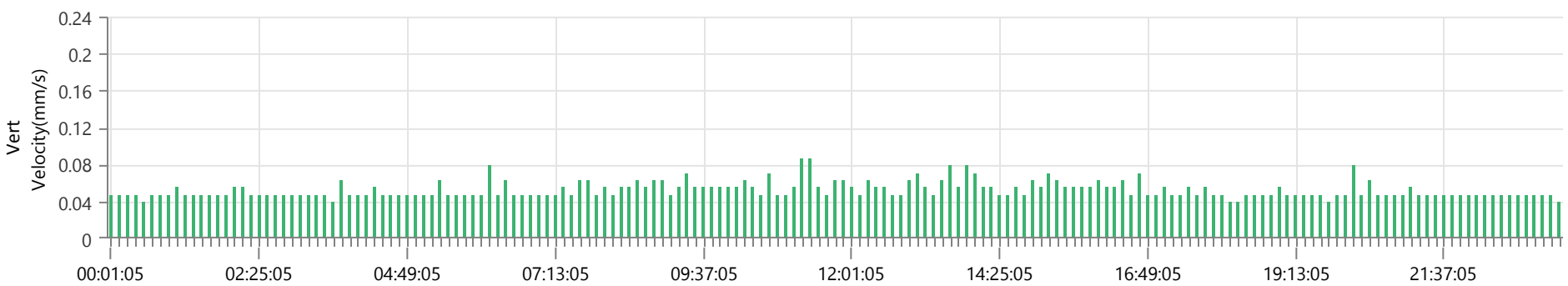


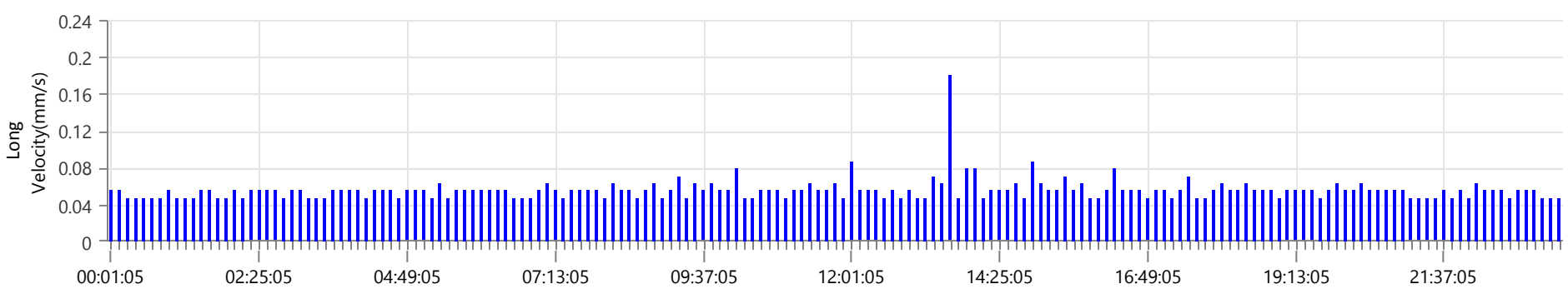
✓ Passed



✓ 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

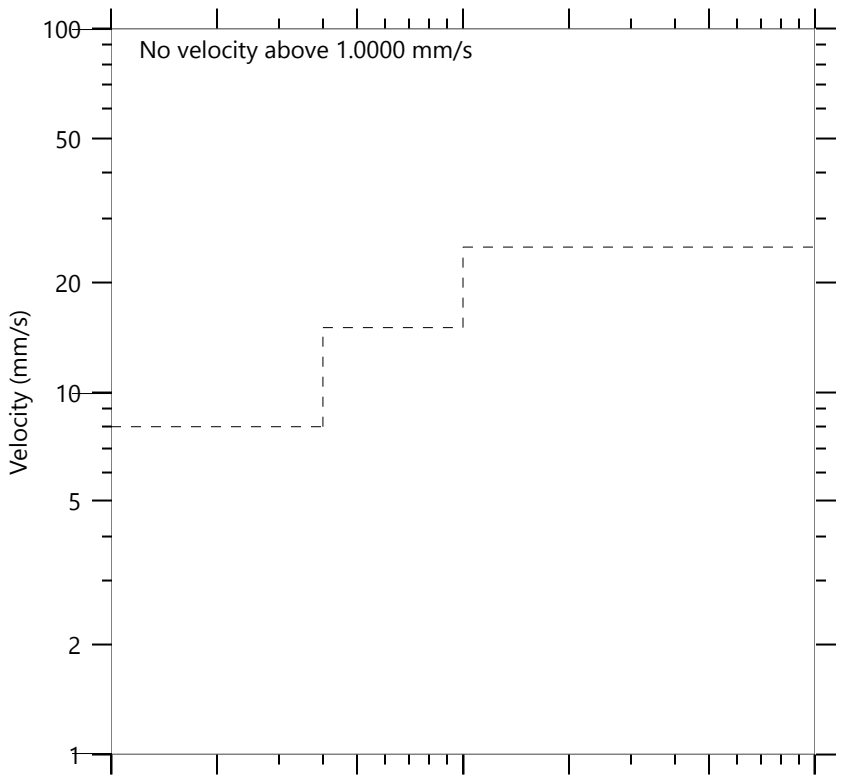
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

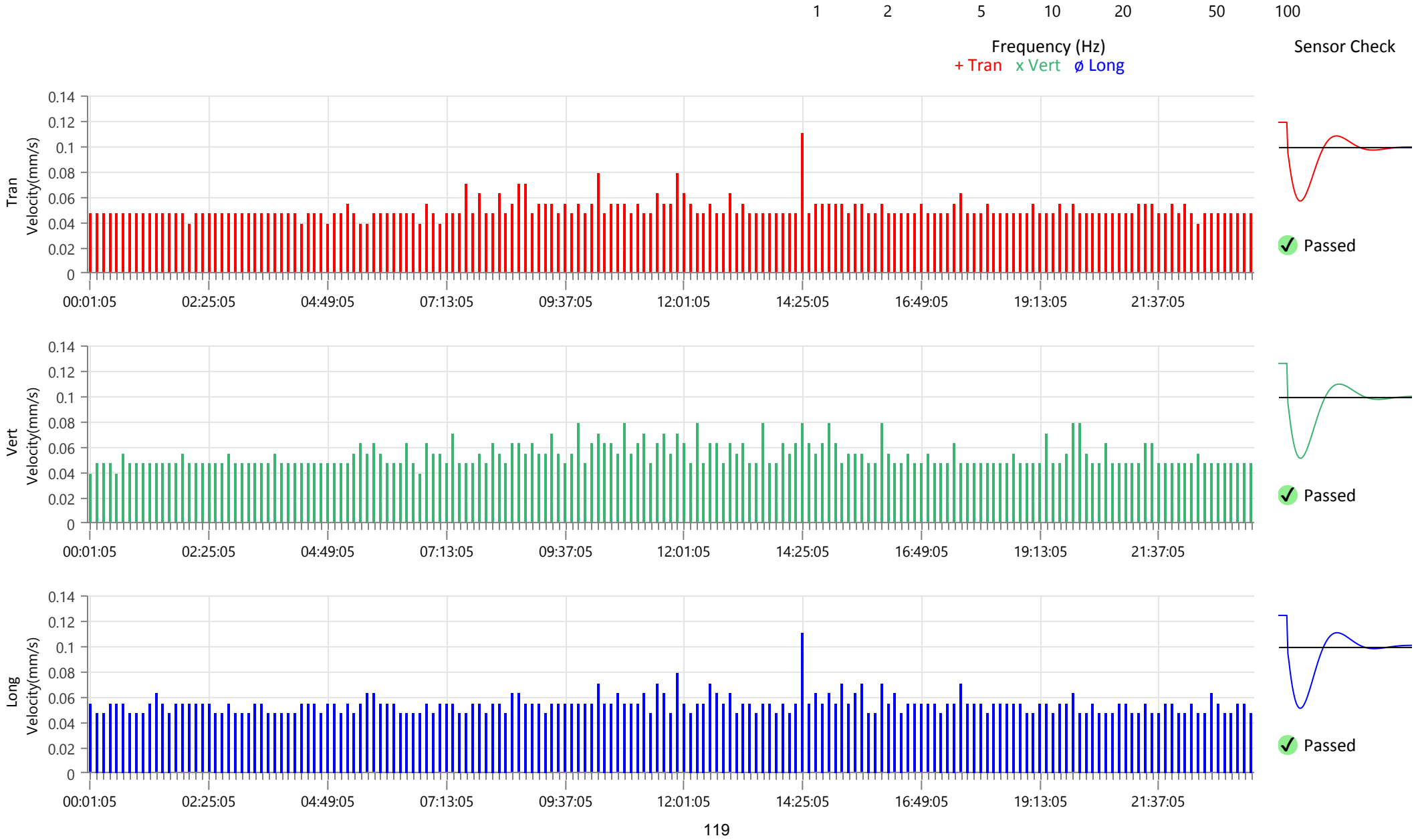
Post Event Notes No text to be displayed.

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)





Format © 2018 Xmark Corporation

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

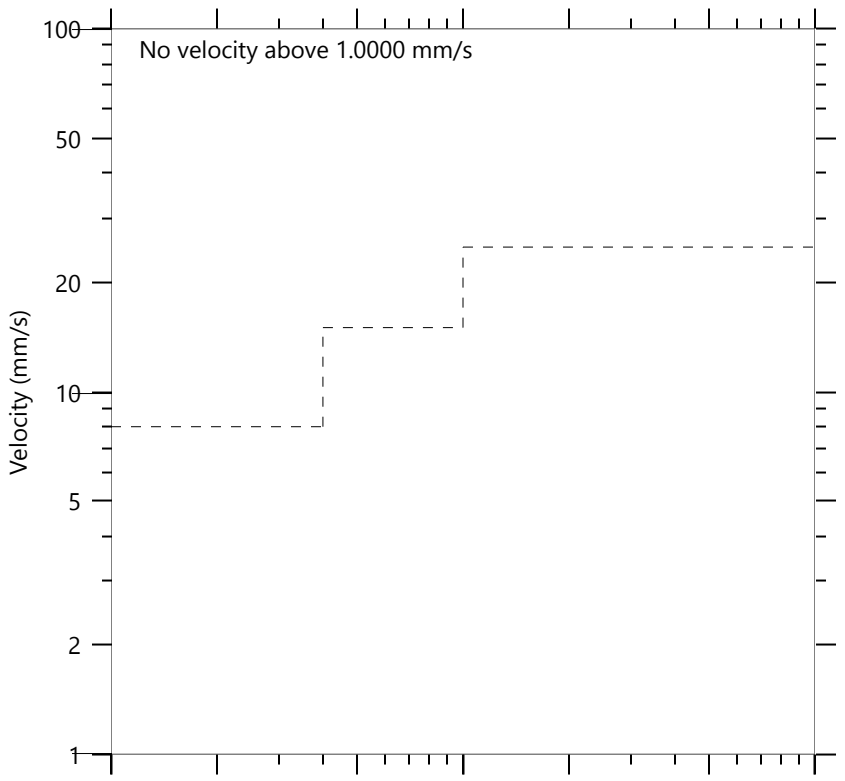
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

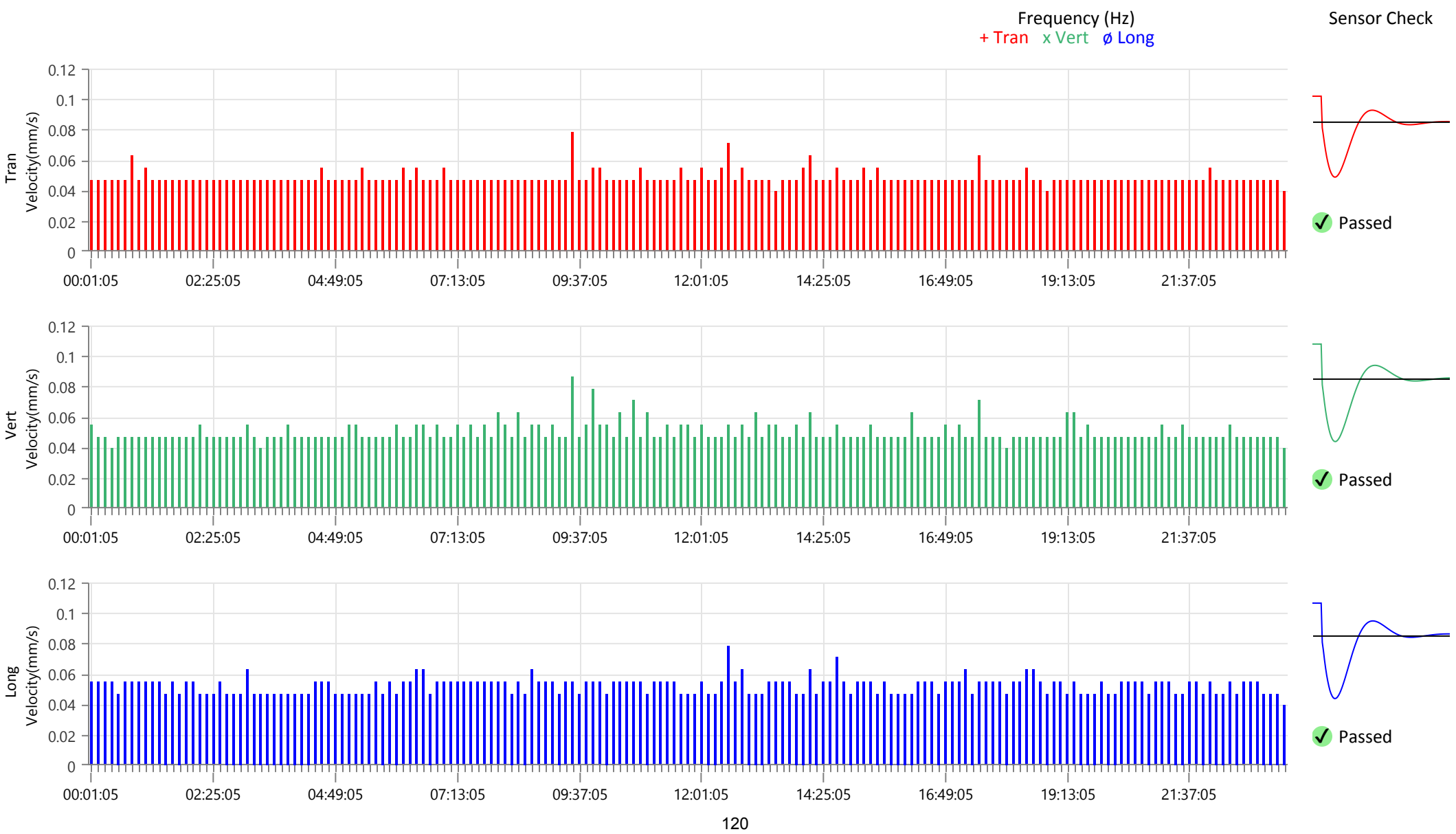
Post Event Notes No text to be displayed.

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)





Format © 2018 Xmark Corporation

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

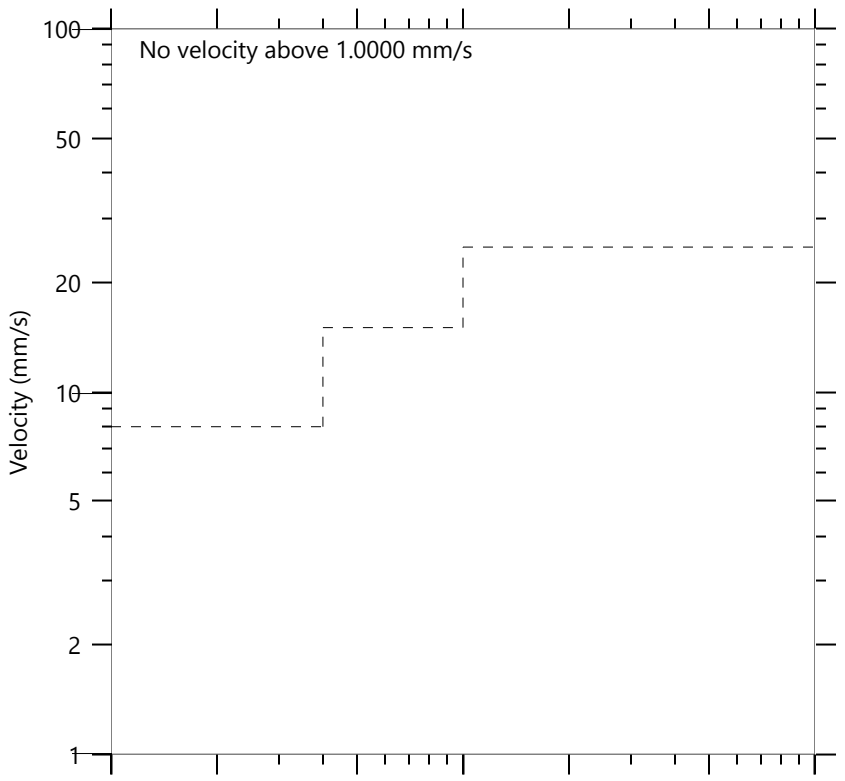
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

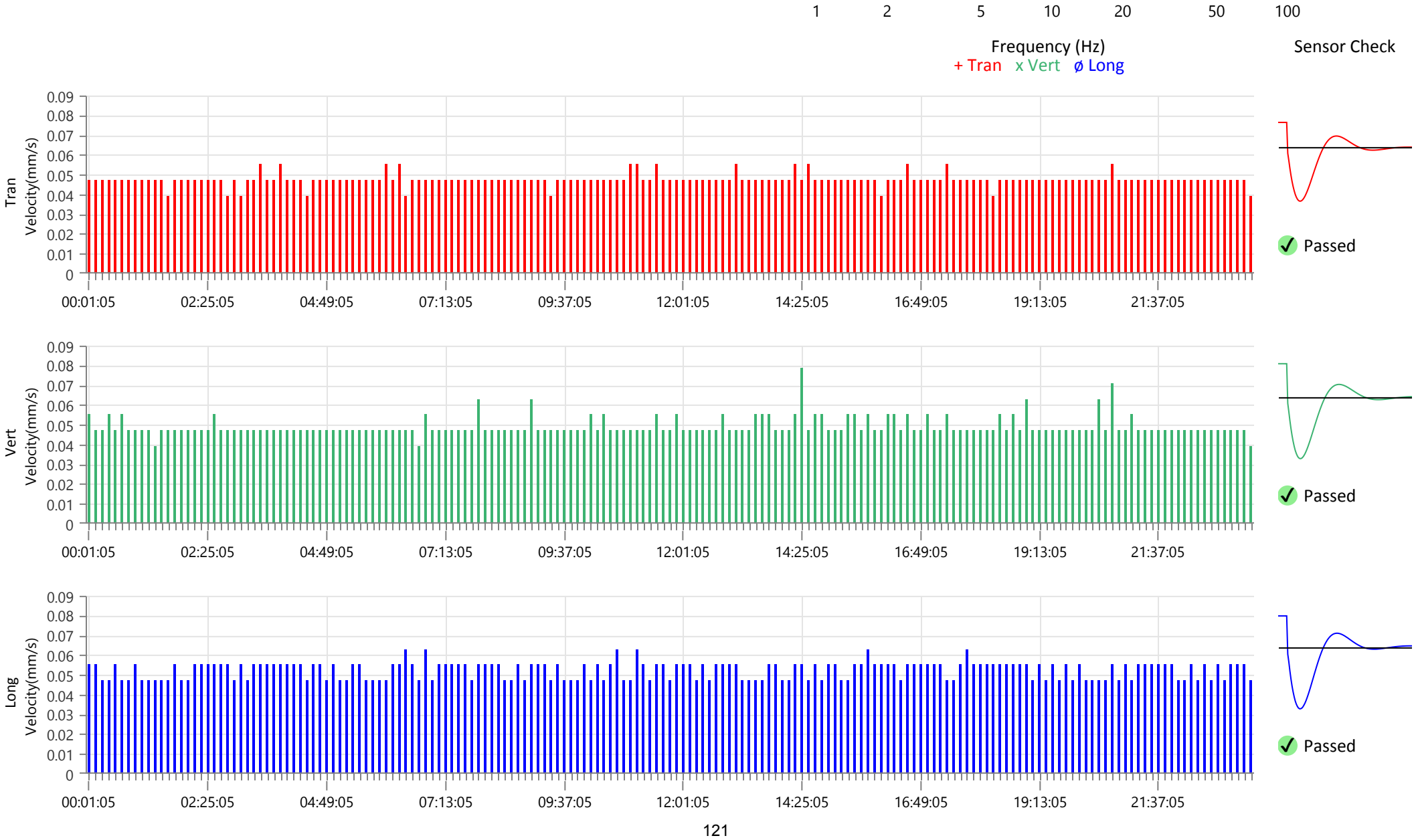
Post Event Notes No text to be displayed.

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)





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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

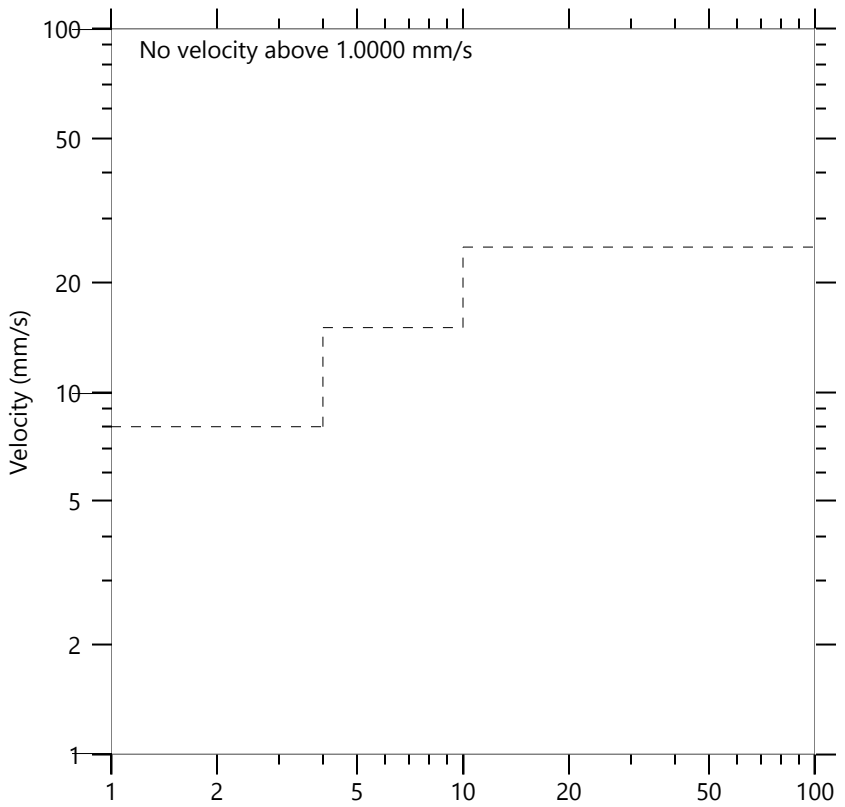
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

Post Event Notes No text to be displayed.

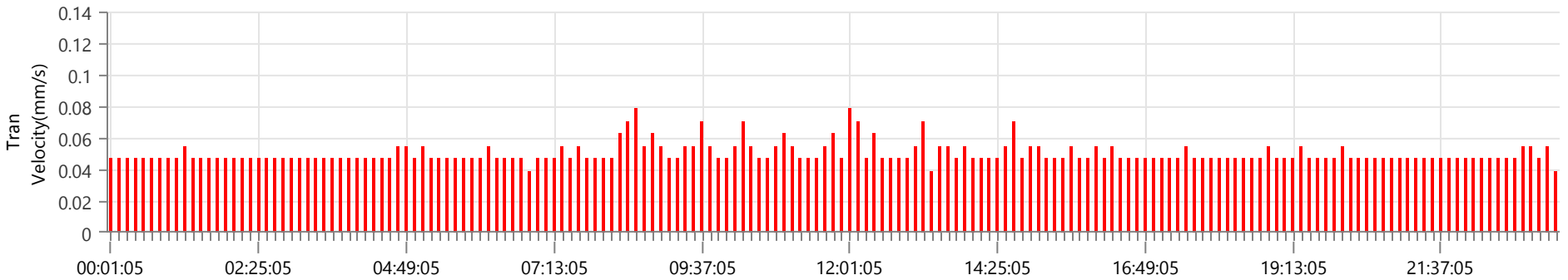
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	<0.127 mm/s	<0.127 mm/s	<0.127 mm/s
Zero Crossing Frequency	12.8 Hz	21.3 Hz	11.6 Hz
Date	Nov 25, 2024	Nov 25, 2024	Nov 25, 2024
Time	08:36:05	08:27:05	09:39:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.3 Hz	7.5 Hz
Overswing Ratio	4.5	4.5	4.1

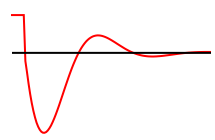
Peak Vector Sum 0.124 mm/s at November 25, 2024 12:03:05

Toronto 514-2008
Velocity versus Frequency (Zero Crossing)

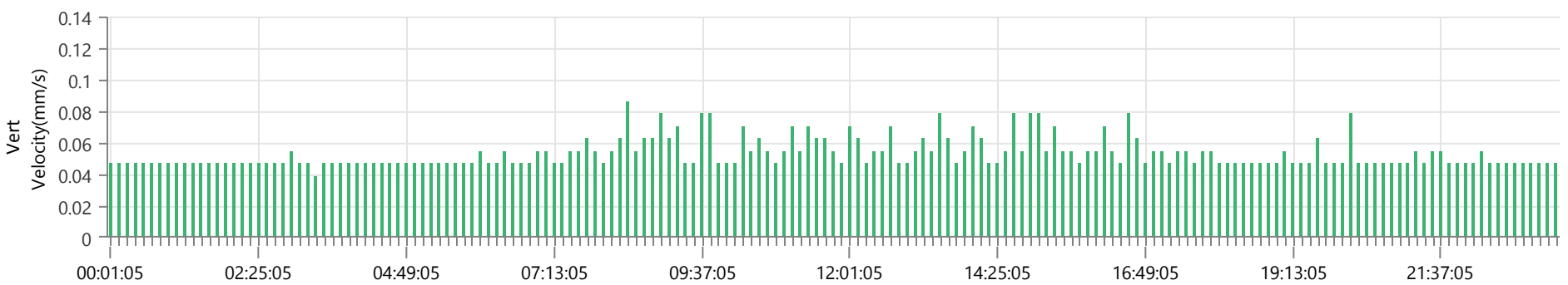


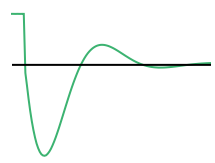
Sensor Check



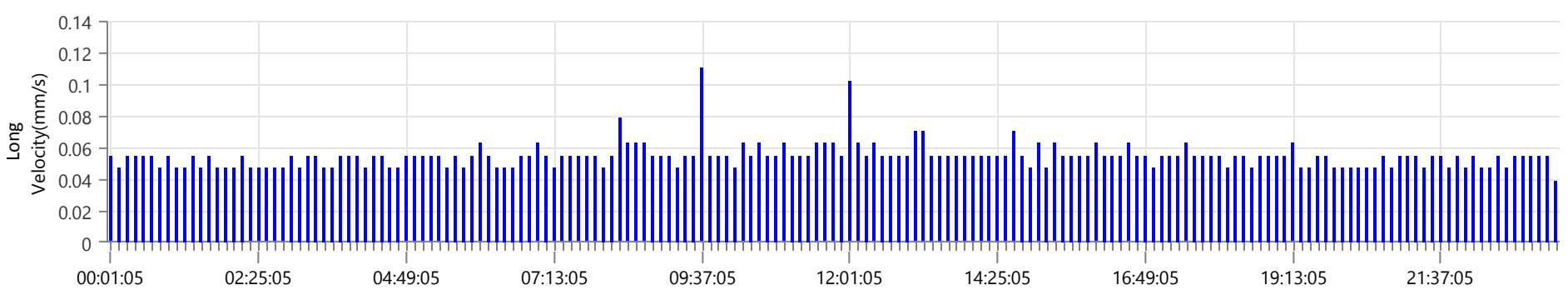


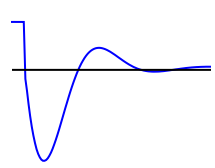
✓ Passed





✓ Passed





✓ Passed

Format © 2018 Xmark Corporation

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

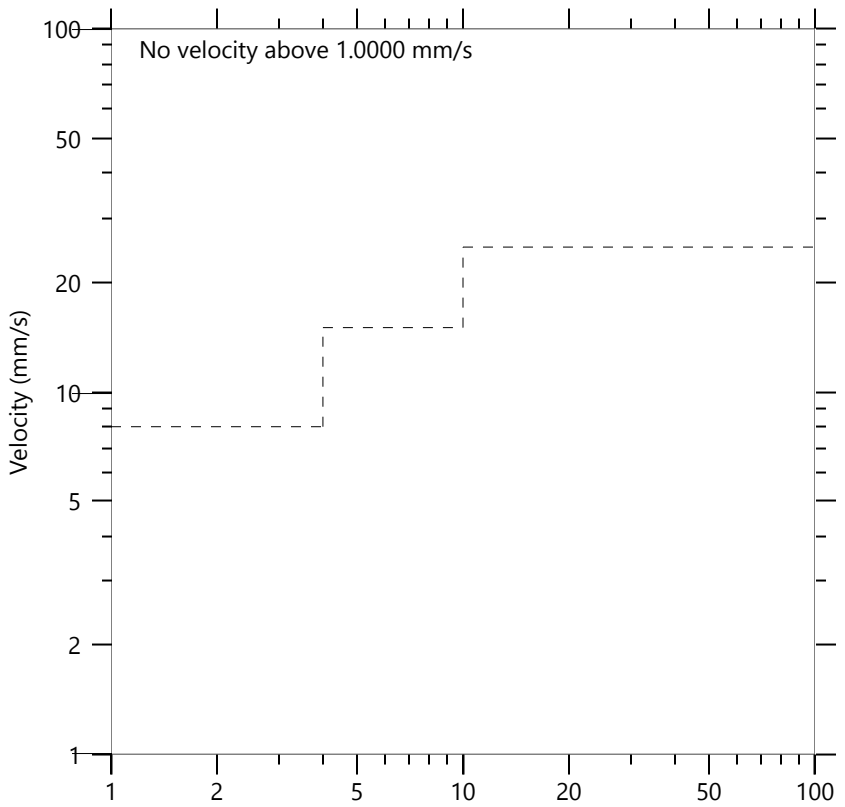
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

Post Event Notes No text to be displayed.

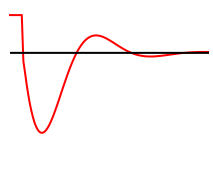
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	<0.127 mm/s	<0.127 mm/s	<0.127 mm/s
Zero Crossing Frequency	12.5 Hz	25.6 Hz	11.4 Hz
Date	Nov 26, 2024	Nov 26, 2024	Nov 26, 2024
Time	08:11:05	00:17:05	08:11:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.3 Hz	7.5 Hz
Overswing Ratio	4.5	4.5	4.1

Peak Vector Sum 0.097 mm/s at November 26, 2024 08:11:05

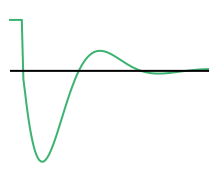
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



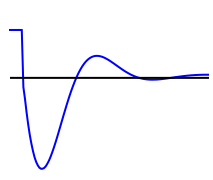
Sensor Check



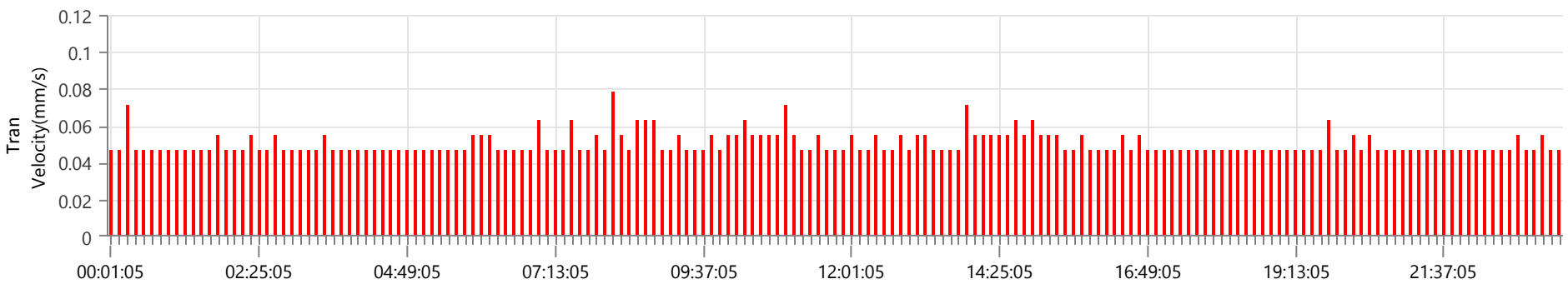
✓ Passed

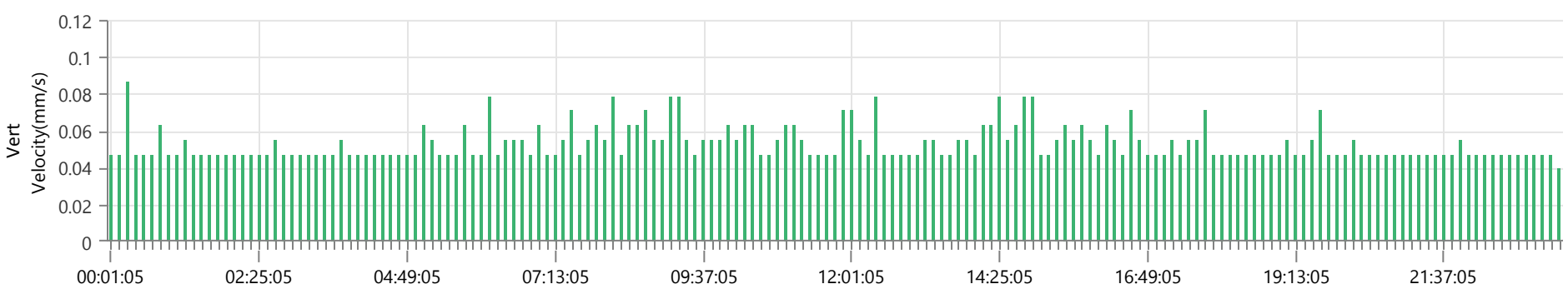


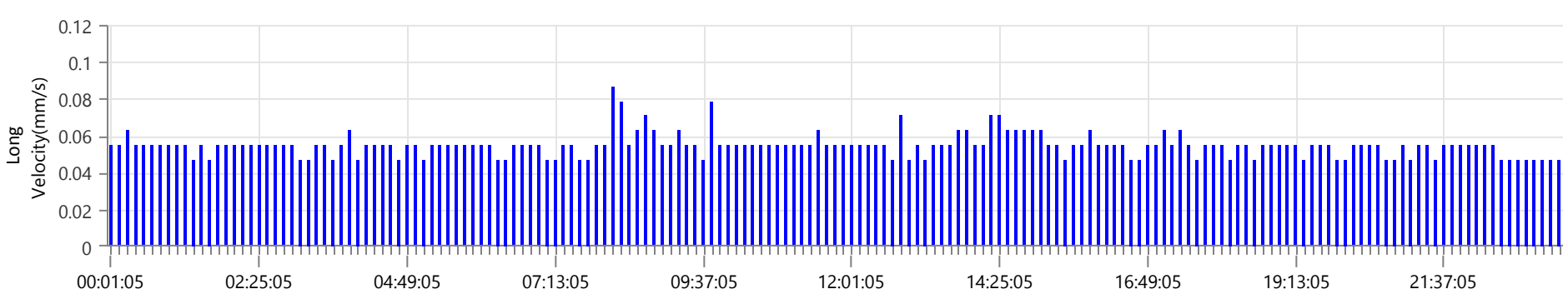
✓ Passed



✓ 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

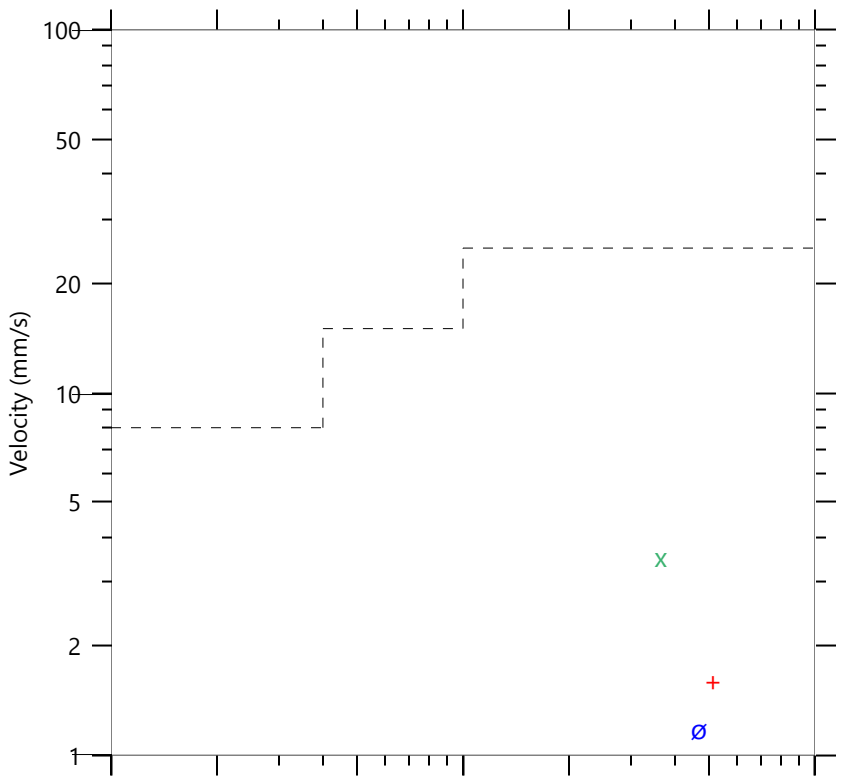
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

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

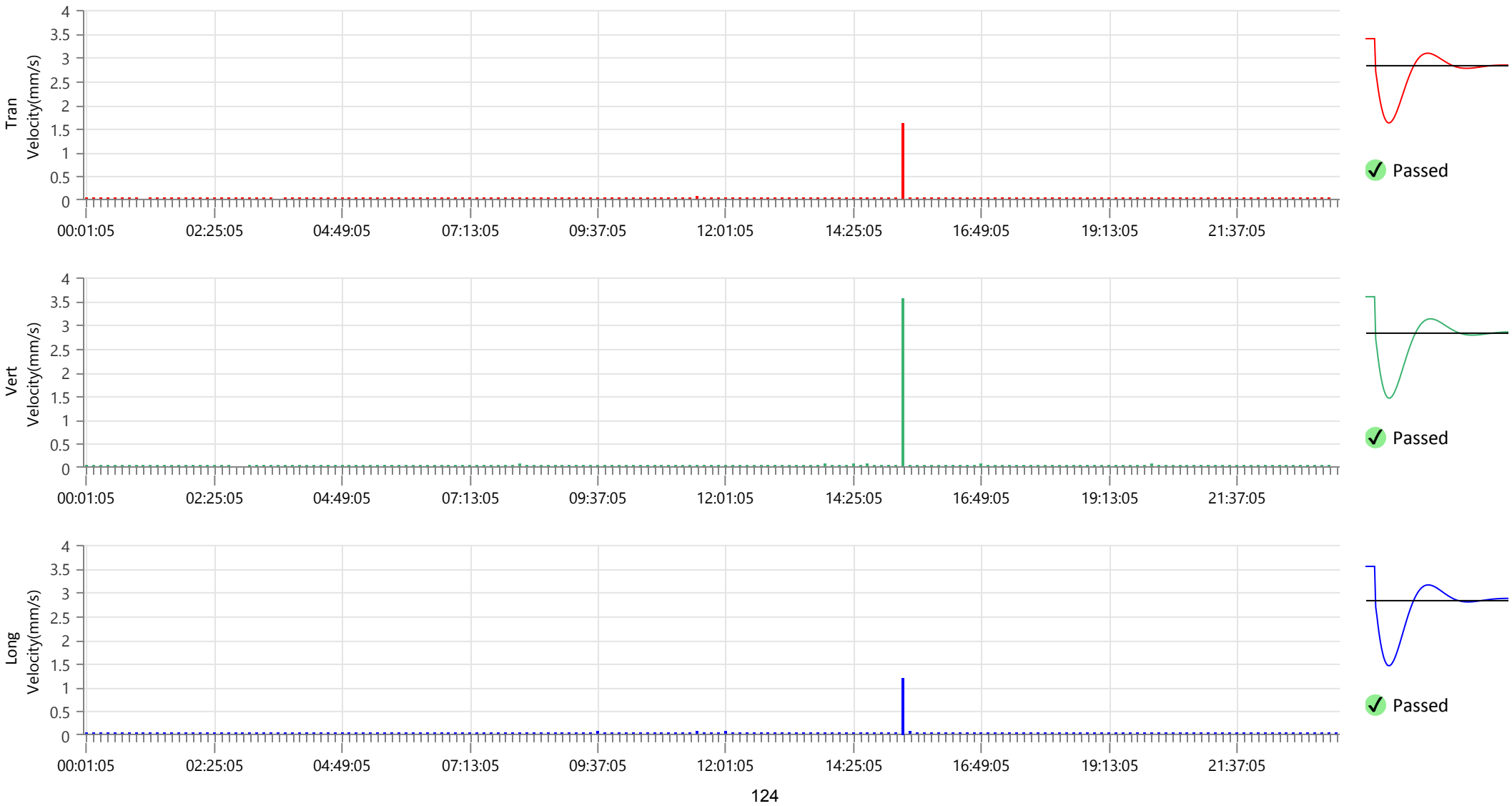
Peak Vector Sum 3.920 mm/s at November 27, 2024 15:23:05

Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



Frequency (Hz)
+ Tran x Vert ø Long

Sensor Check



✓ Passed

✓ Passed

✓ Passed

Format © 2018 Xmark Corporation

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

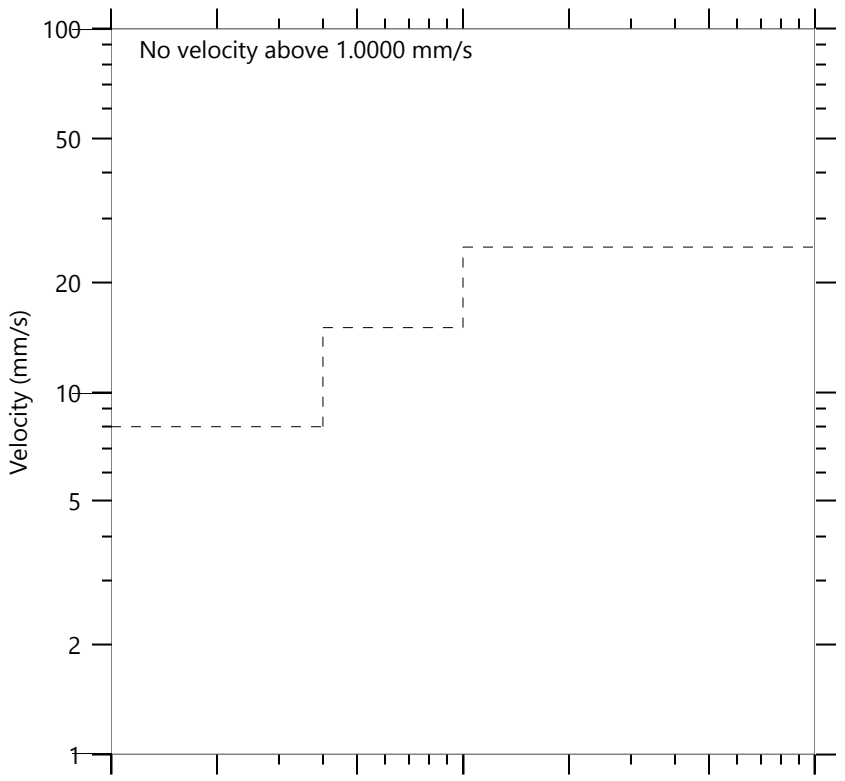
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

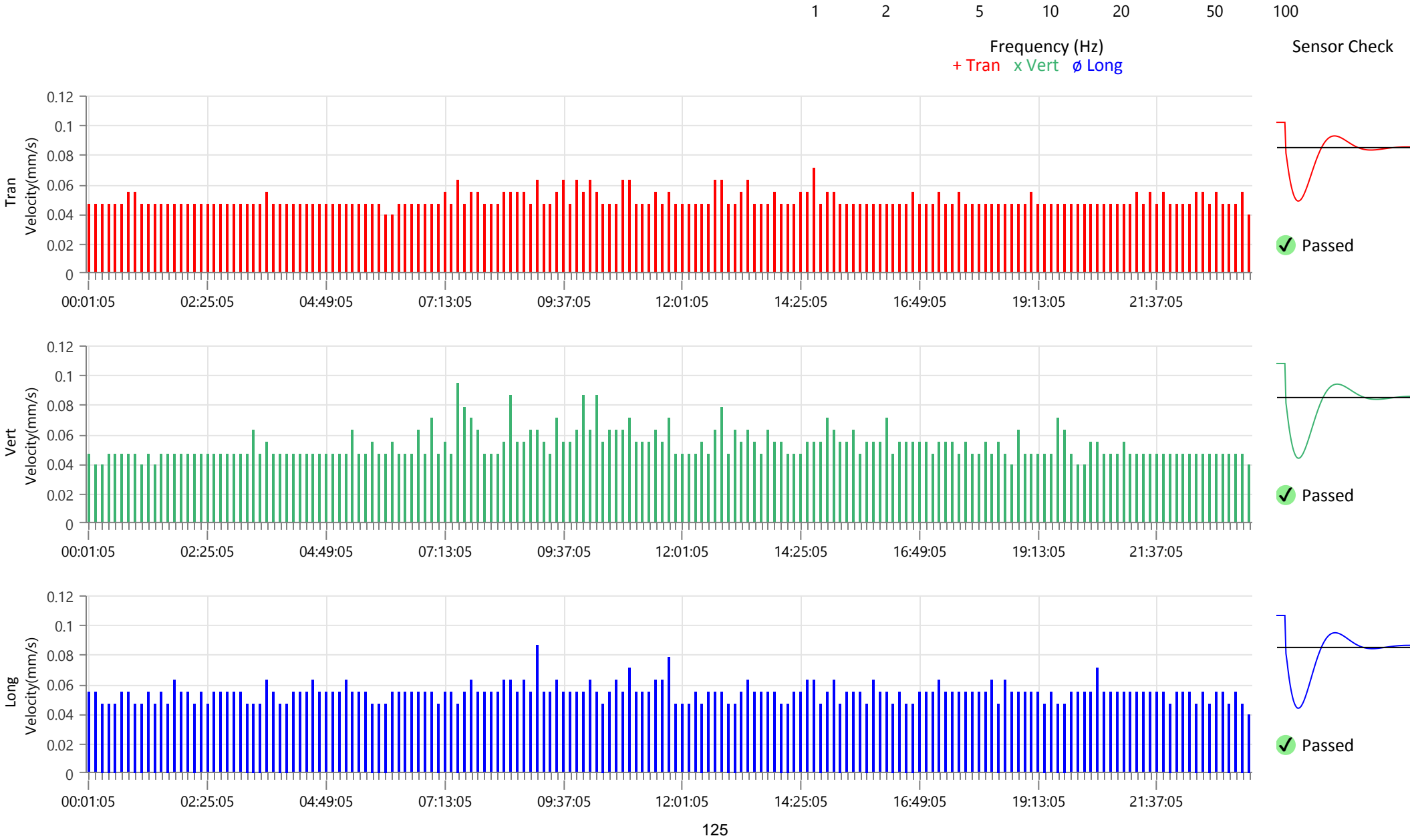
Post Event Notes No text to be displayed.

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)





Format © 2018 Xmark Corporation

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

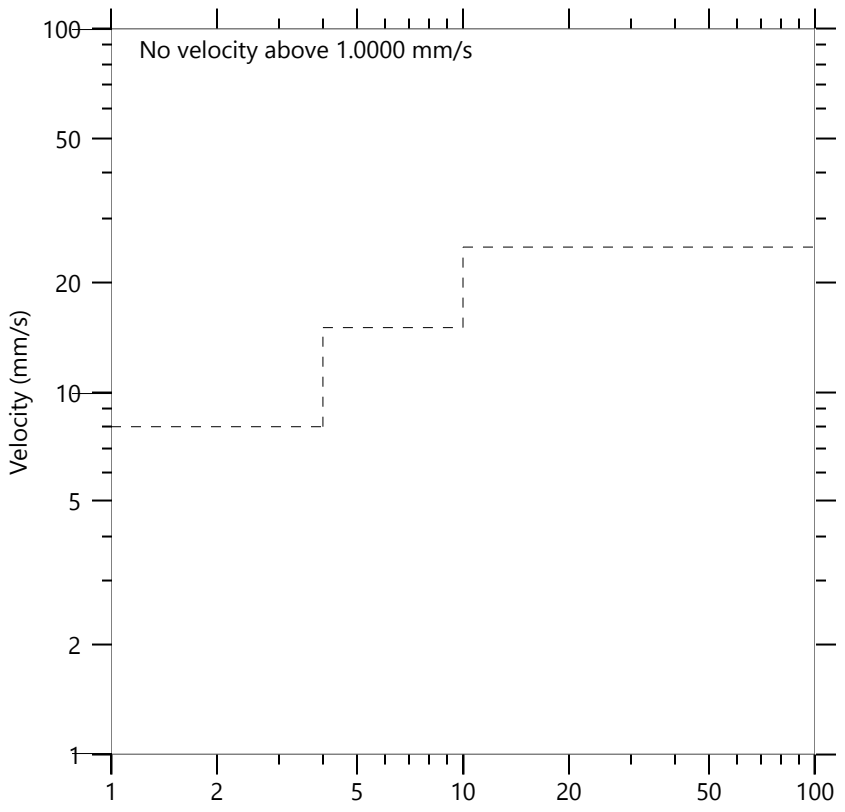
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

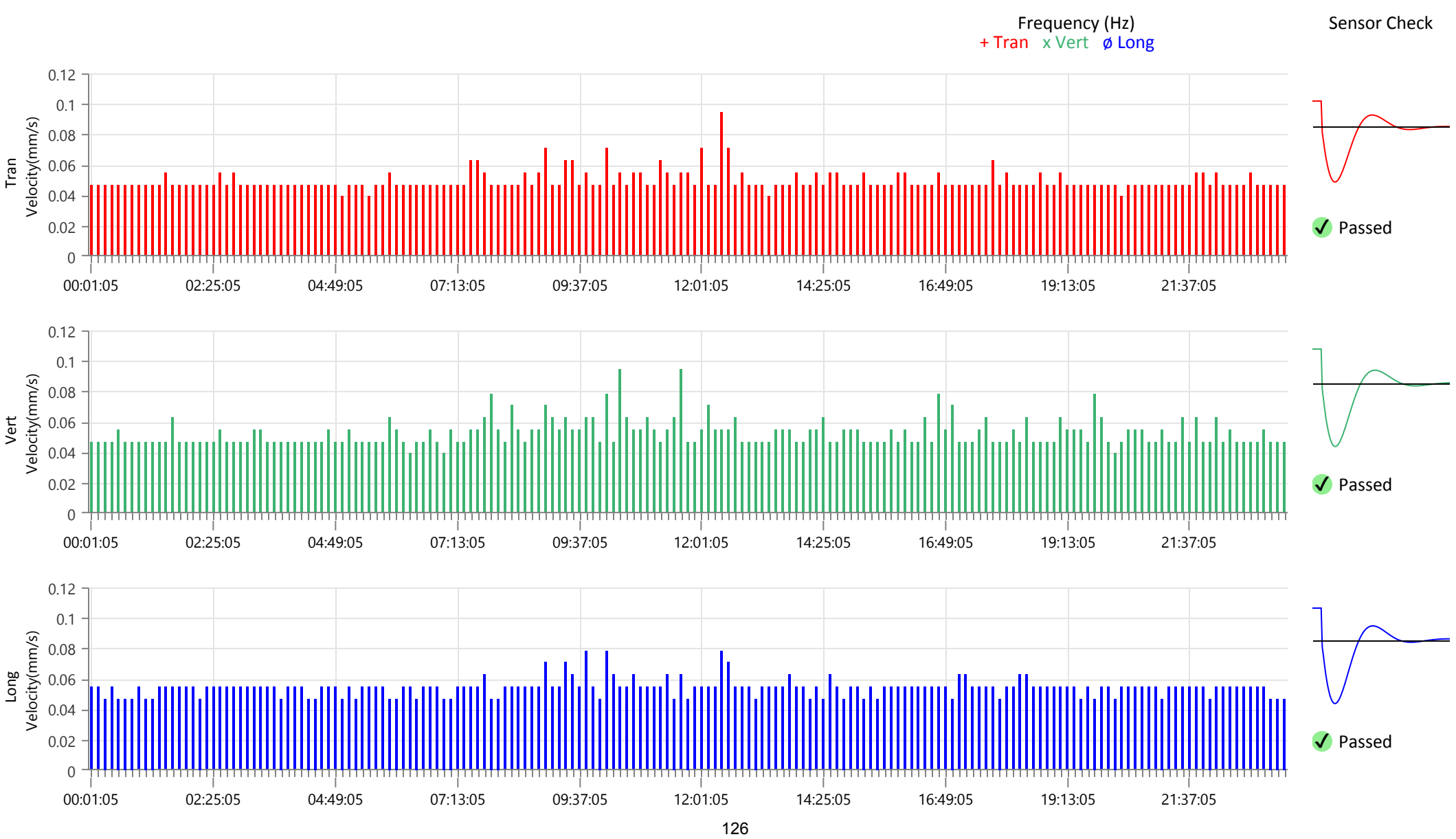
Post Event Notes No text to be displayed.

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)





Format © 2018 Xmark Corporation

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

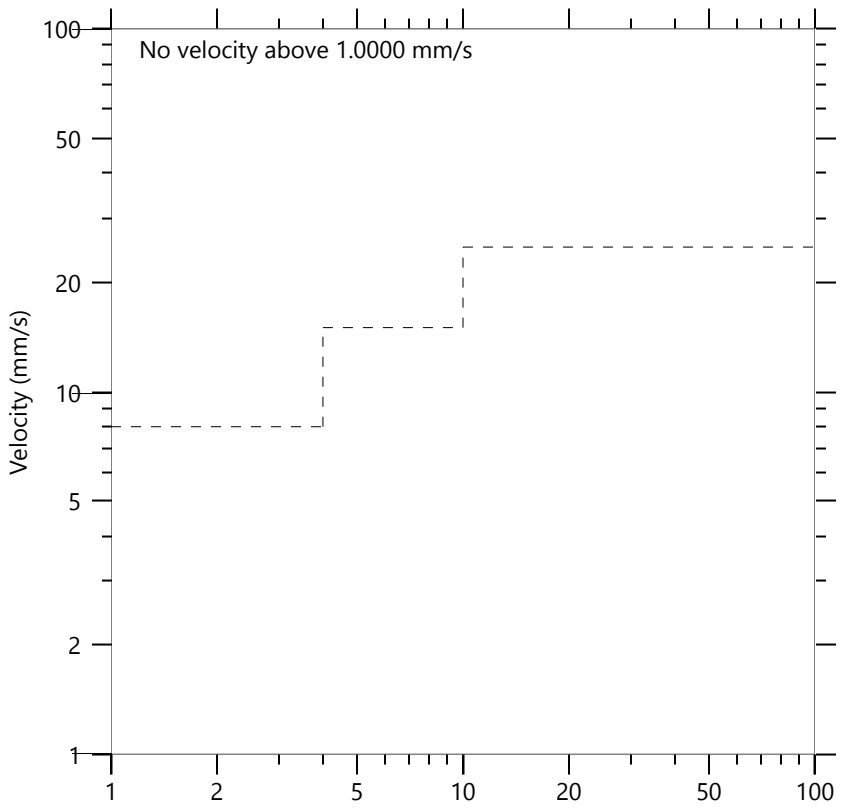
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

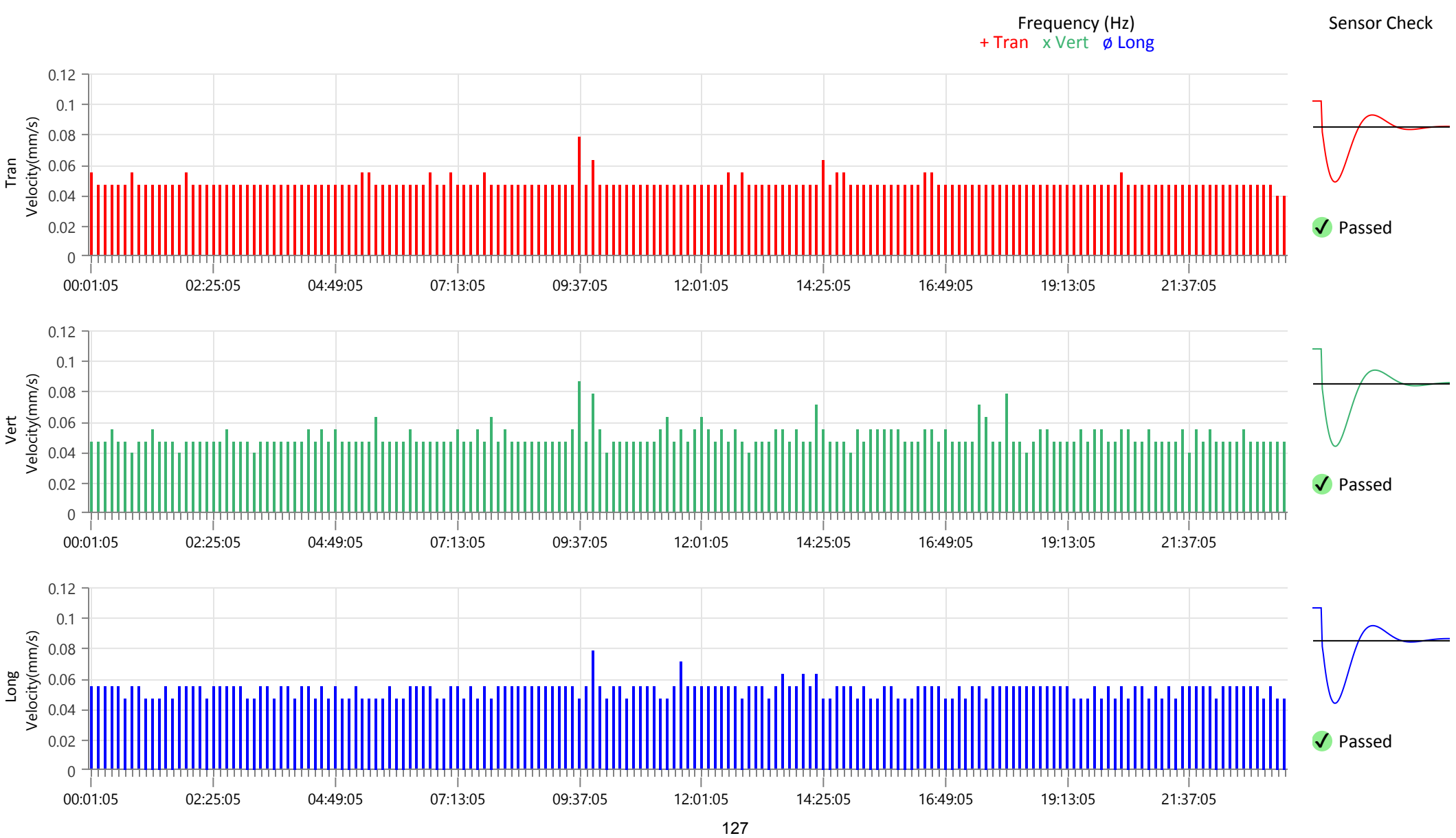
Post Event Notes No text to be displayed.

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)





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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

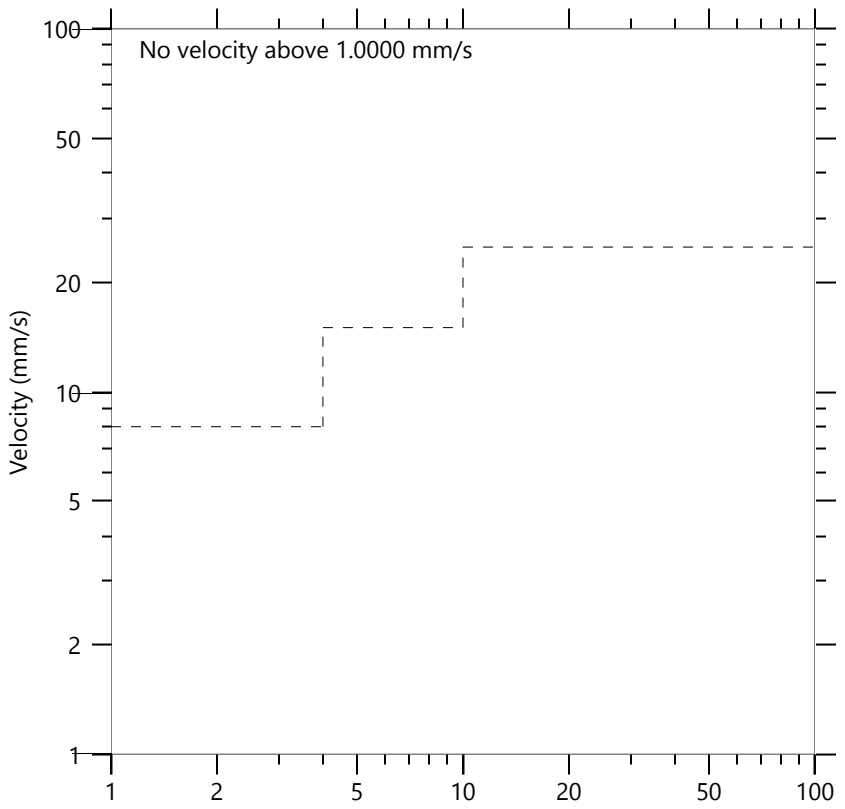
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

Post Event Notes No text to be displayed.

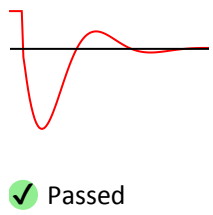
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	<0.127 mm/s	<0.127 mm/s	<0.127 mm/s
Zero Crossing Frequency	>100 Hz	21.3 Hz	>100 Hz
Date	Dec 1, 2024	Dec 1, 2024	Dec 1, 2024
Time	02:44:05	20:46:05	04:58:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.3 Hz	7.5 Hz
Overswing Ratio	4.5	4.5	4.1

Peak Vector Sum 0.082 mm/s at December 1, 2024 20:46:05

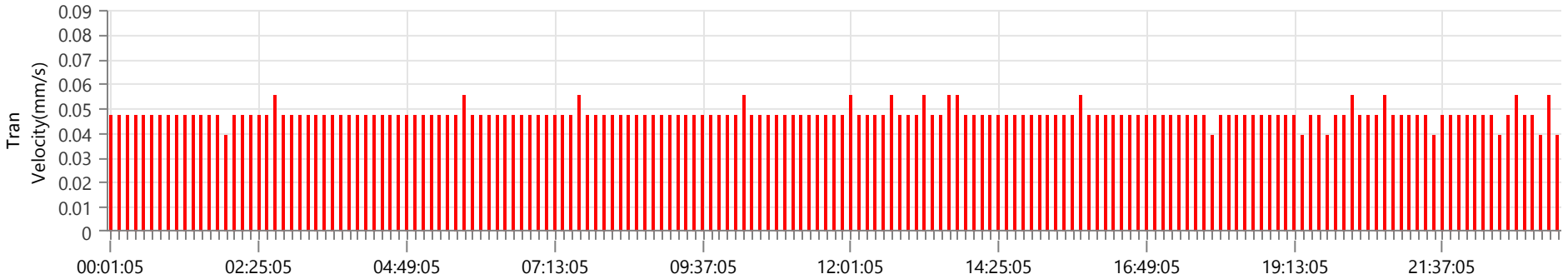
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)

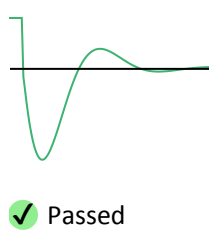


Sensor Check

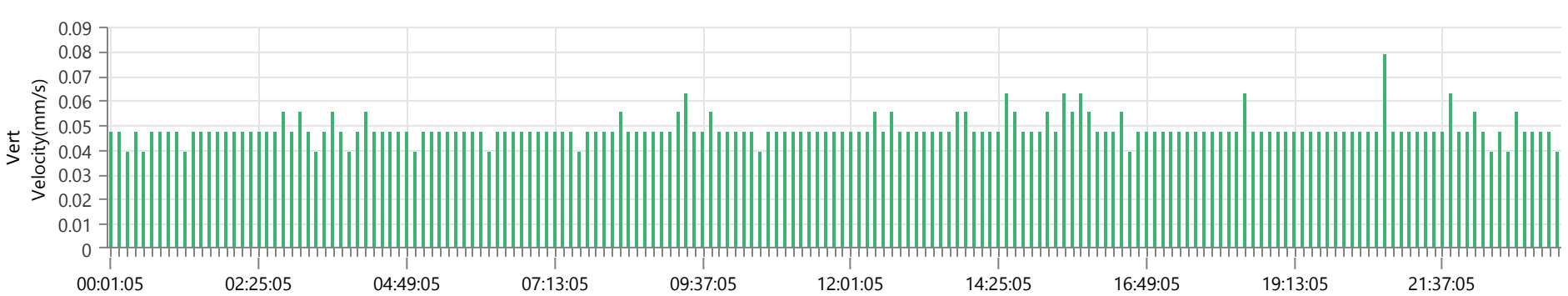


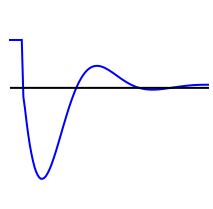
✓ Passed



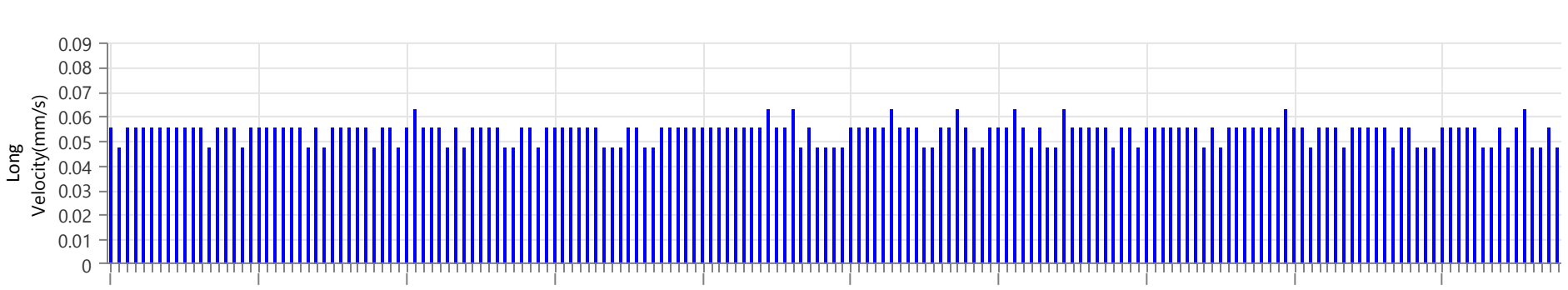


✓ Passed





✓ Passed



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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

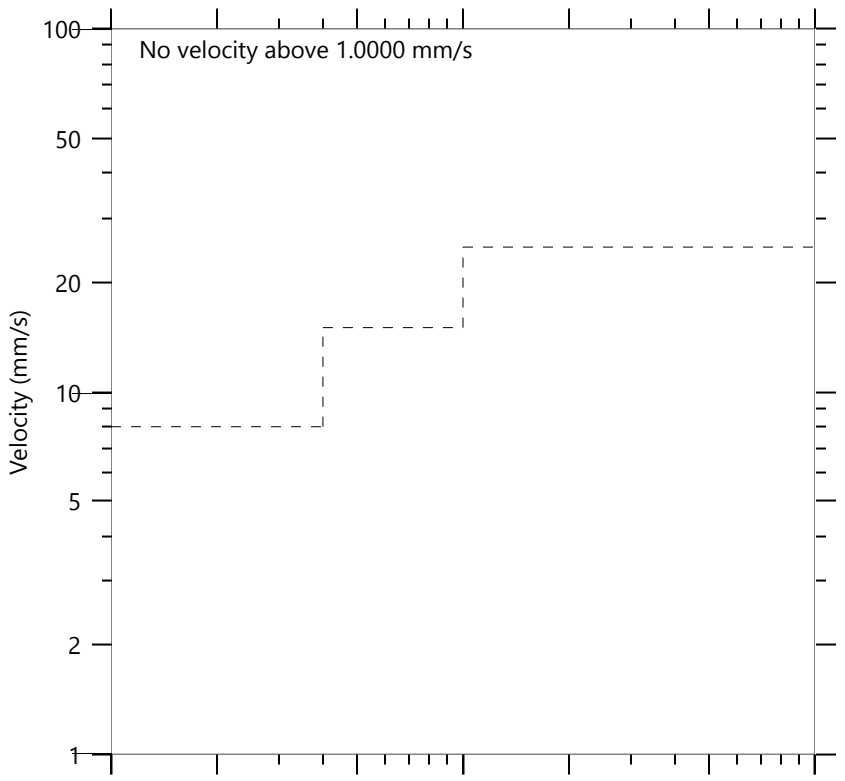
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

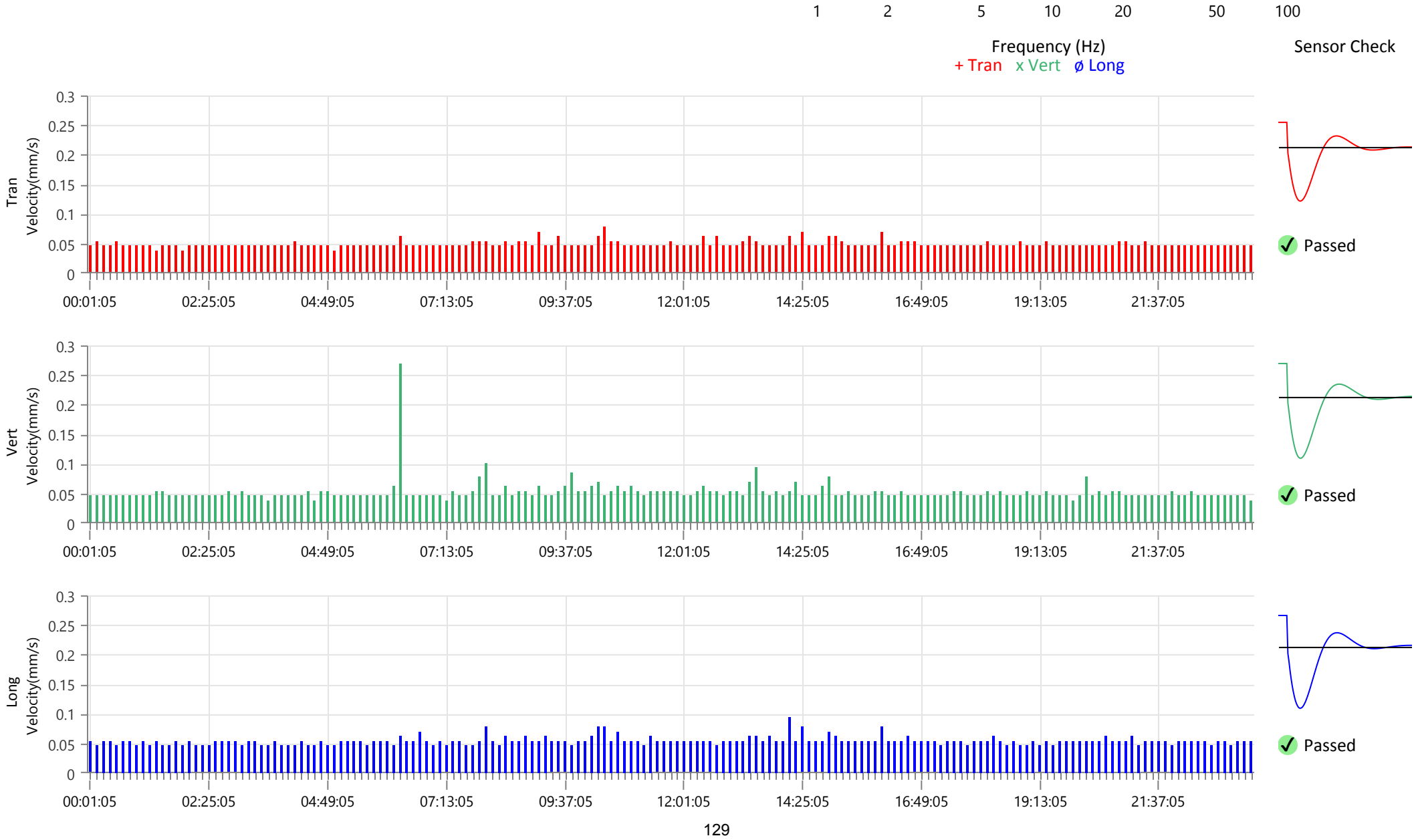
Post Event Notes No text to be displayed.

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)





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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

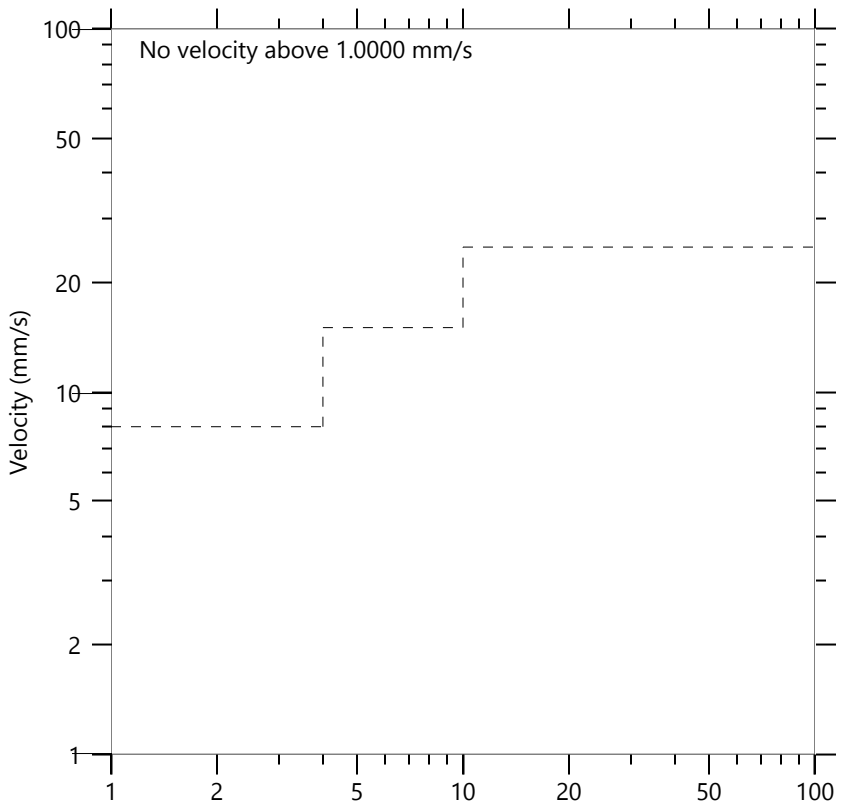
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

Post Event Notes No text to be displayed.

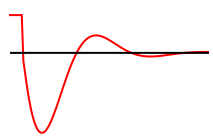
Geophone	**Tran**	**Vert**	**Long**
Peak Particle Velocity	0.142 mm/s	<0.127 mm/s	0.150 mm/s
Zero Crossing Frequency	12.8 Hz	22.3 Hz	12.5 Hz
Date	Dec 3, 2024	Dec 3, 2024	Dec 3, 2024
Time	12:49:05	14:11:05	12:49:05
Sensor Check	✓ Passed	✓ Passed	✓ Passed
Frequency	7.5 Hz	7.3 Hz	7.5 Hz
Overswing Ratio	4.5	4.5	4.1

Peak Vector Sum 0.191 mm/s at December 3, 2024 12:49:05

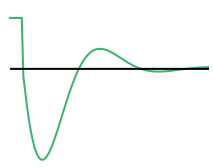
Toronto 514-2008
Velocity versus Frequency (Zero Crossing)



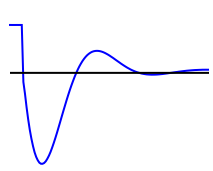
Sensor Check



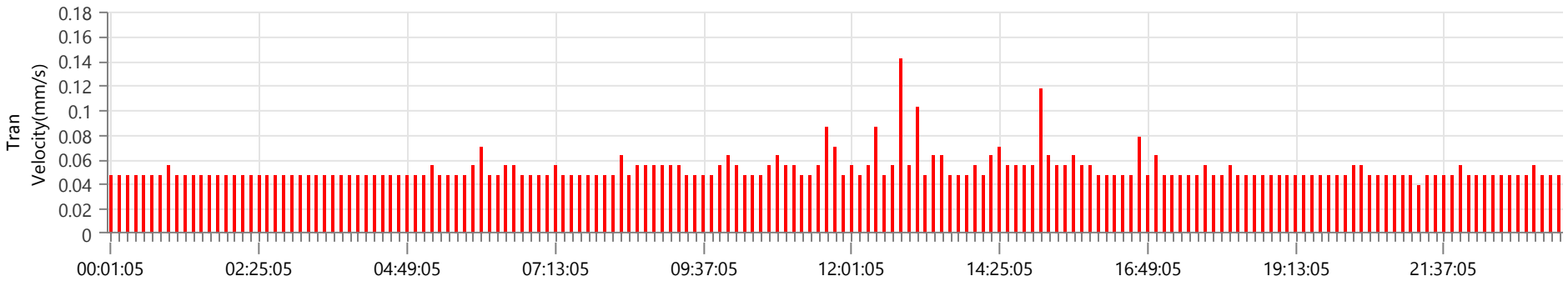
✓ Passed

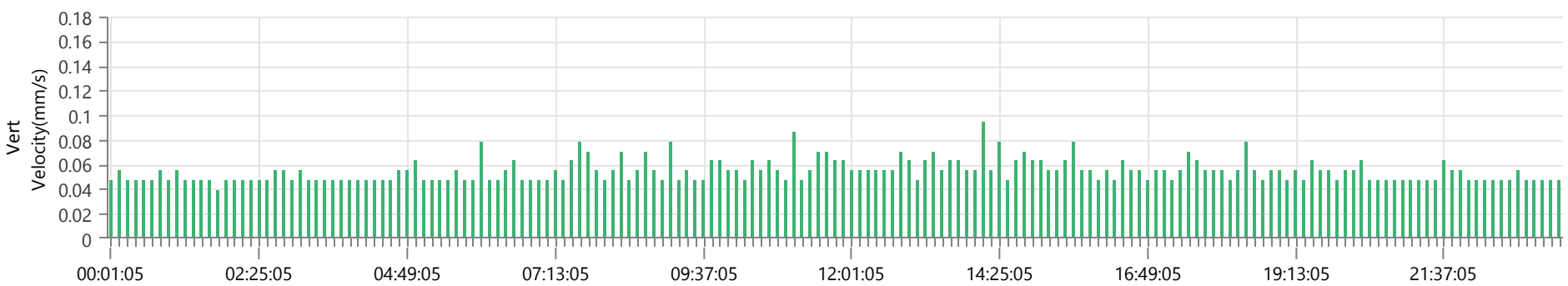


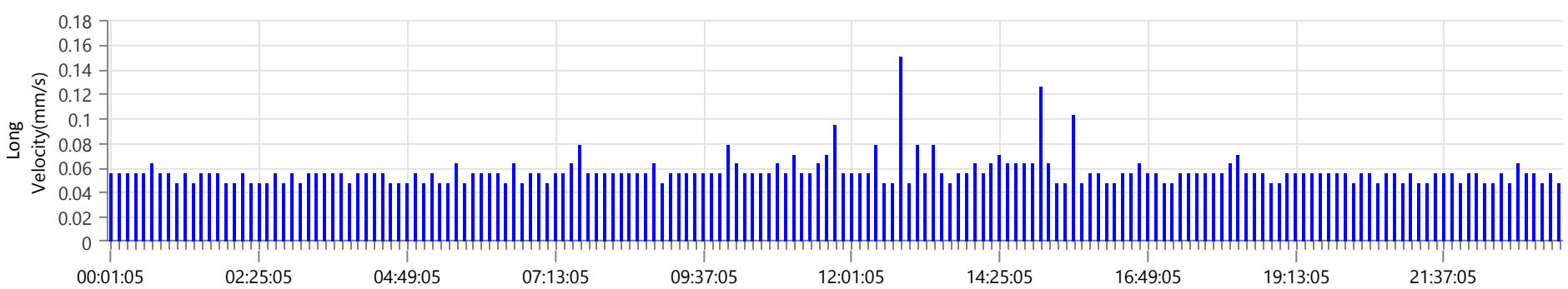
✓ Passed



✓ 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

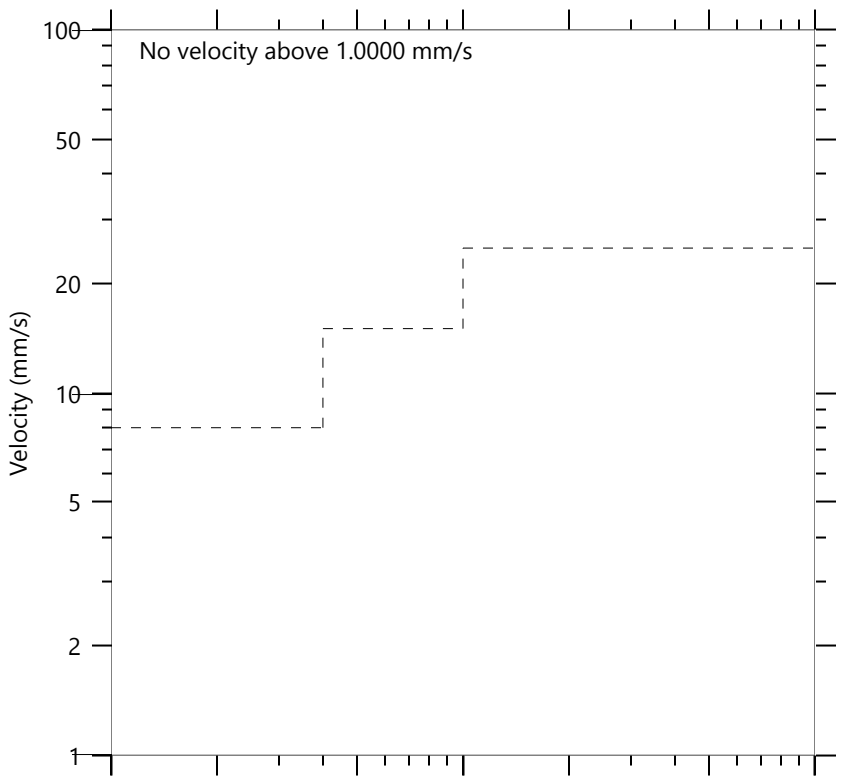
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

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

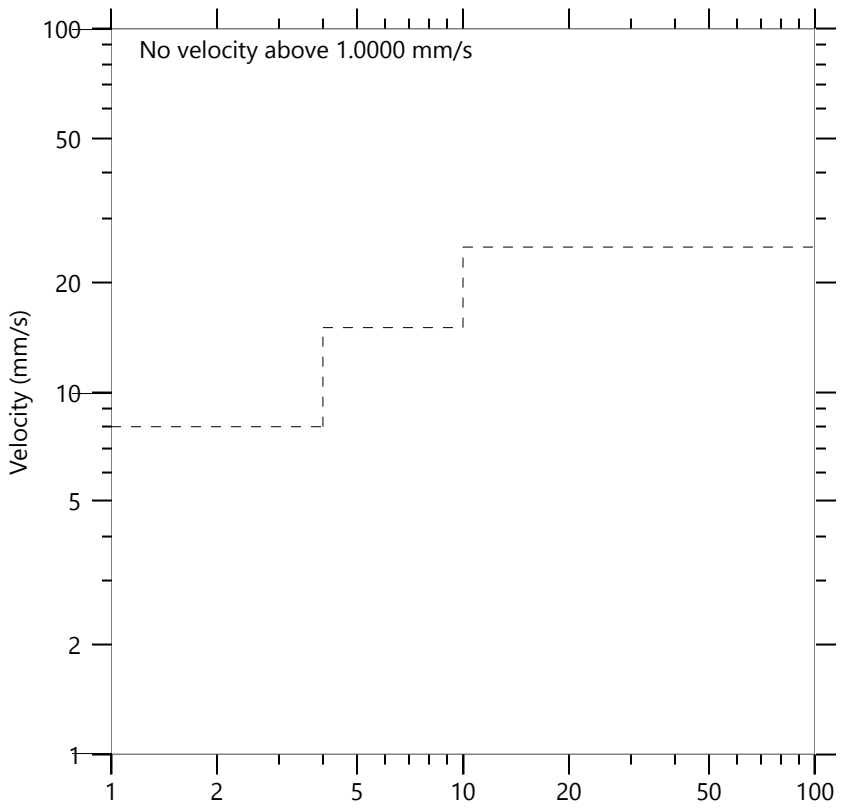
Extended Notes UNIT INSTALLED AT WEST FOUNDATION PARKING GARAGE. SENSOR INSTALLED 6" FROM FOUNDATION. SENSOR 9.2M FROM NORTH WALL. INSTALLED ON CONCRETE FLOOR WITH SANDBAG. UNIT AT CNTR POINT OF GARAGE.

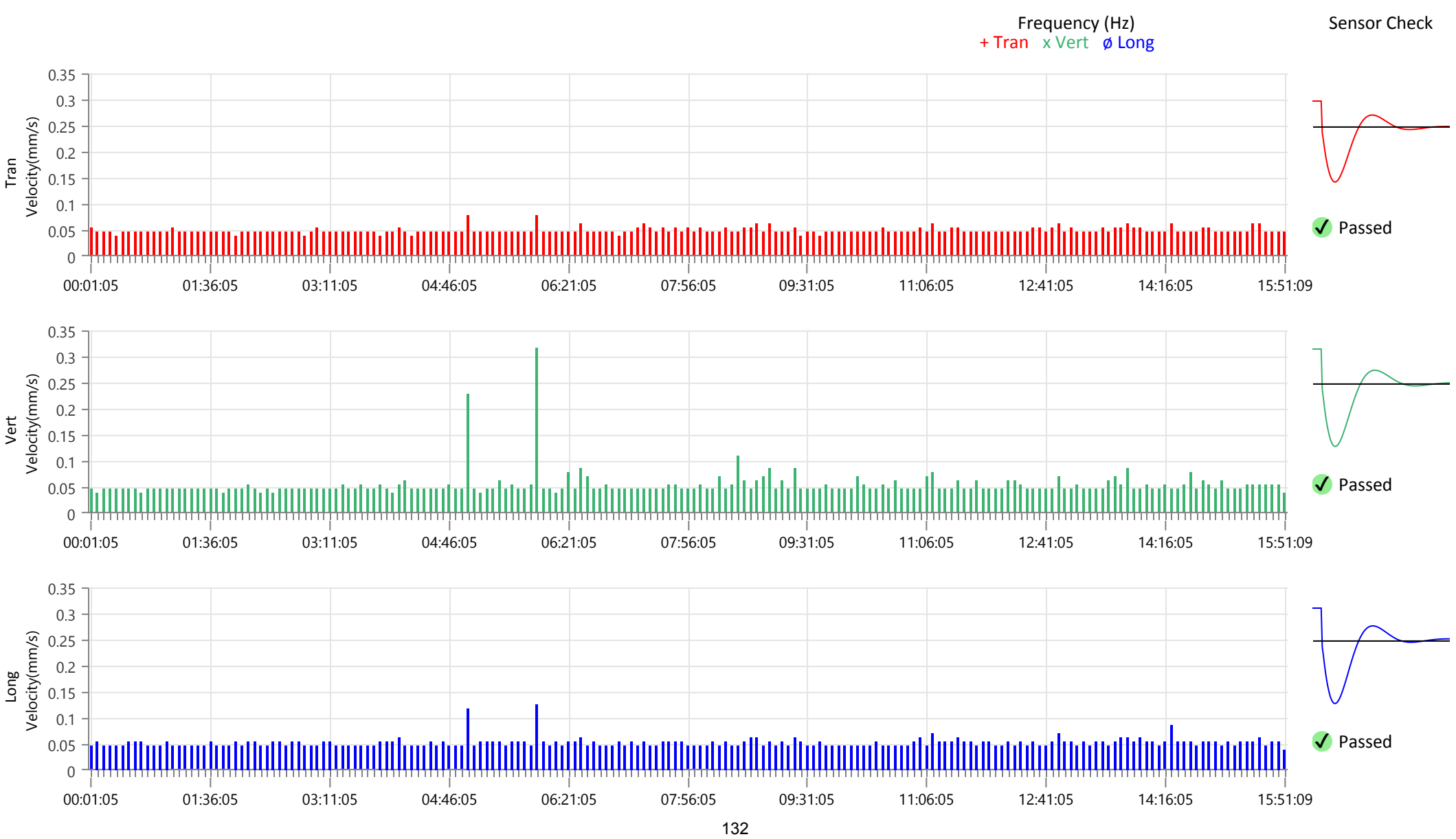
Post Event Notes No text to be displayed.

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)





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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

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
11/23/24	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%	

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

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

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
11/22/24	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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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, 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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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, 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	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

Ontario Traffic, Inc.
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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, 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	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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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	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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.
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
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%	

Ontario Traffic, Inc.
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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	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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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

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	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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3 Angeline St S south of Kent St W

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
11/23/24	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
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	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
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
11/22/24	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%	

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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
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%	

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	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
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	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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%	

Ontario Traffic, Inc.
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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
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%	

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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
11/22/24	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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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	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	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	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	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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CAGI Project No. CAGI-2018-LM21

Report in PDF format distribution:

Ainley Graham & Associates Ltd.
City of Kawartha Lakes
Ministry of Tourism, Culture and Sport

The Central ARCHAEOLOGY Group Inc.

Bringing the past to the present for the future

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Report Preparation

Laura McRae

Report Reviewer

Derek Paauw

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* 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 5th 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 -caused water to dam into Lake Scarborough -created the Scarborough Bluffs

St. Pierre	Interstadial	67,000	-St. Lawrence is free of ice -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 -palynological studies indicate boreal tree taxa -meltwaters drain through present-day New York
Cherrytree	Stadial	35,000 - 28,000	-ice sheet covers most of Southern Ontario -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 -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 -split exposes a dome of higher land called Ontario Island -Proglacial Lakes Arkona I, II and III form at southern ice margins
Port Huron	Stadial	12,900	-short-lived advance -Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form
North Bary	Interstadial	11,840 - 8,100	-warmer climate -ice retreats across Canadian Shield -drainage flows east -formation of Glacial Lake Grassmere

Driftwood	Stadial	8,200 - 8,100	-deposition of clay tills in the Lake Barlow-Ojibway region -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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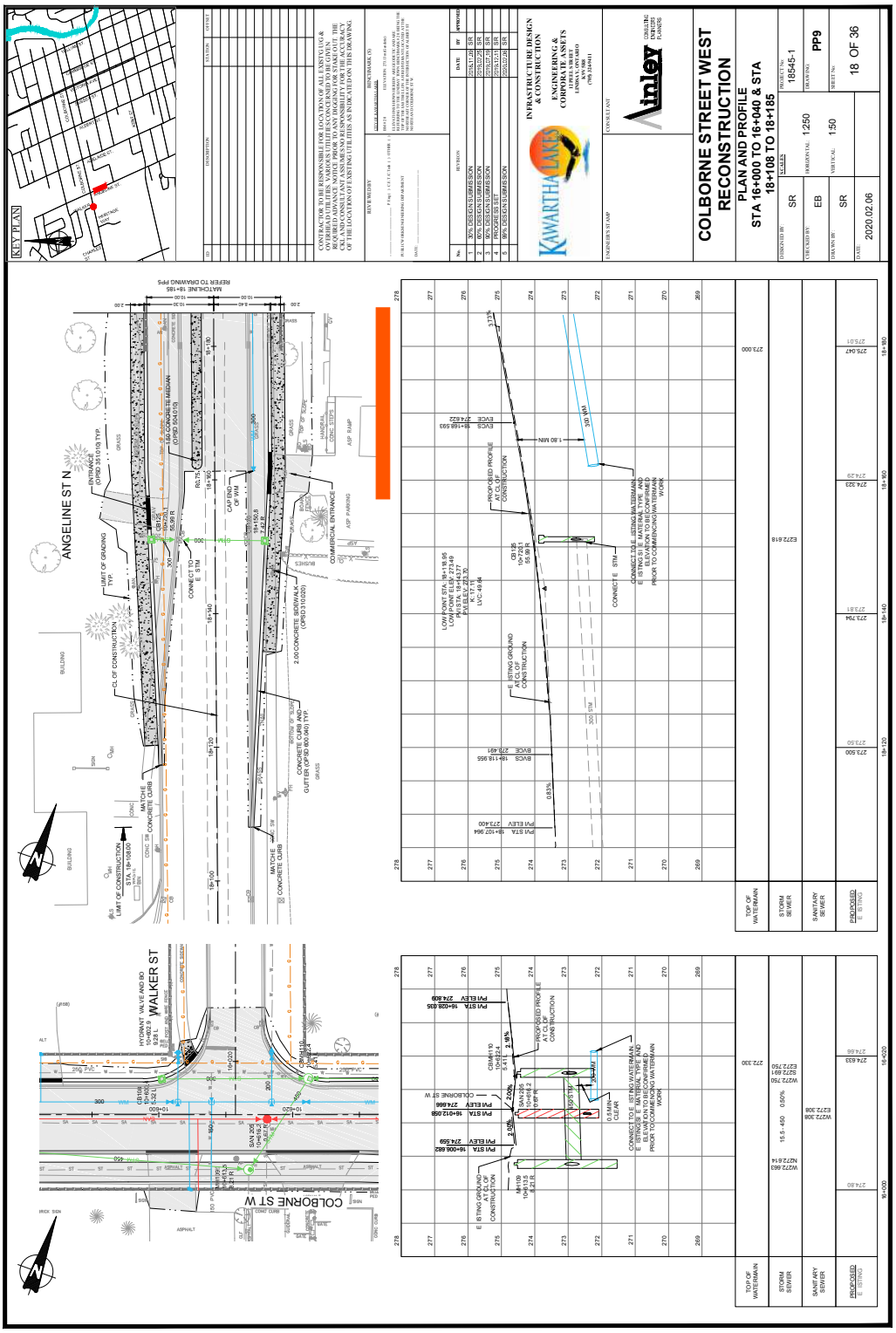
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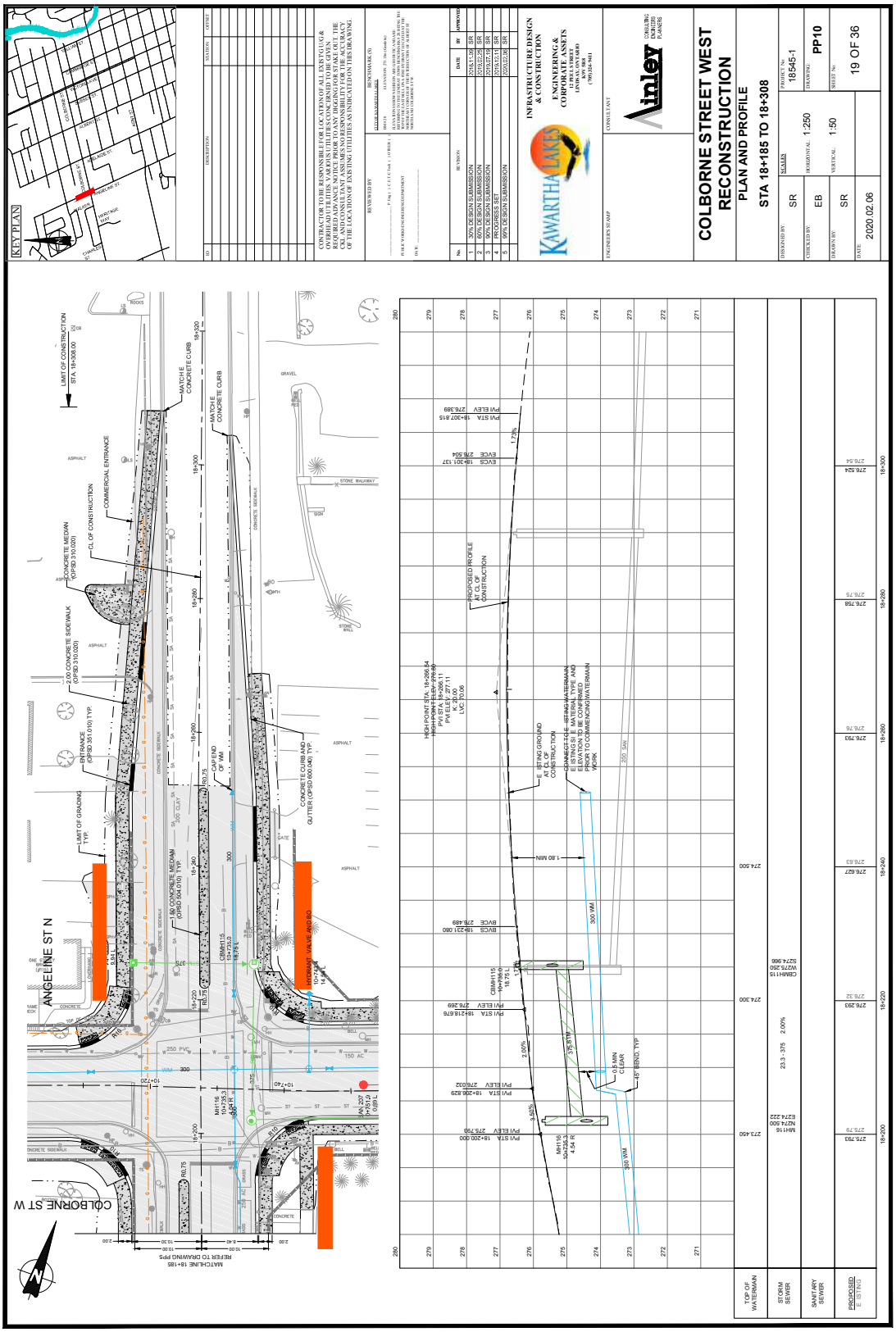
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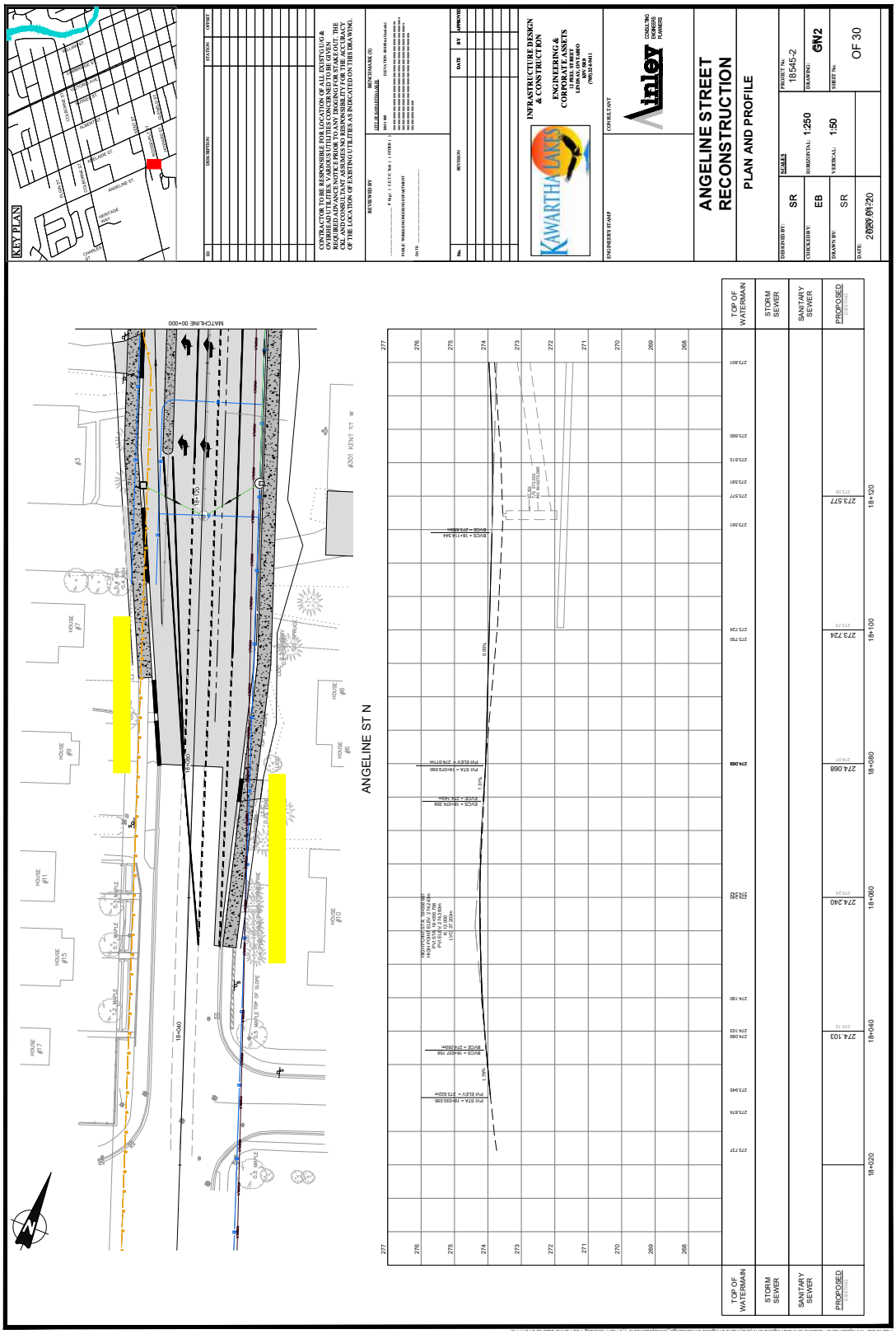
7.0 PLANS



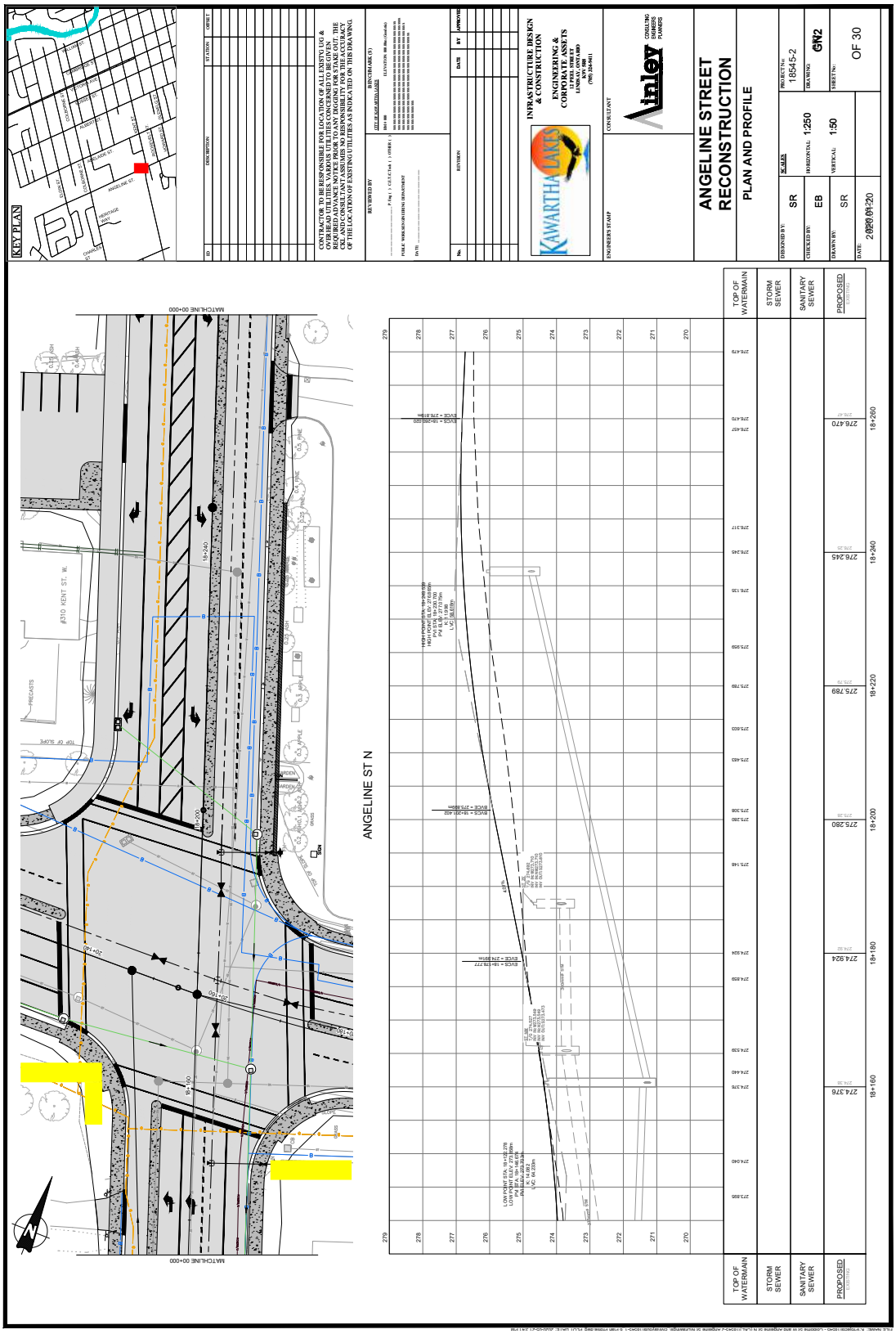
Plan 1. Angeline Street, from STA 16+000 to 16+040 and STA 18+108 to 18+185.



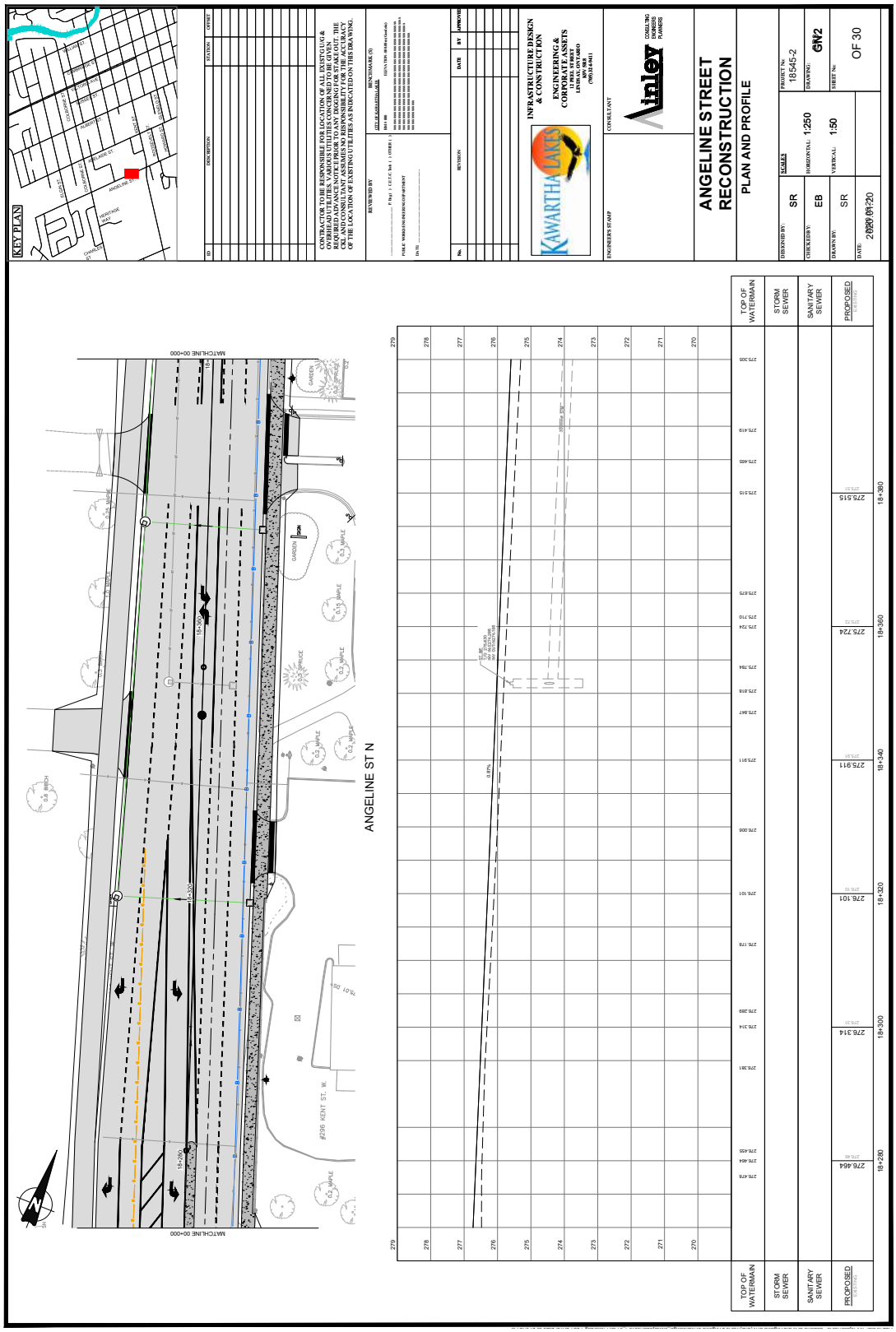
Plan 2. Angeline Street, from STA 18+185 to 18+308.



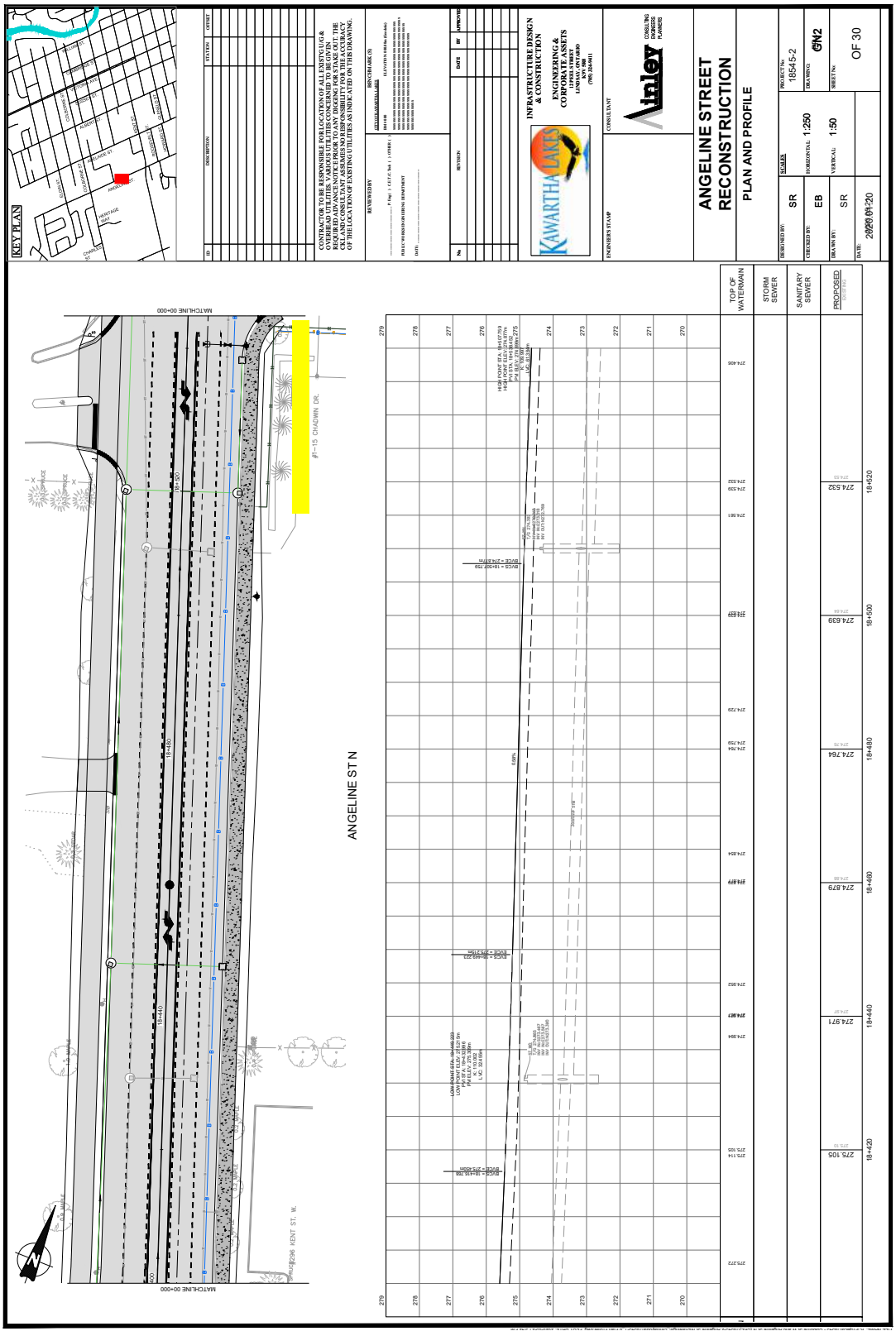
Plan 3. Angeline Street North.



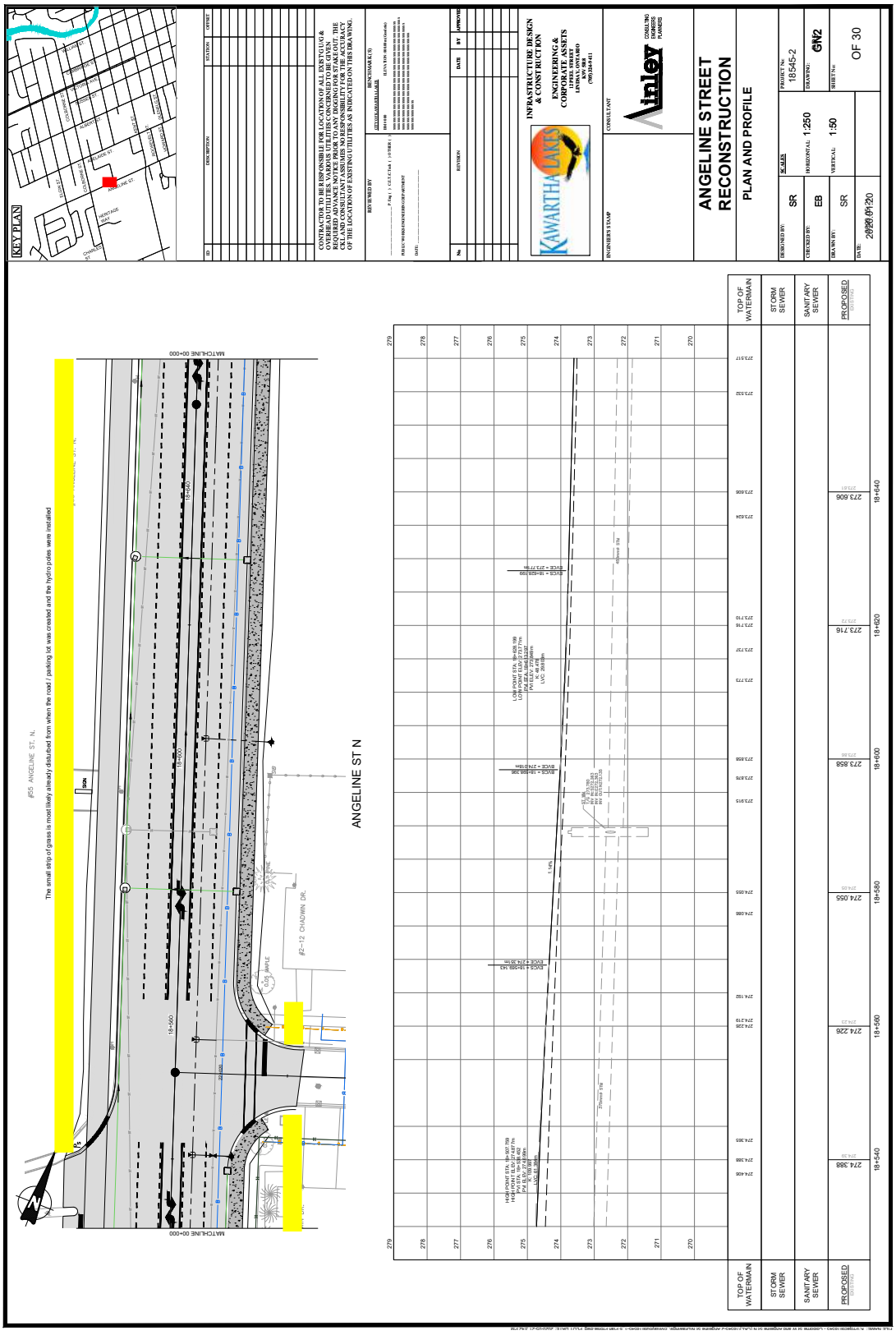
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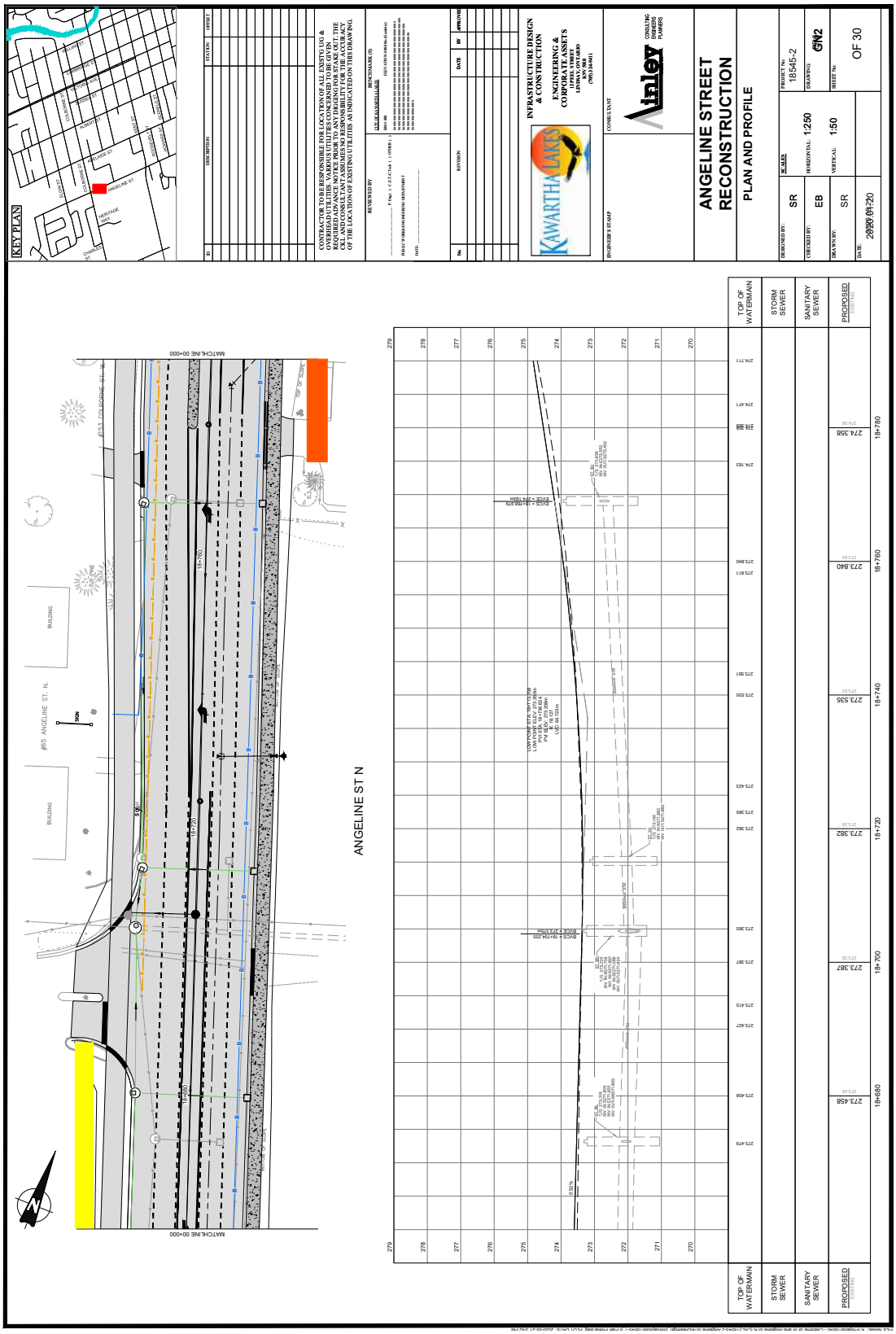
Plan 5. Angeline Street North.



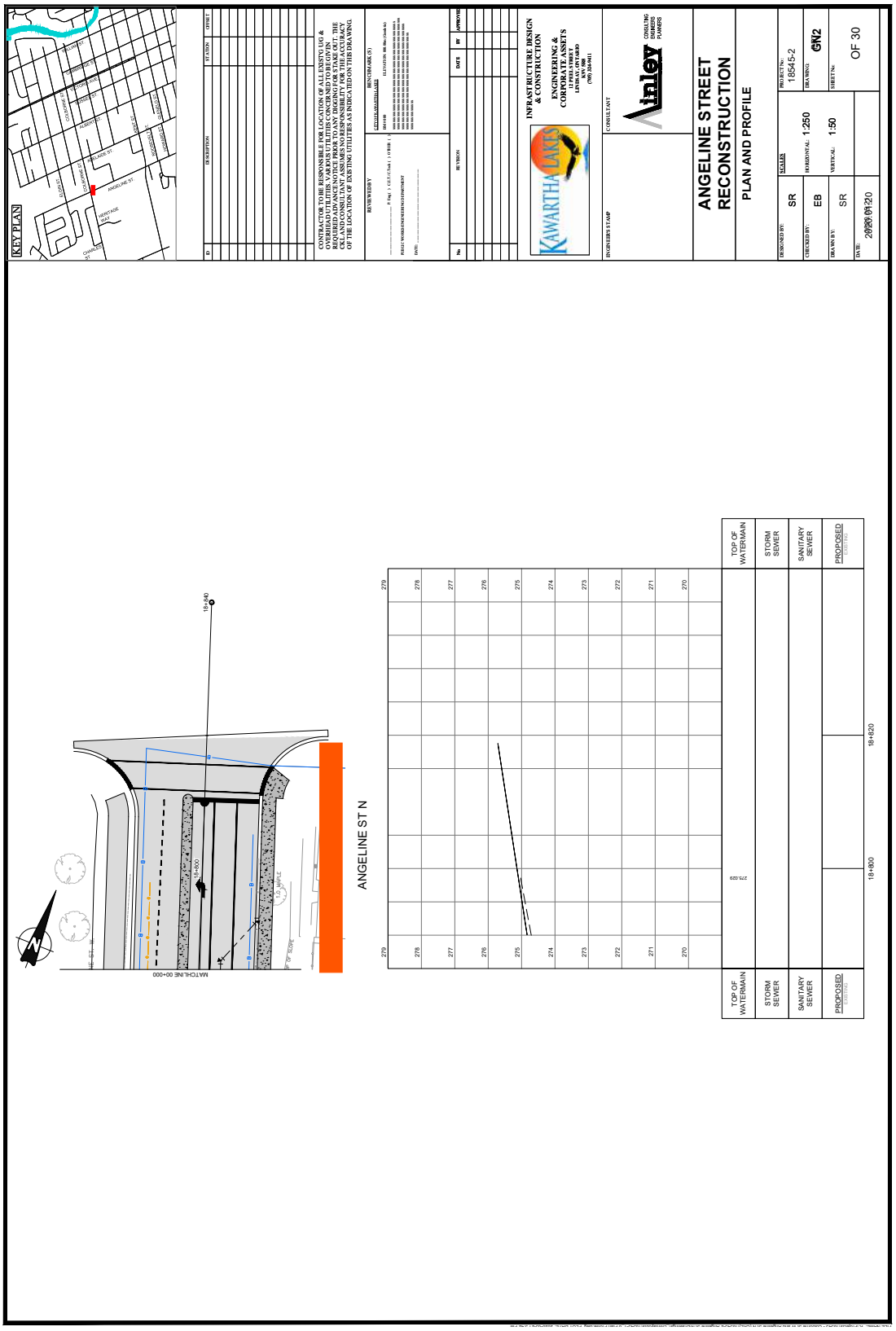
Plan 6. Angeline Street North.



Plan 7. Angeline Street North.

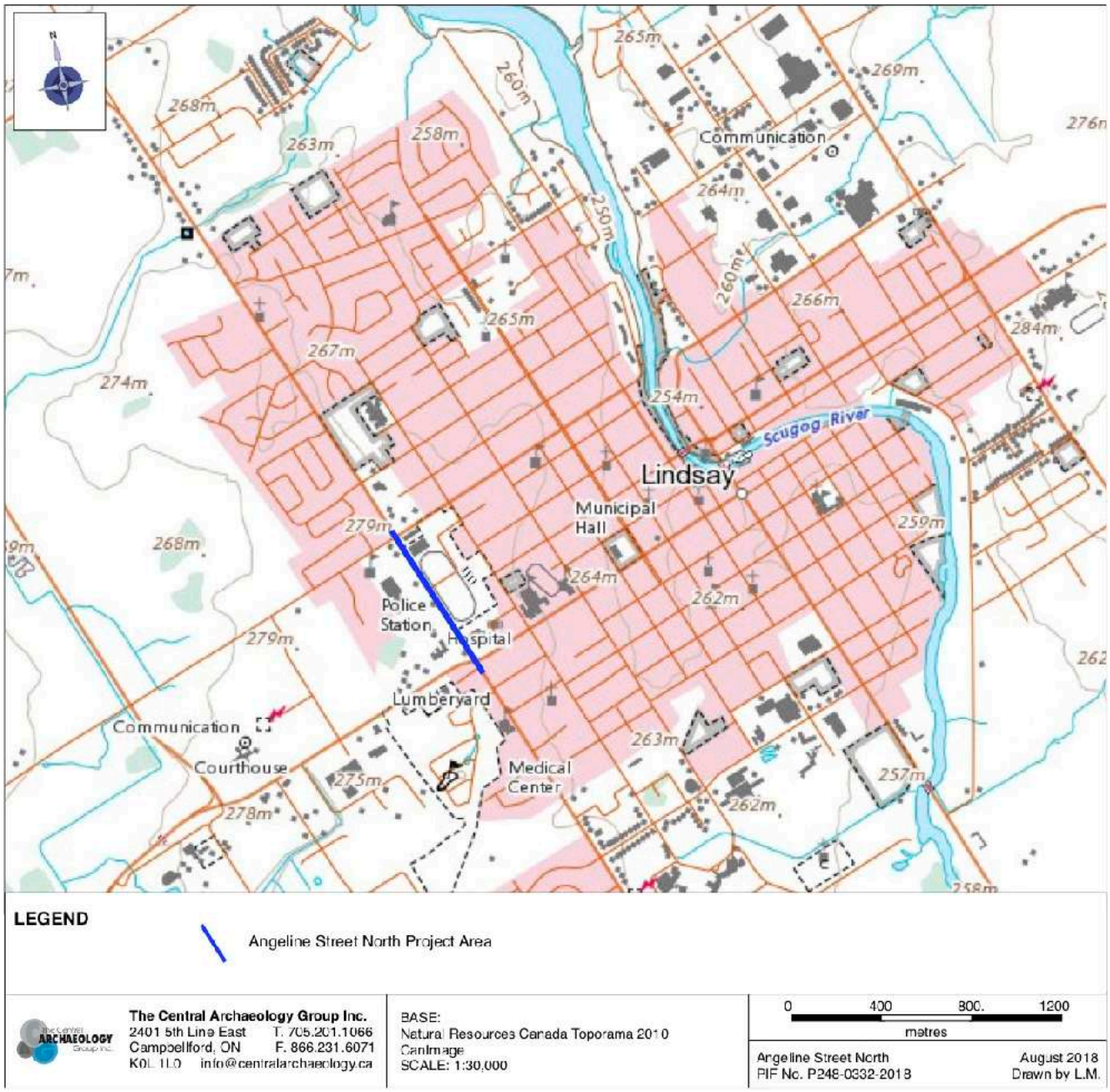


Plan 8. Angeline Street North.

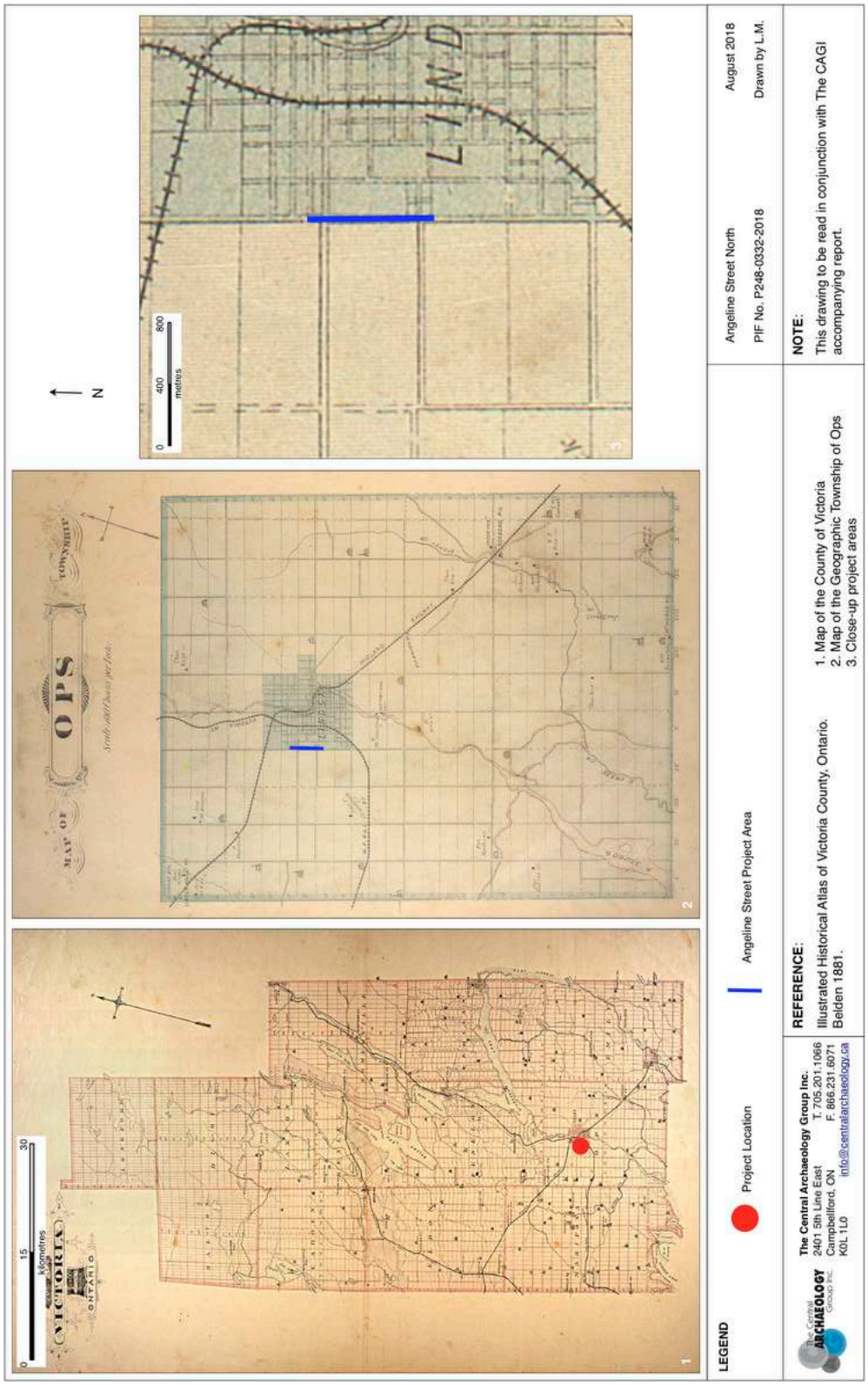


Plan 9. Angeline Street North; project area limits to the south.

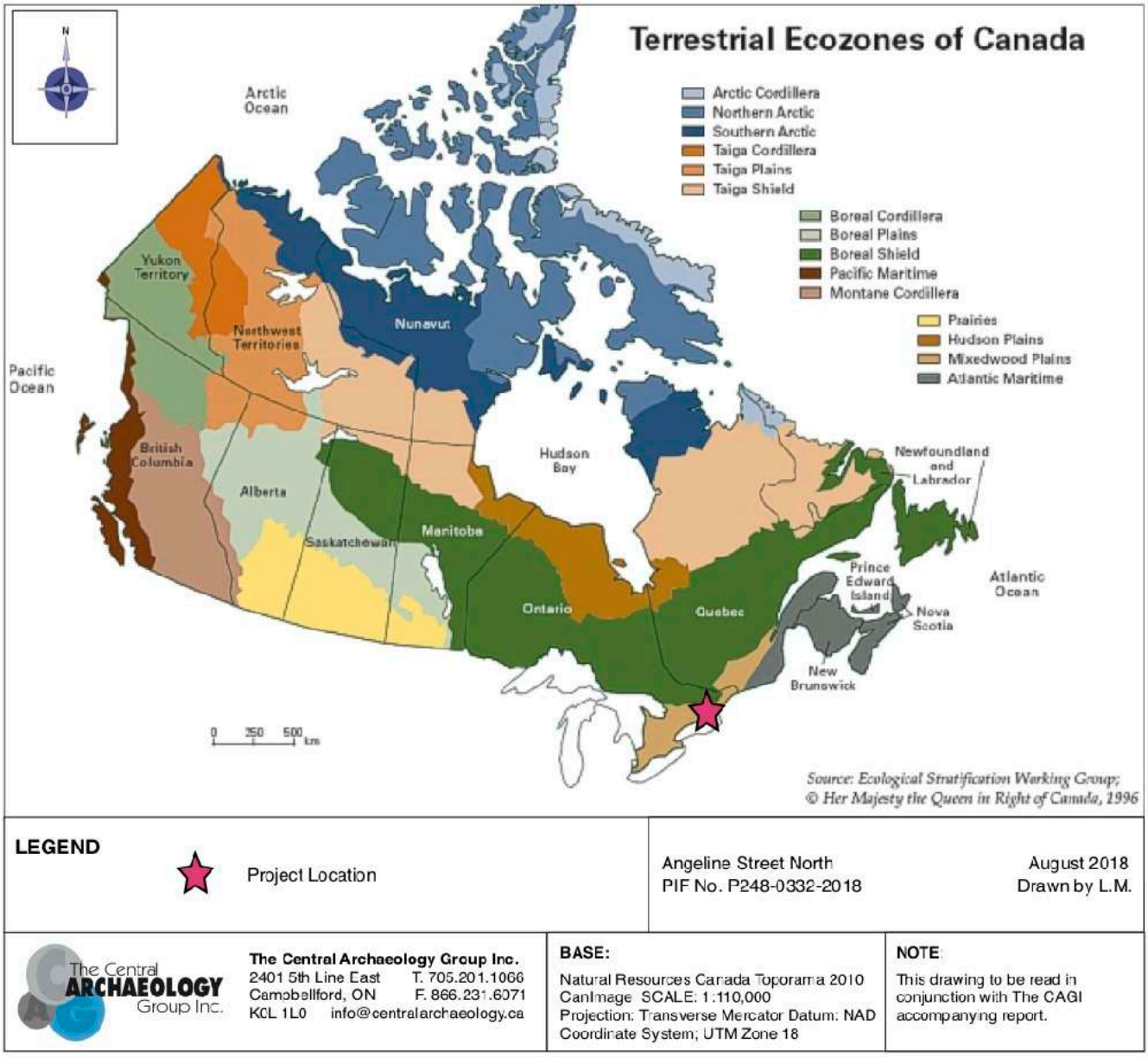
8.0 MAPS



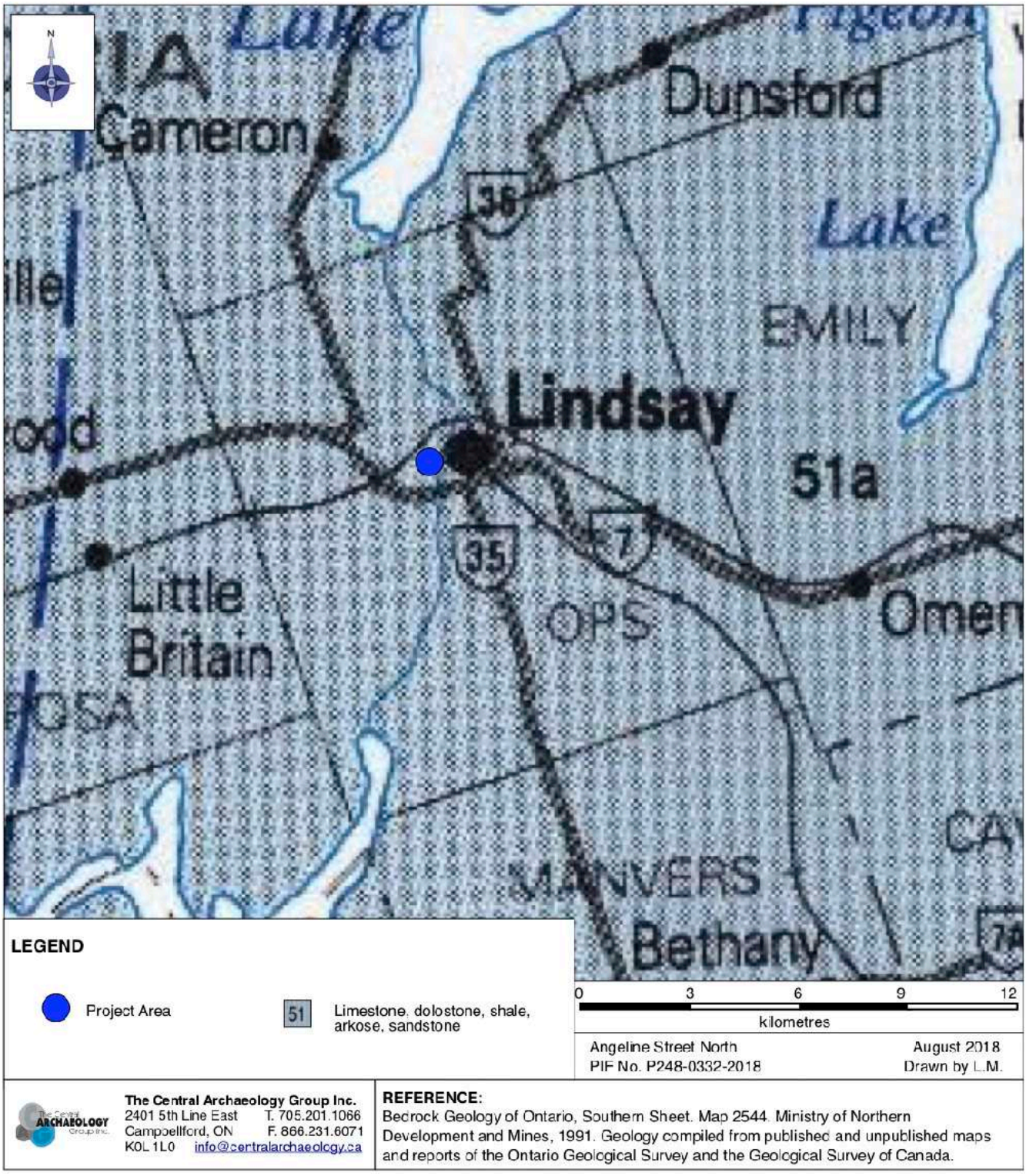
Map 1. Location of project area.



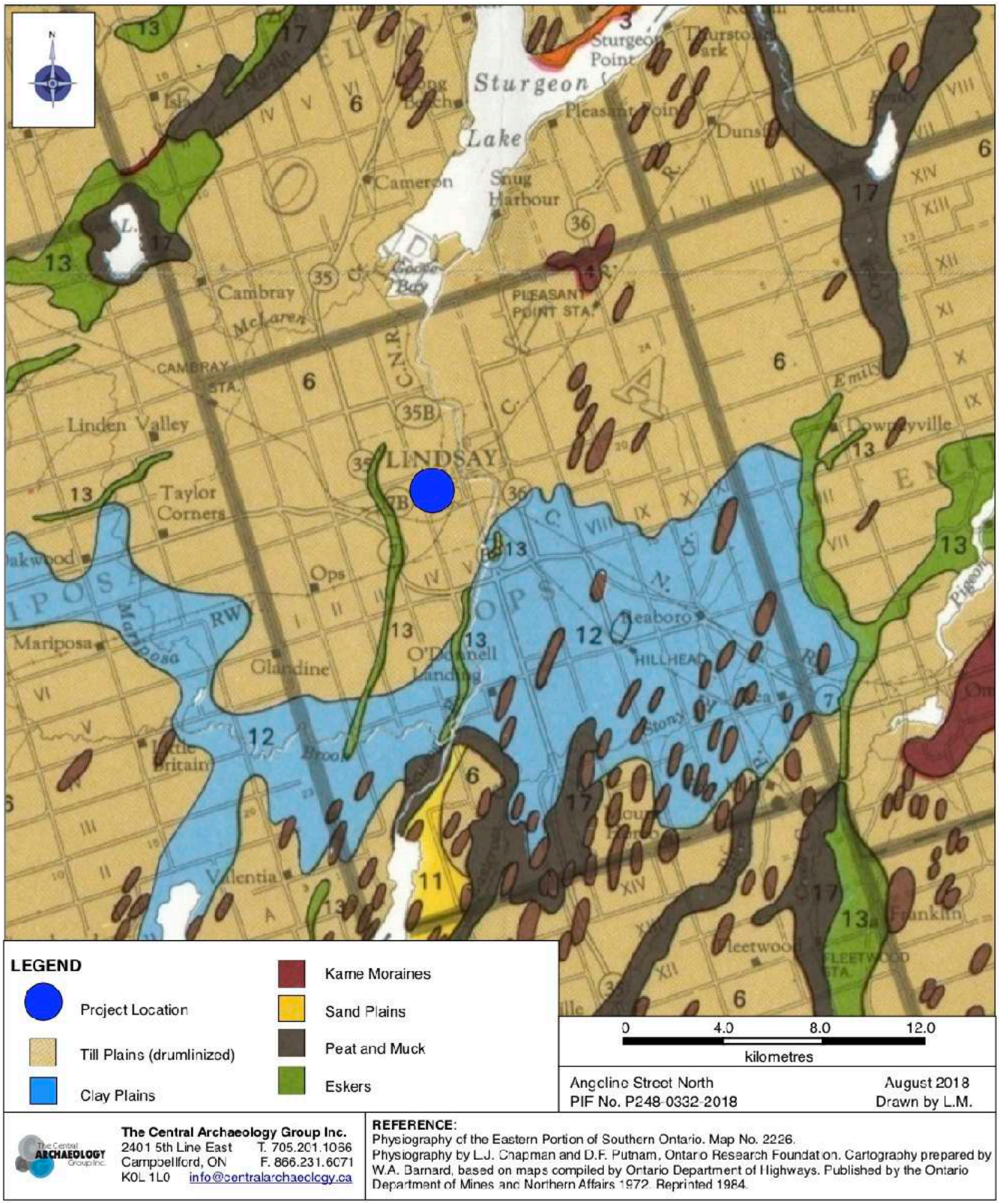
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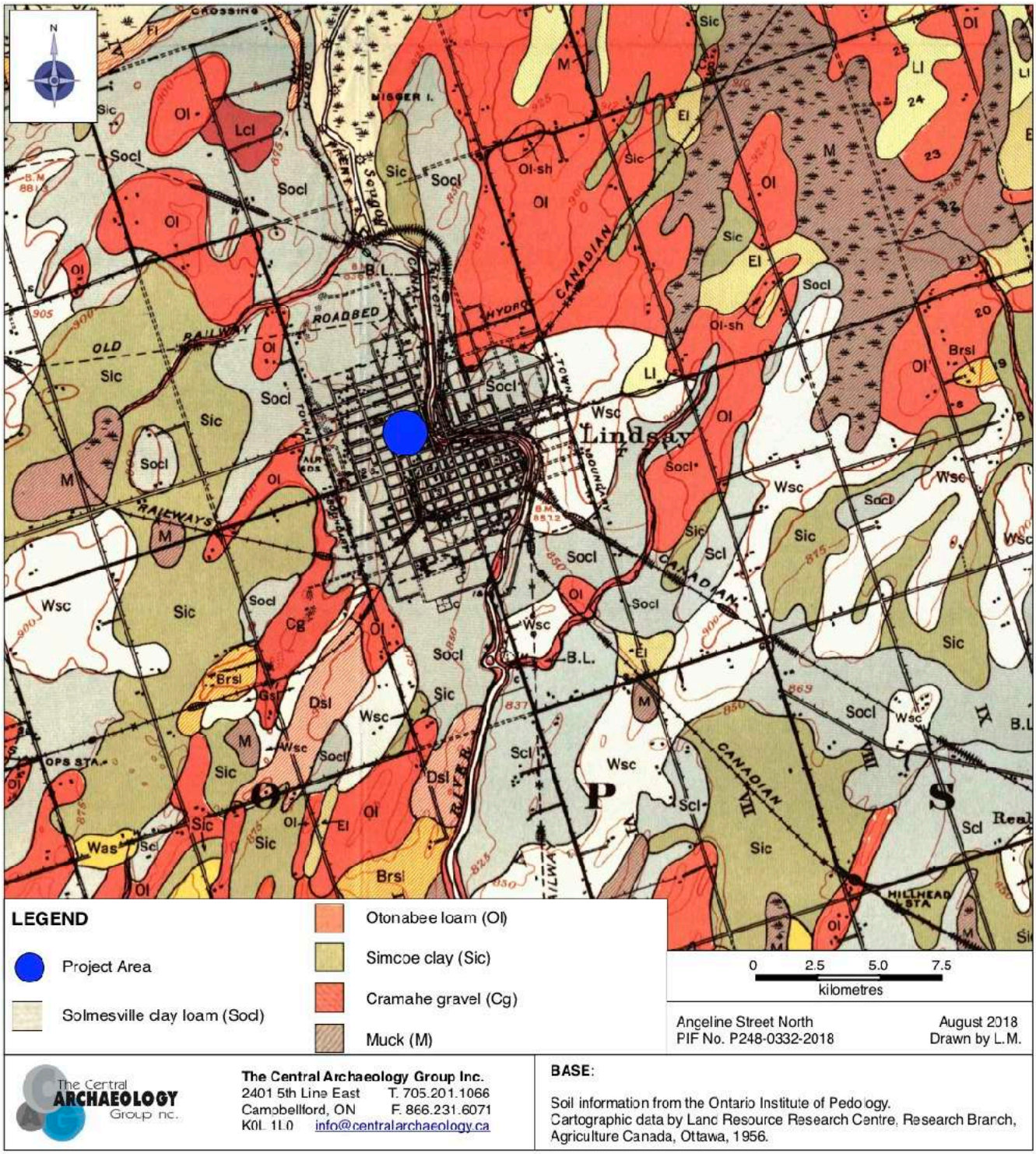
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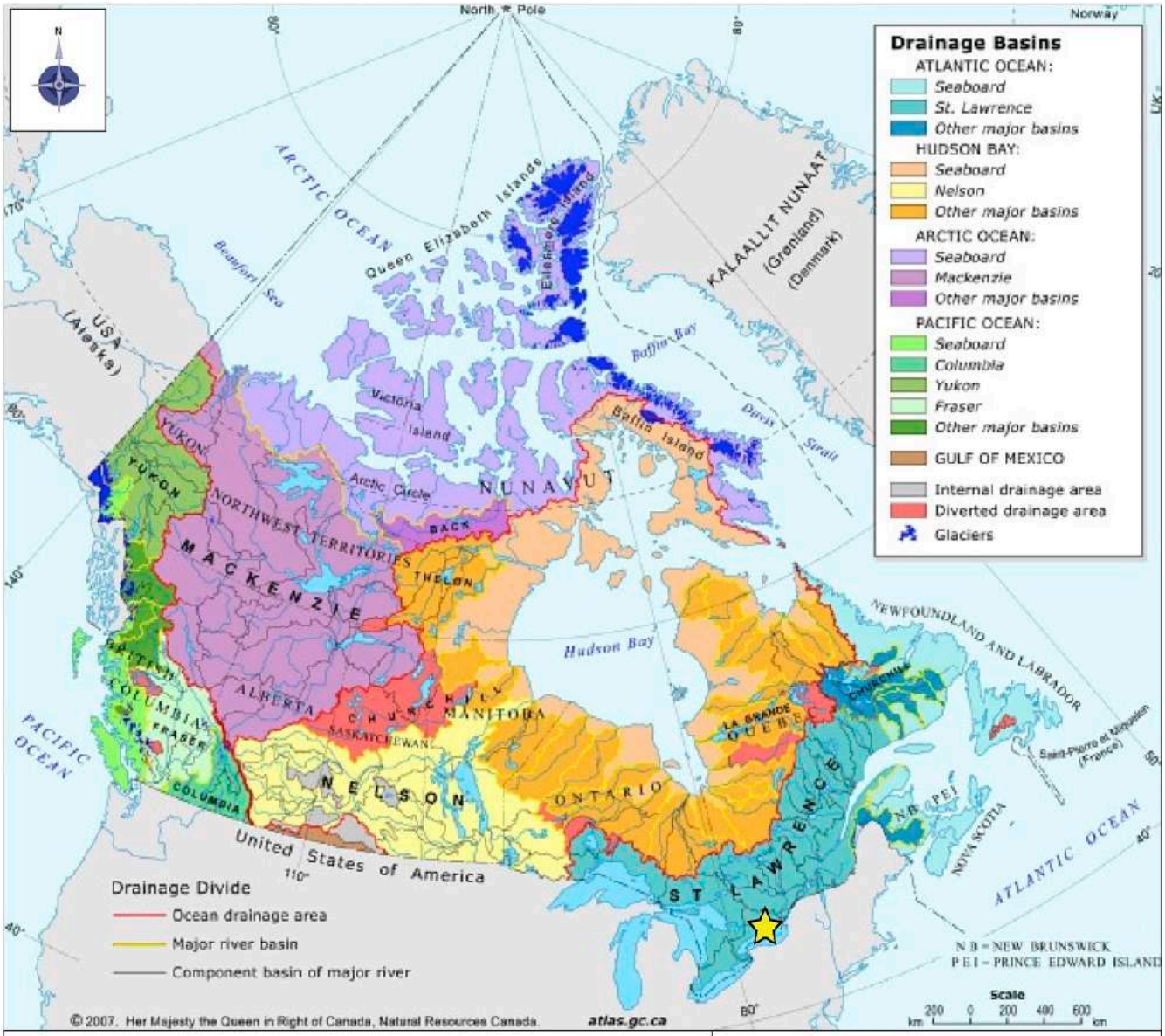
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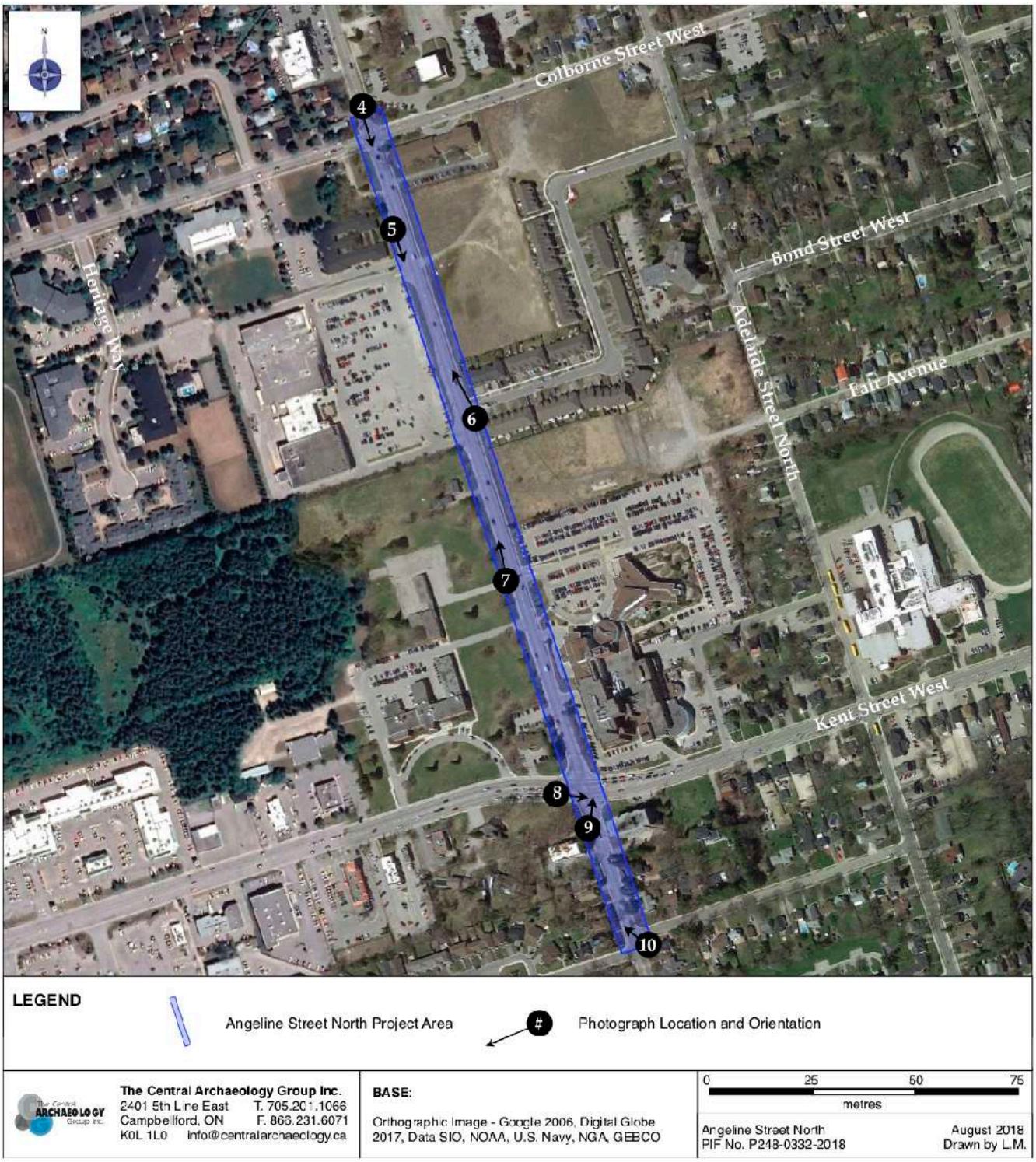
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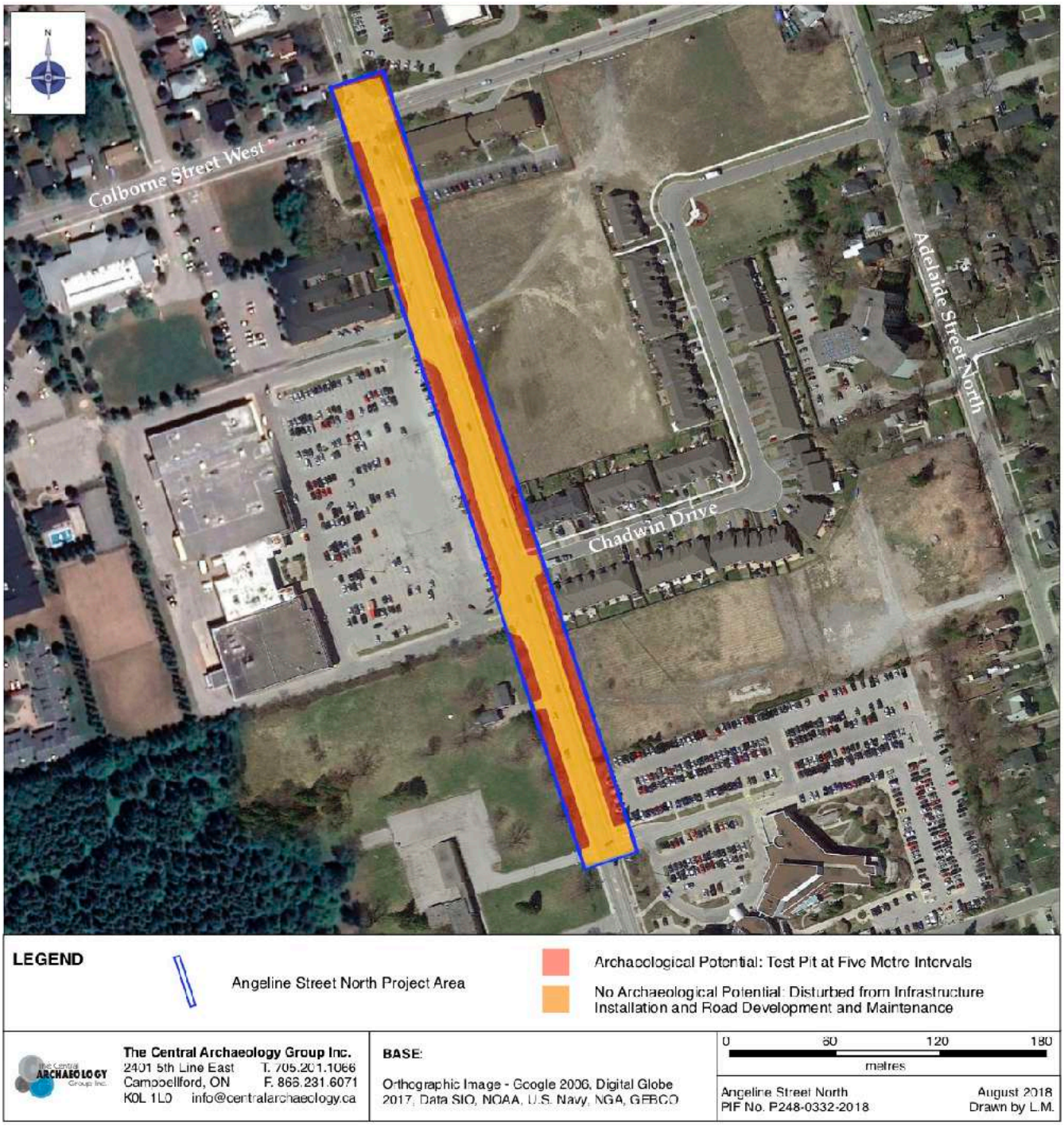
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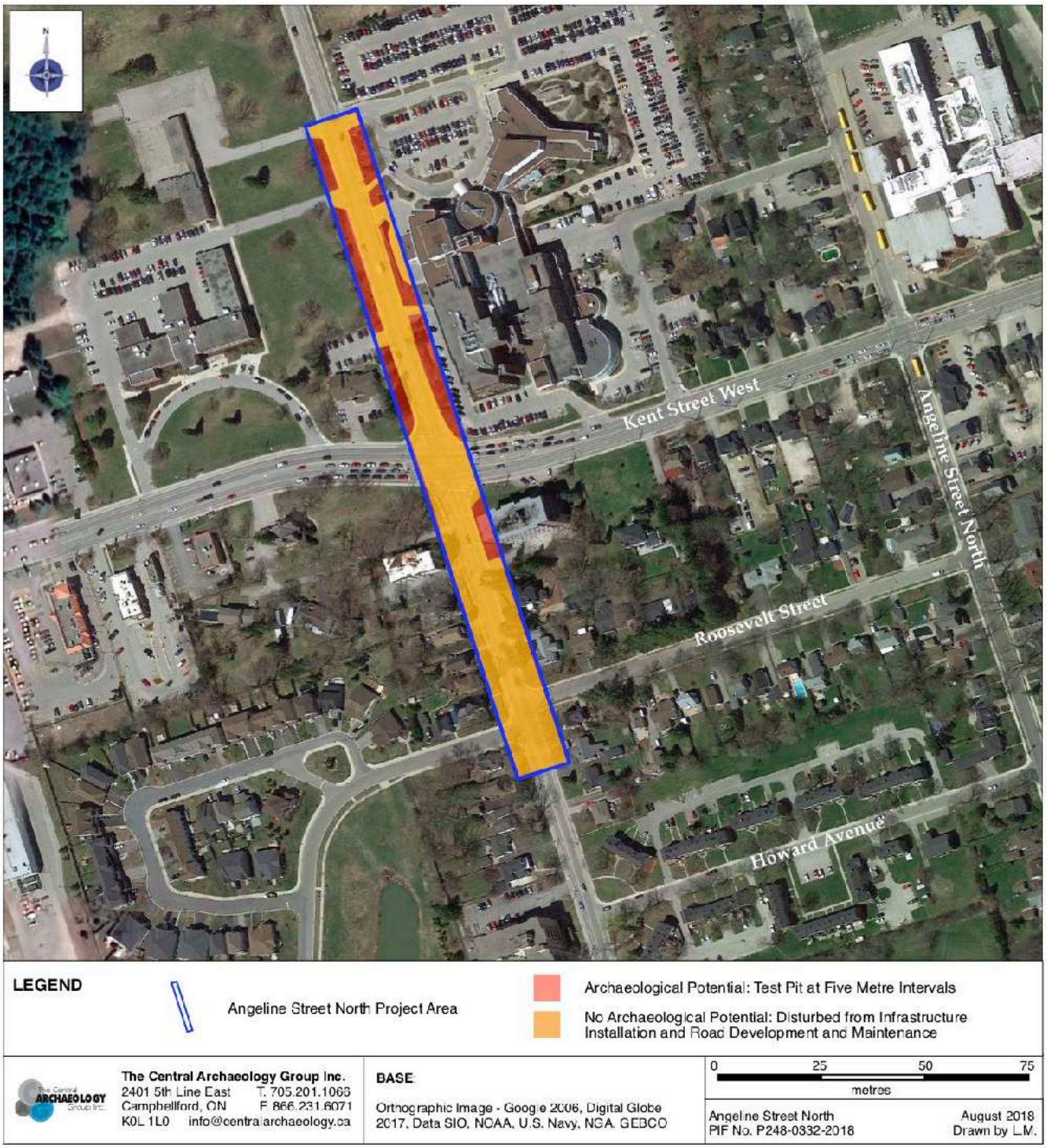
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9.0 IMAGES

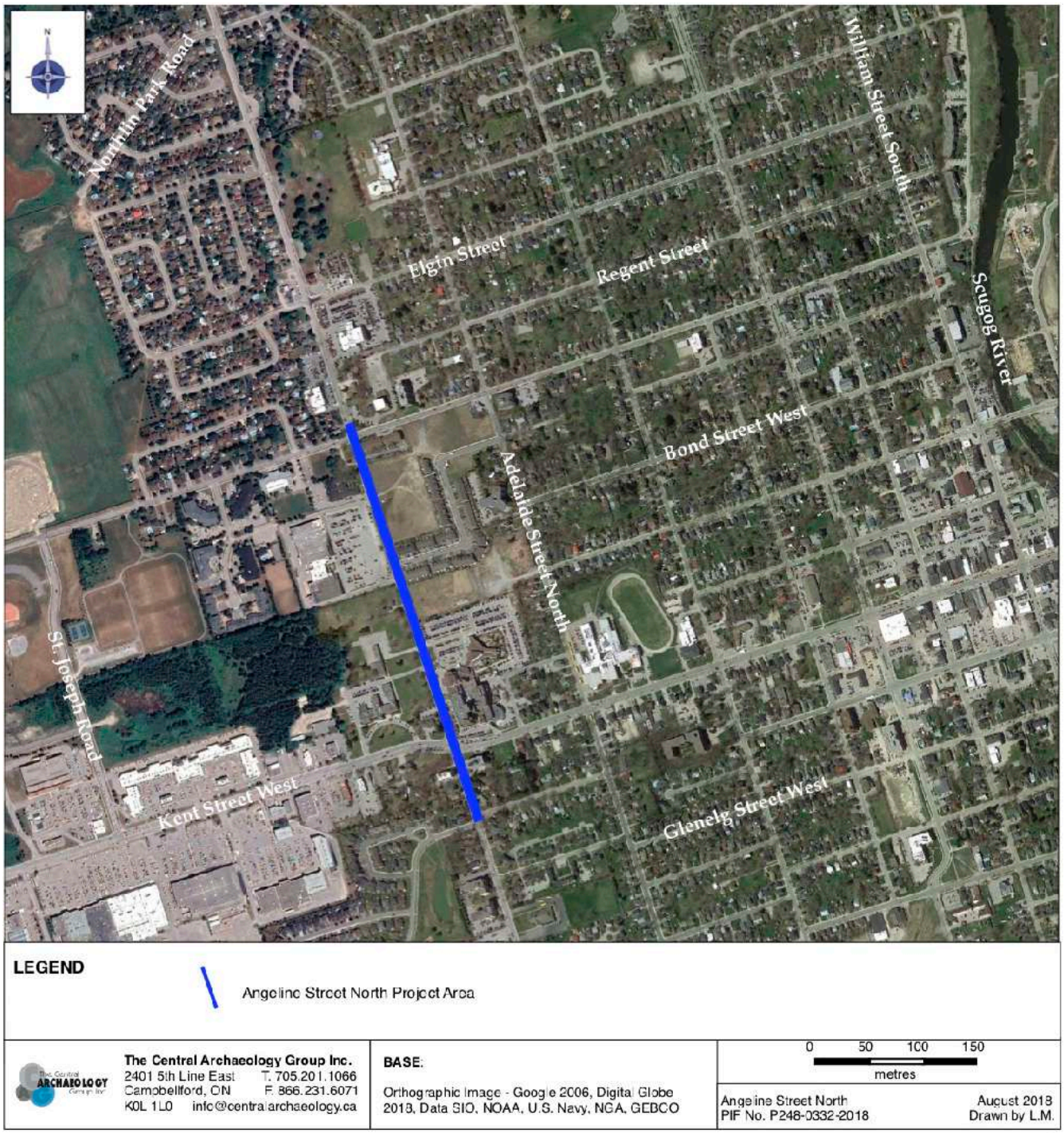


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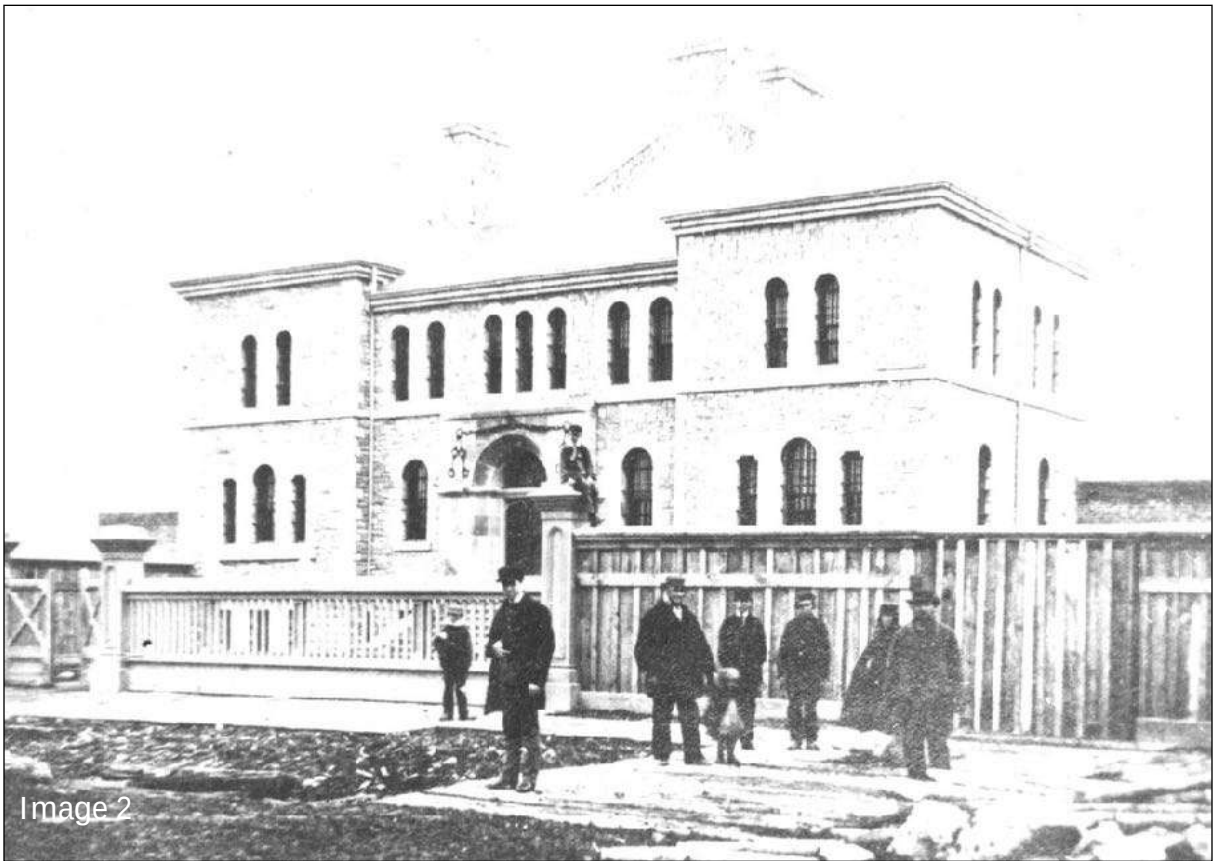


Image 2

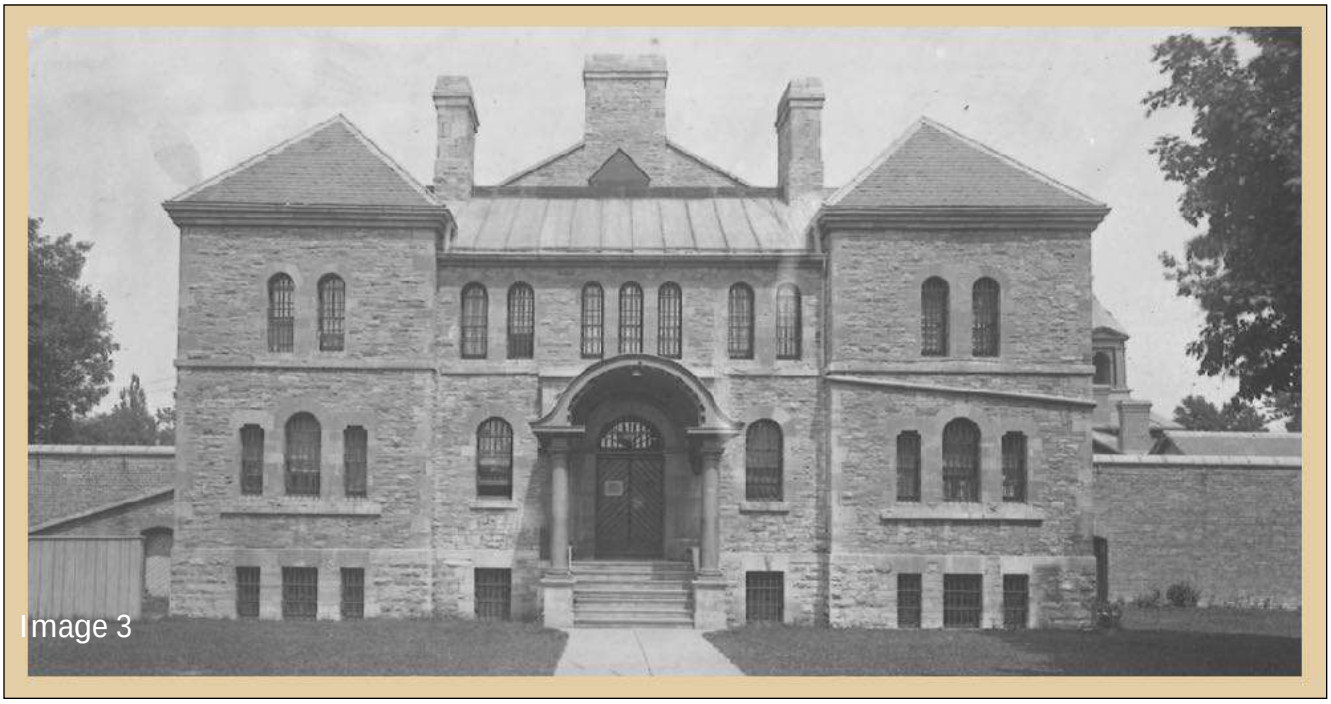


Image 3



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

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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 5th 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 -caused water to dam into Lake Scarborough -created the Scarborough Bluffs
St. Pierre	Interstadial	67,000	-St. Lawrence is free of ice -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 -palynological studies indicate boreal tree taxa -meltwaters drain through present-day New York
Cherrytree	Stadial	35,000 - 28,000	-ice sheet covers most of Southern Ontario -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 -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 -split exposes a dome of higher land called Ontario Island -Proglacial Lakes Arkona I, II and III form at southern ice margins

Port Huron	Stadial	12,900	-short-lived advance -Glacial Lakes Lake Whittlesey, Warren I, Warren II, Wayne and Warren III form
North Bary	Interstadial	11,840 - 8,100	-warmer climate -ice retreats across Canadian Shield -drainage flows east -formation of Glacial Lake Grassmere
Driftwood	Stadial	8,200 - 8,100	-deposition of clay tills in the Lake Barlow-Ojibway region -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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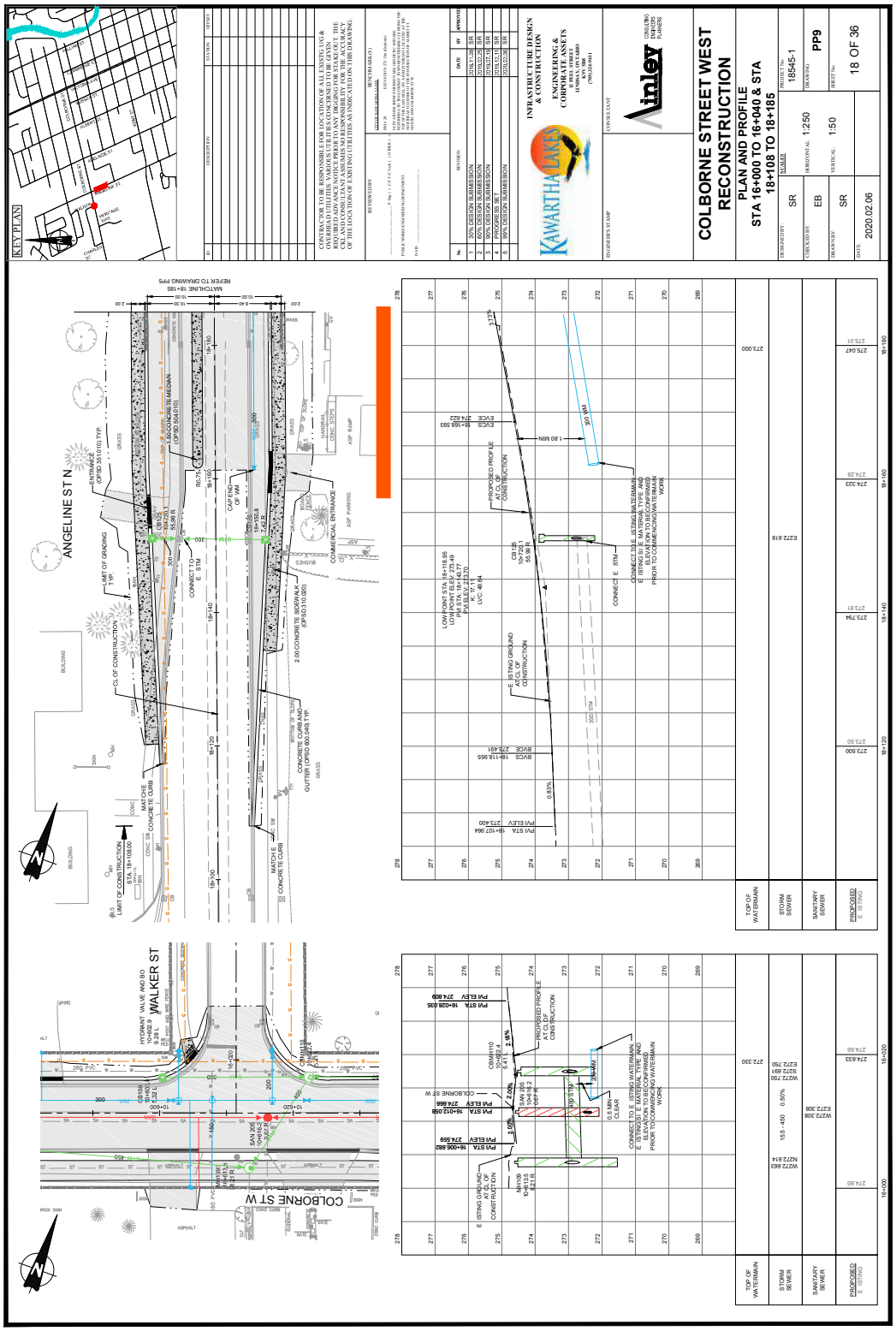
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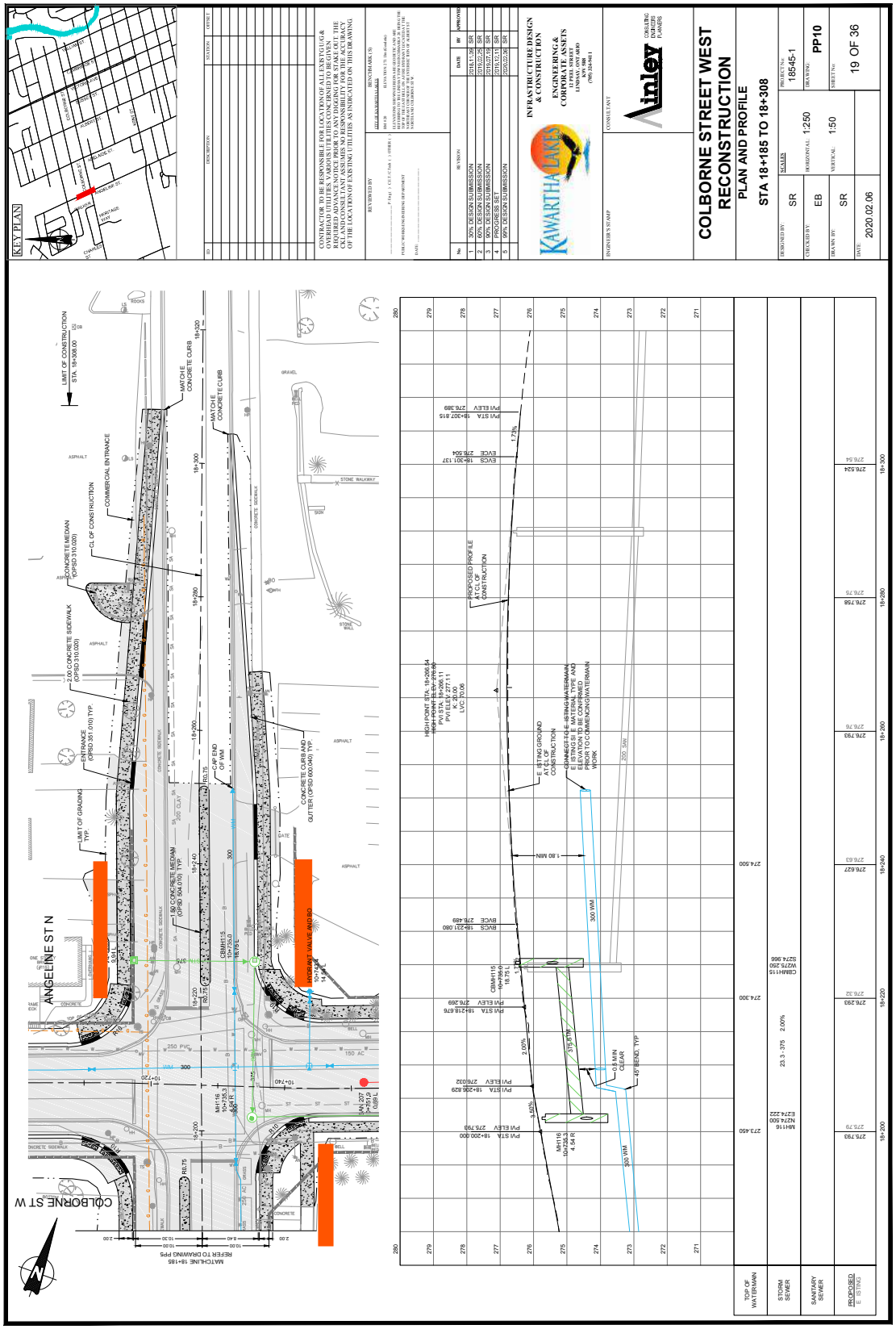
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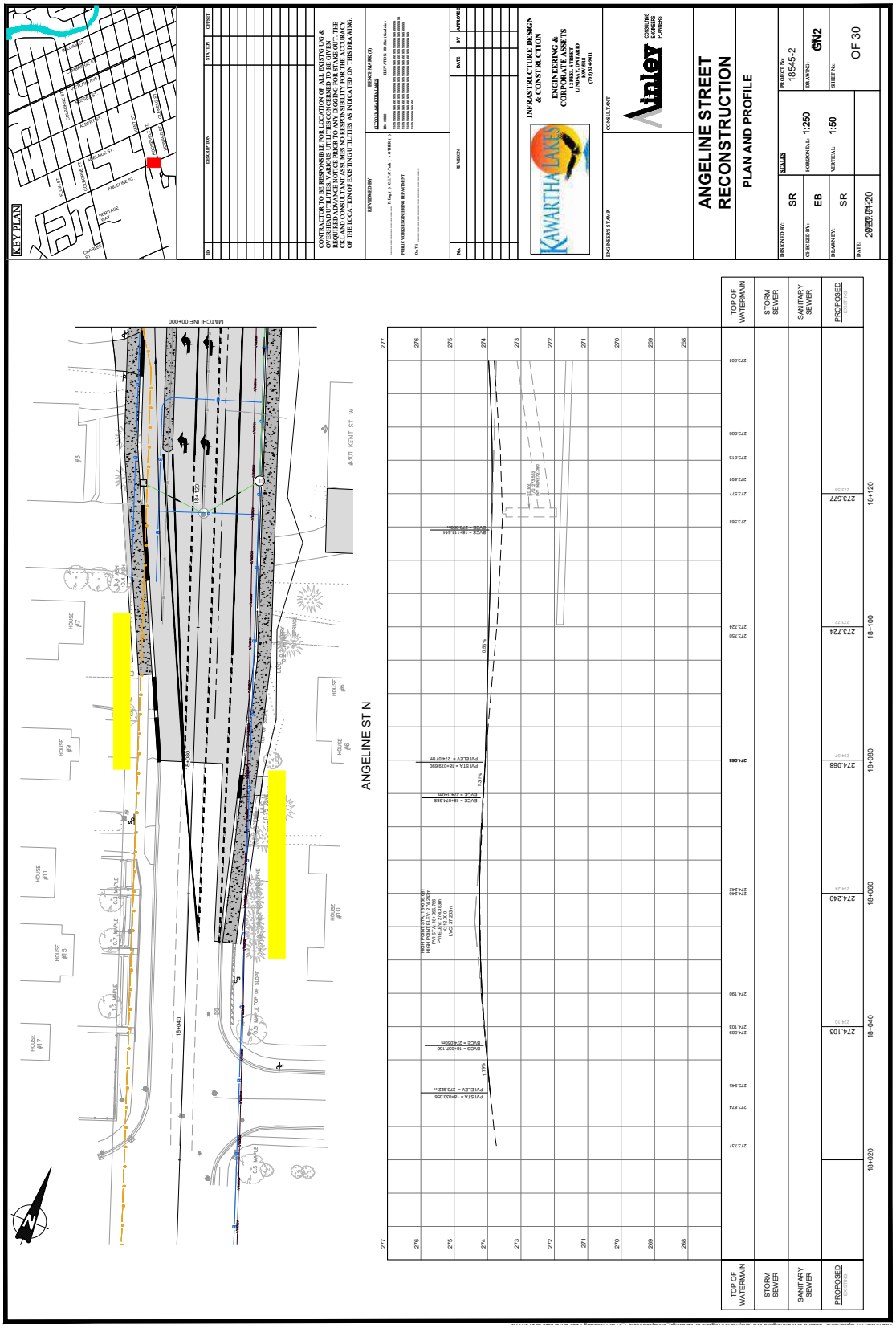
7.0 PLANS



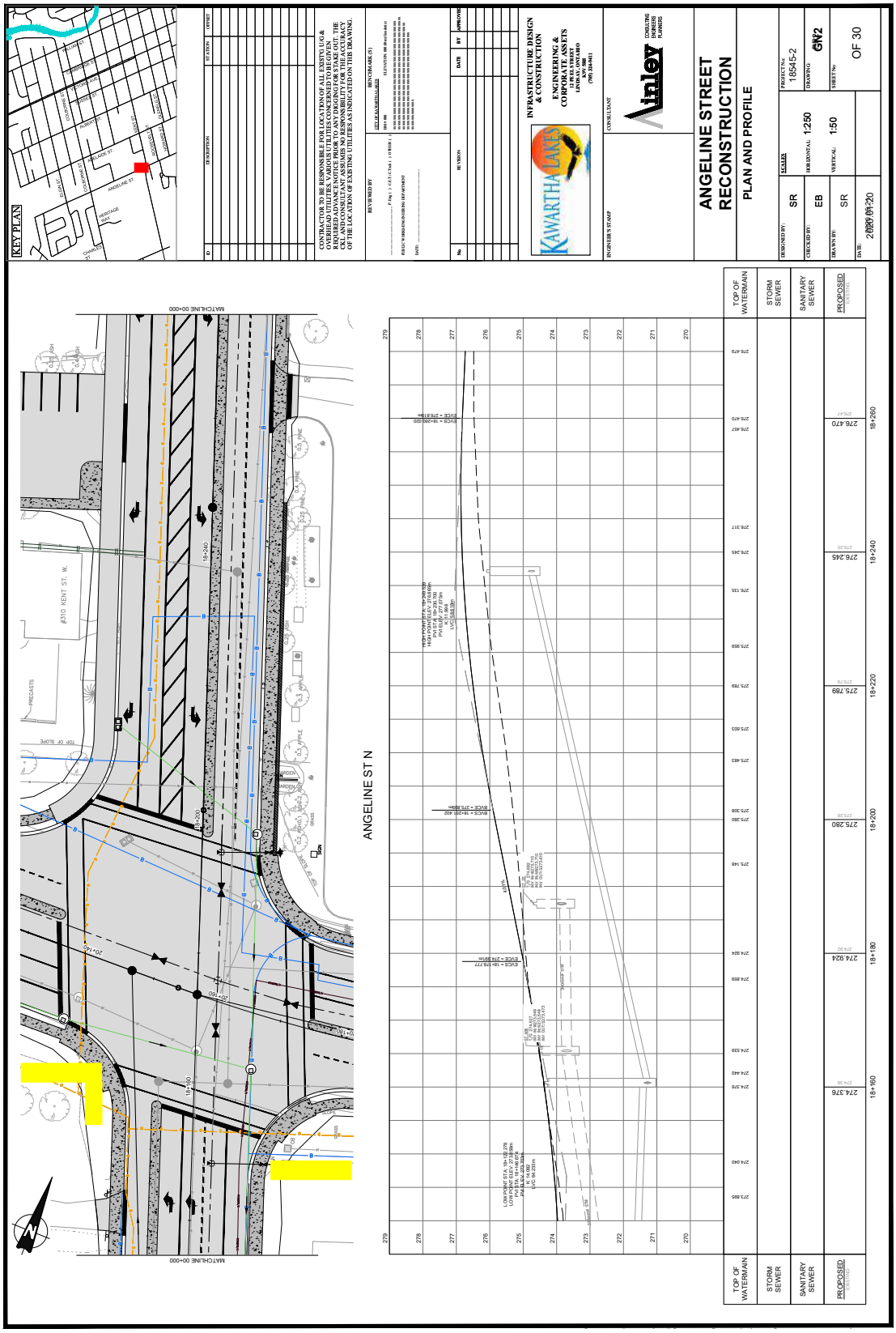
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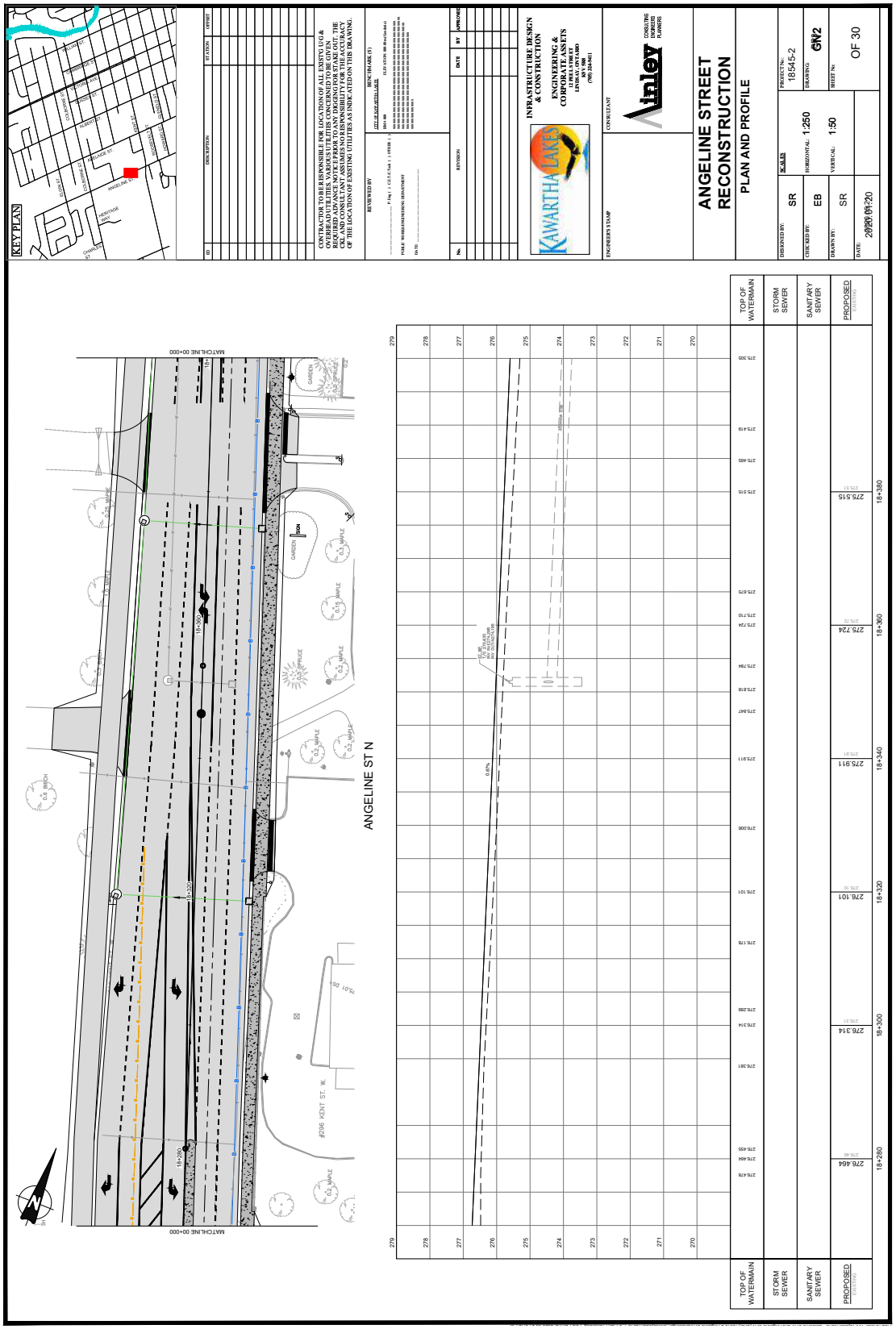
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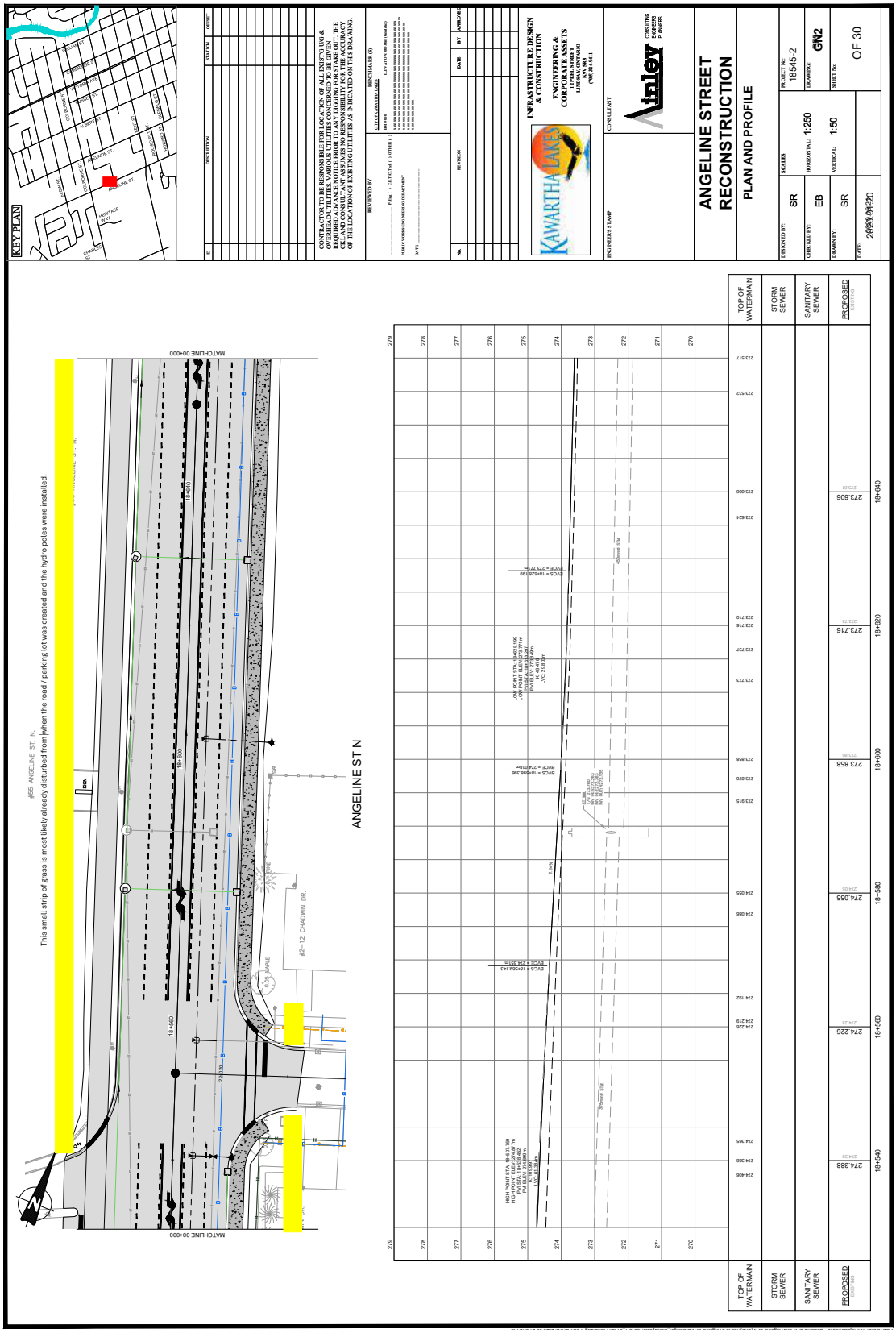
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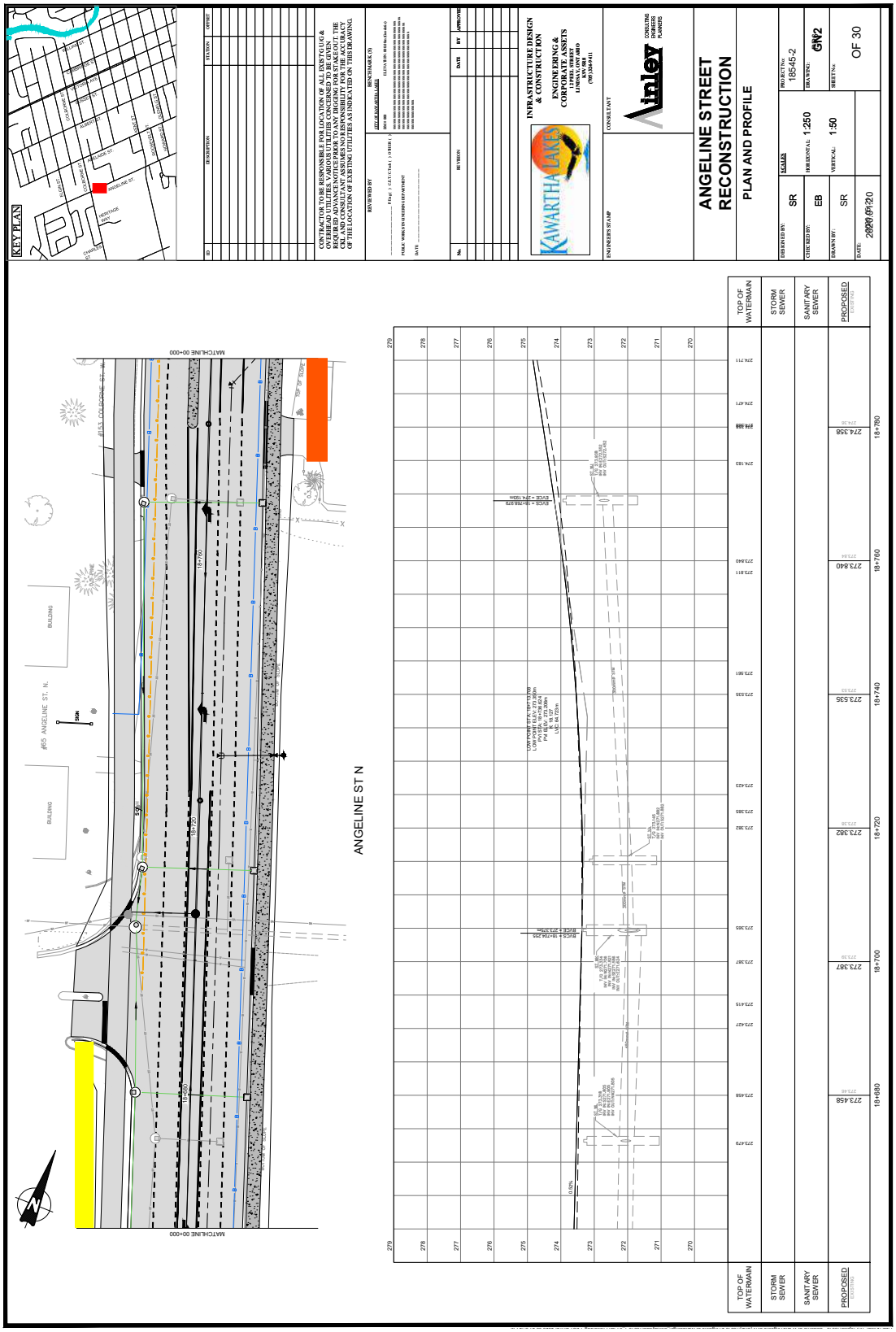
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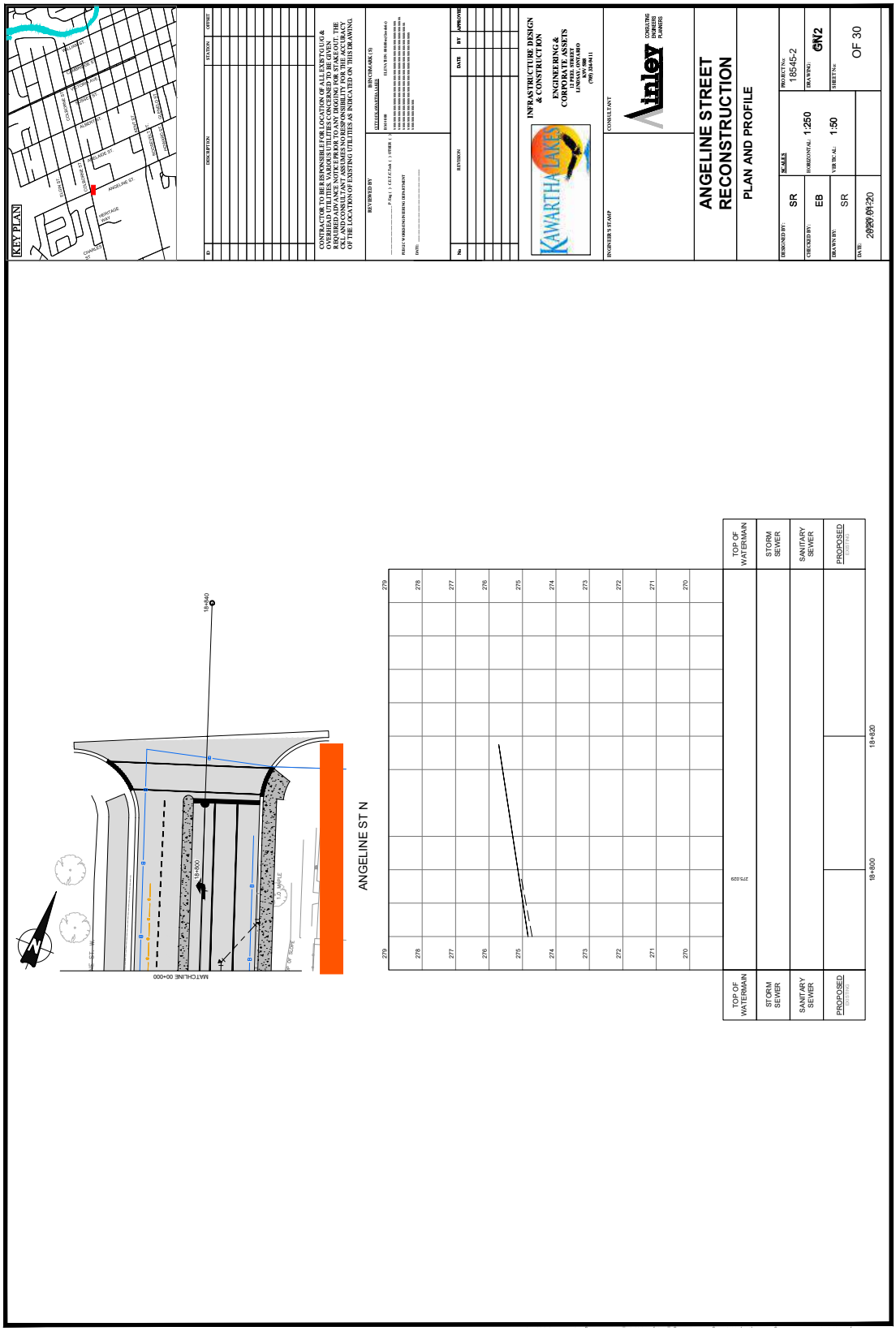
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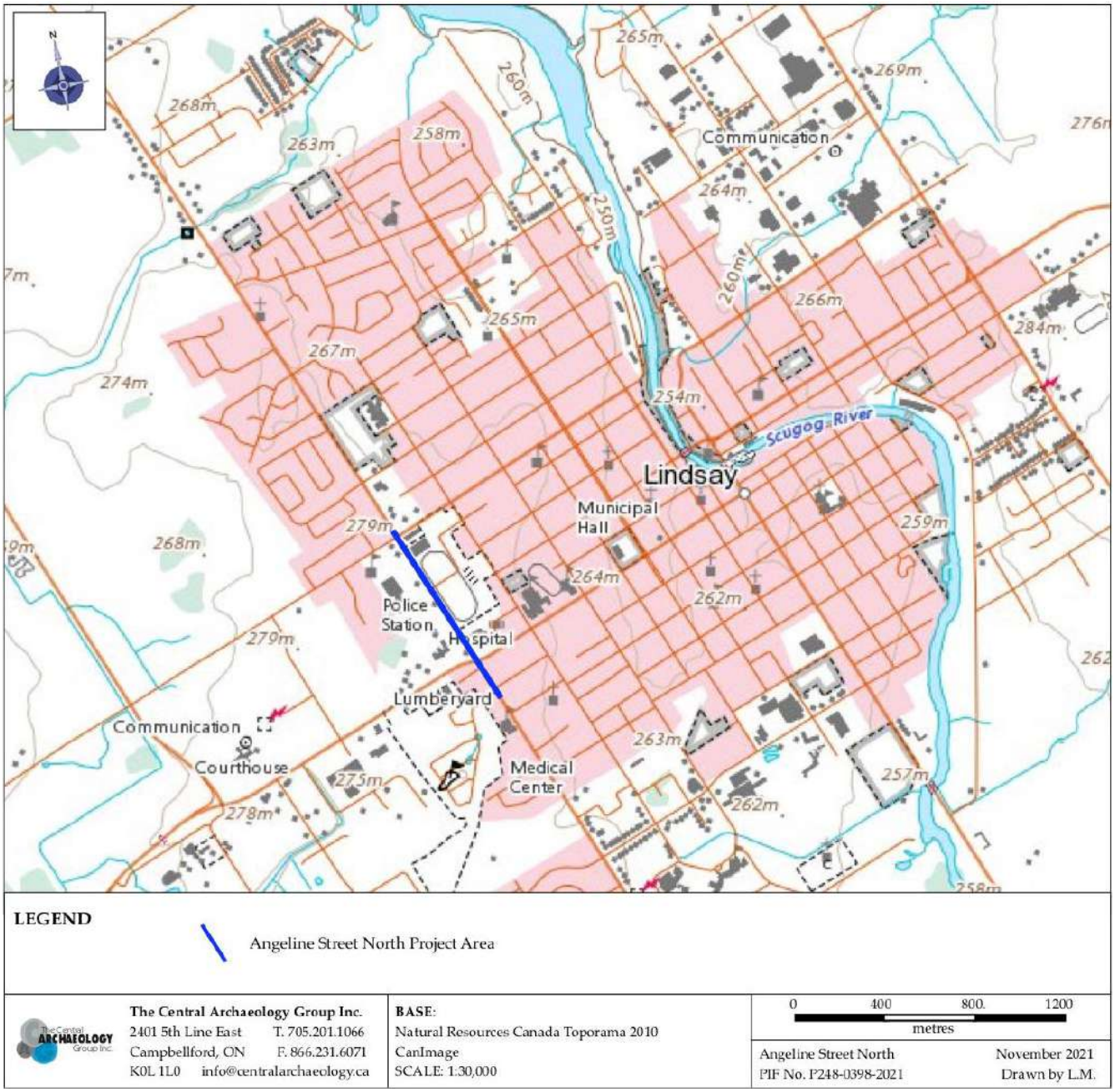


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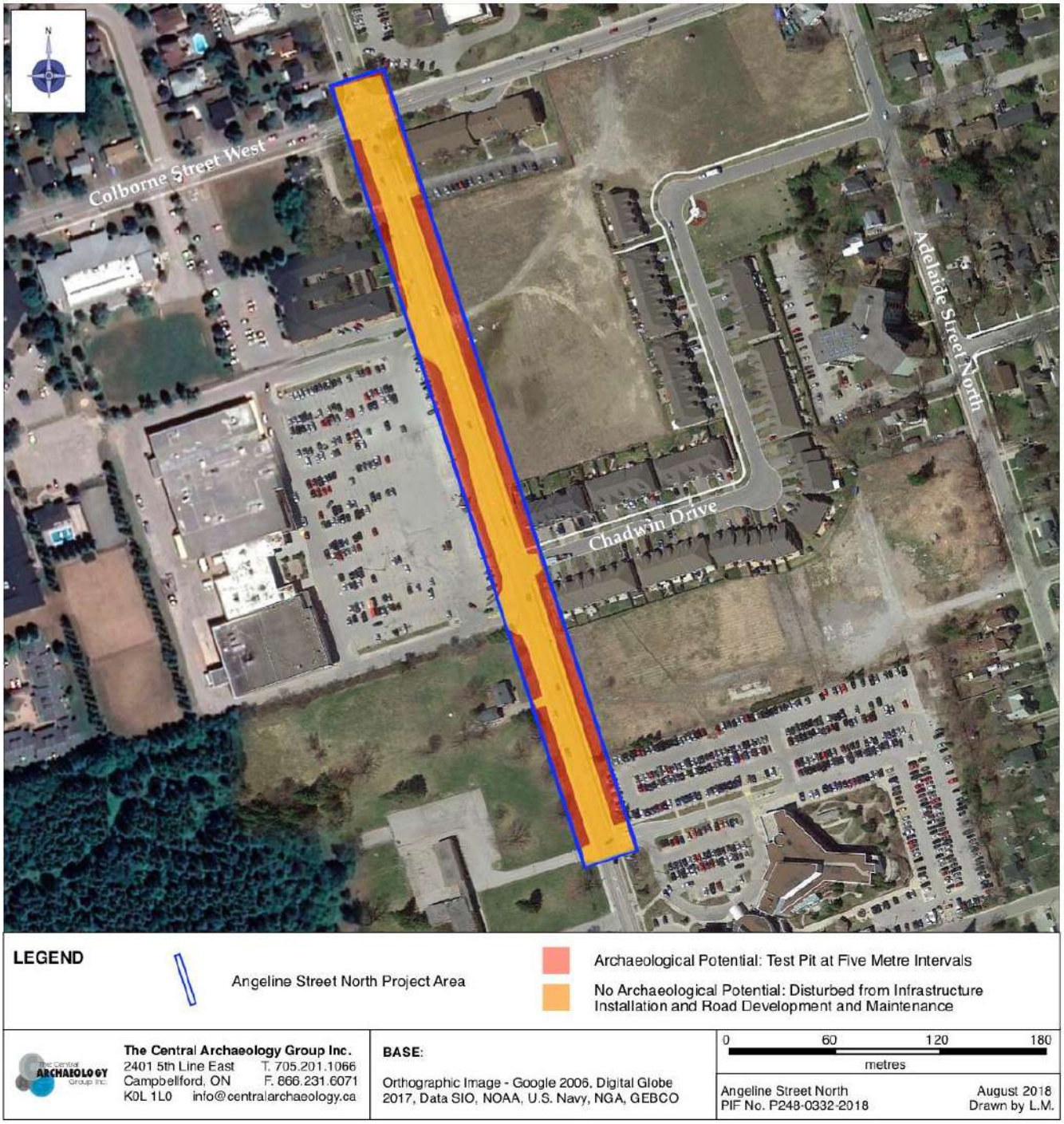


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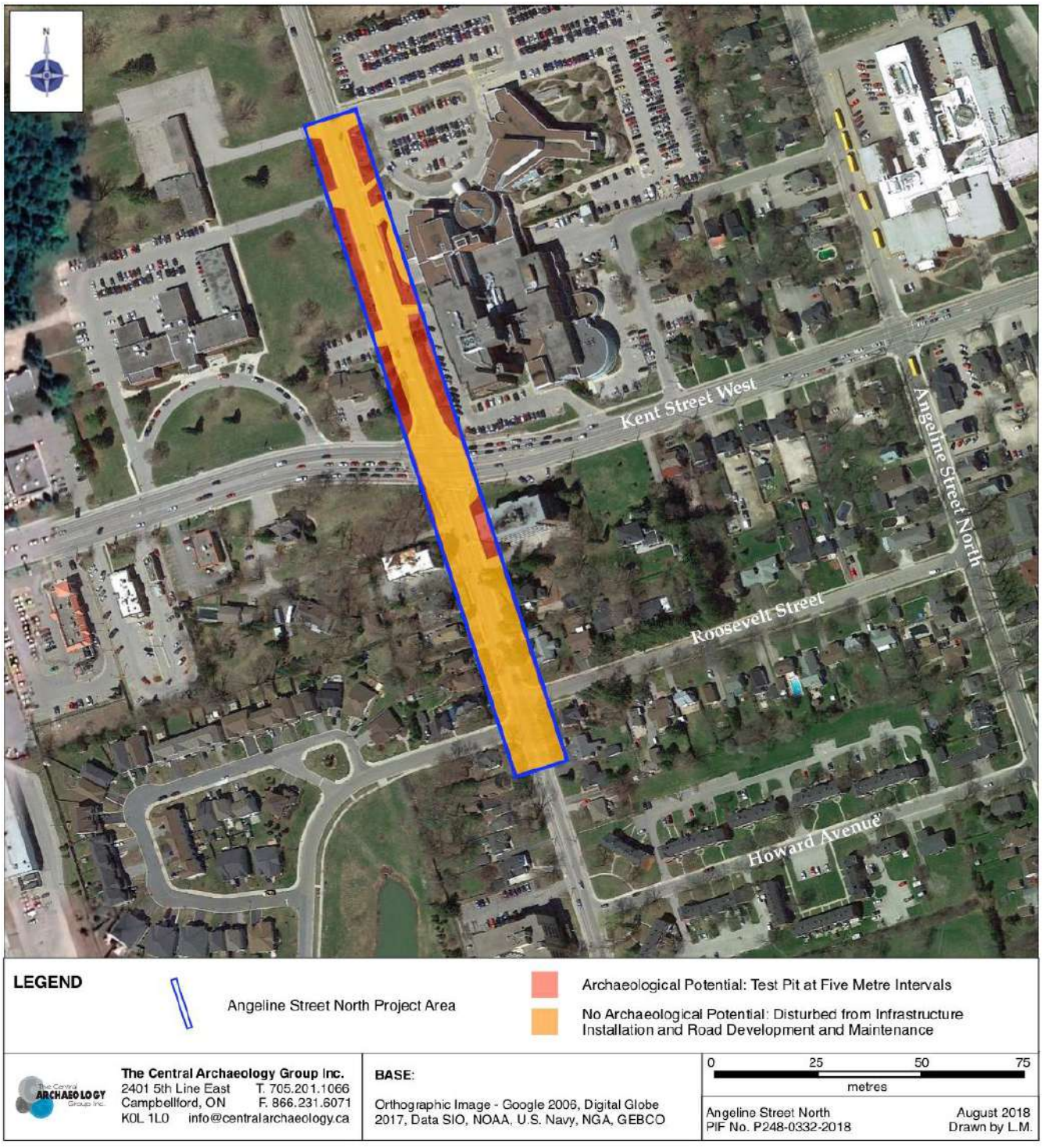
8.0 MAPS



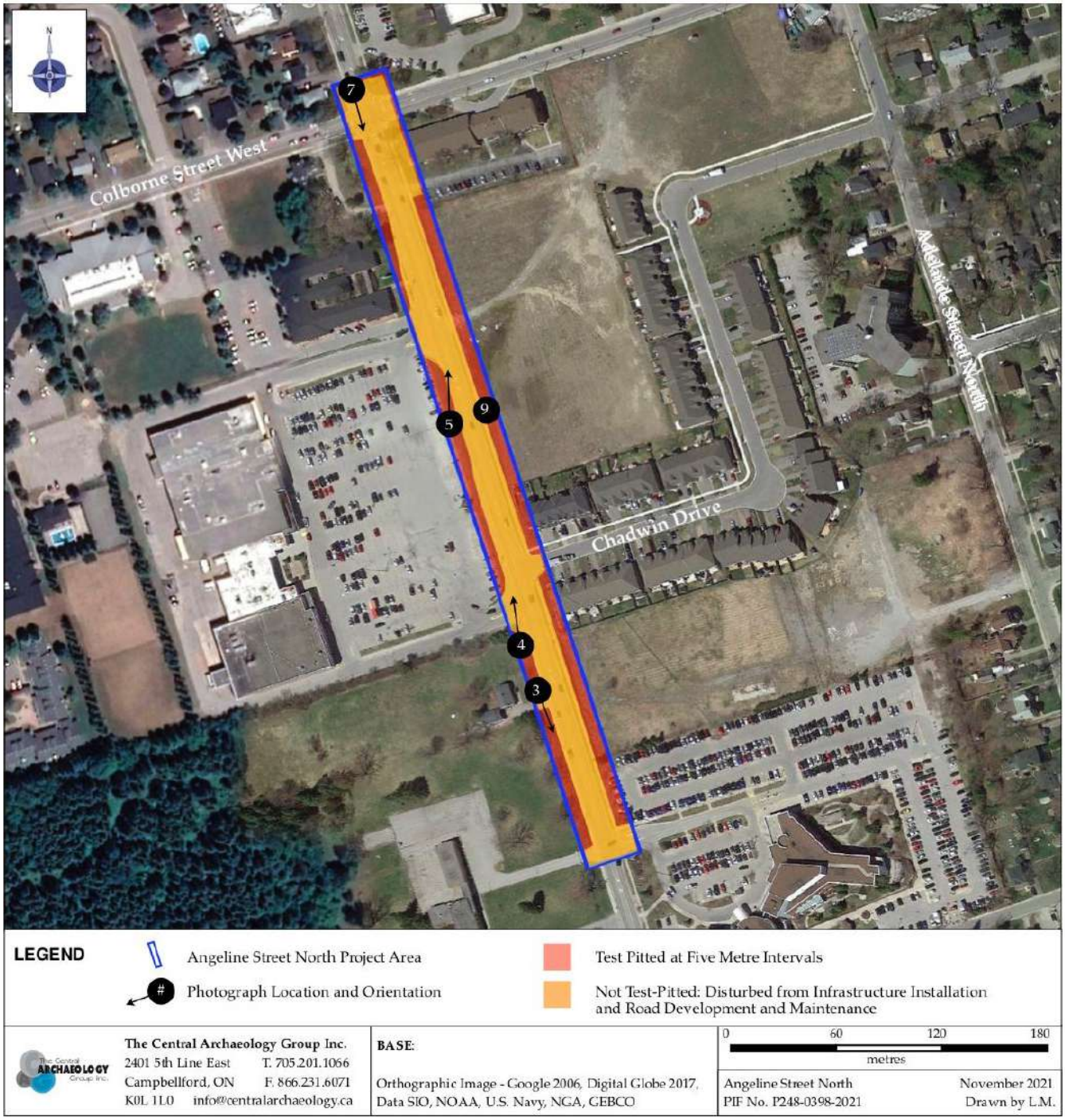
Map 1. Location of project area.



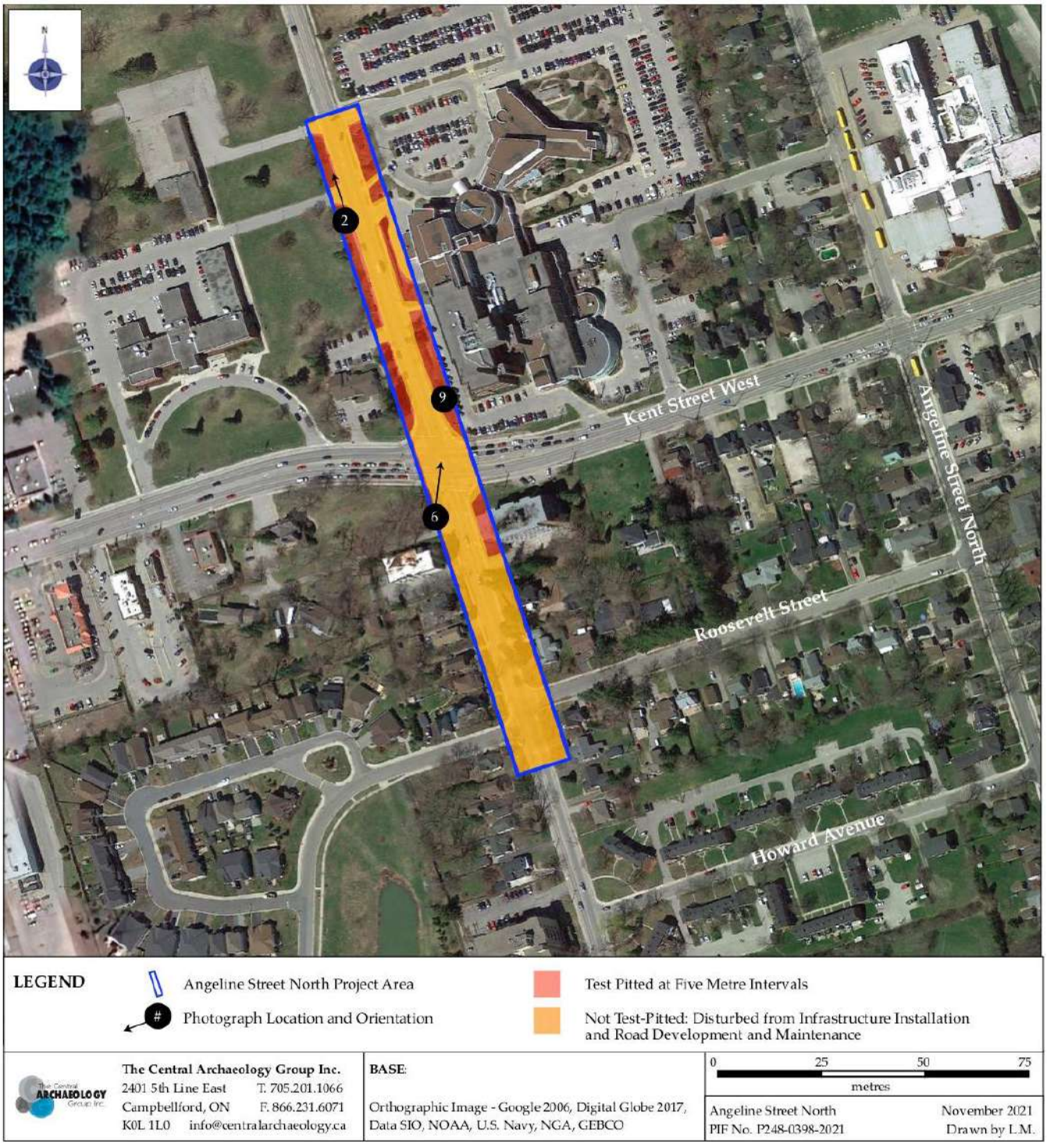
Map 2. Archaeological potential from the Stage 1 background study (CAGI 2022:48). Angeline Street North from the northernmost limits of the Project Area to 200 metres north of Kent Street West.



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

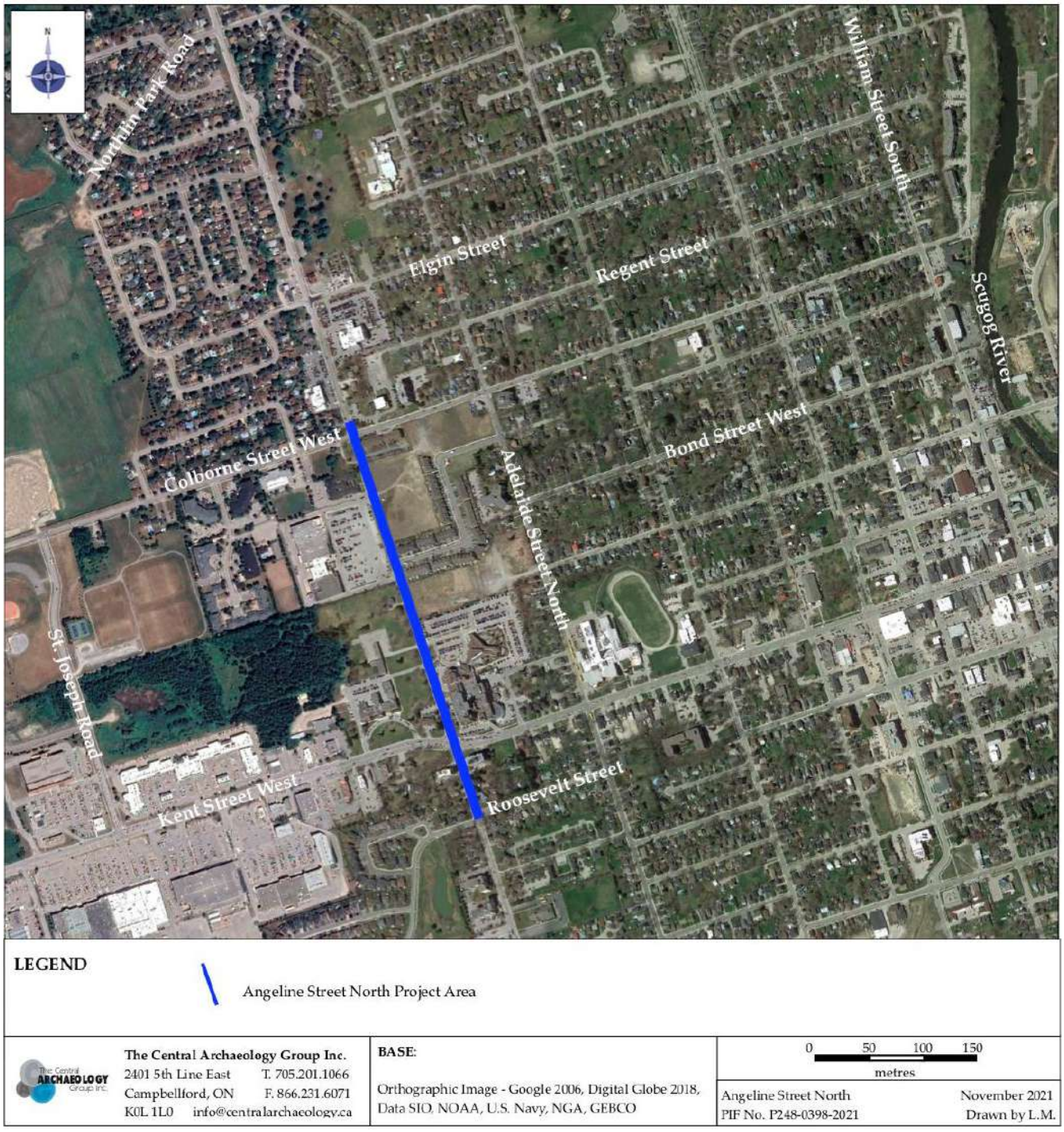


Image 1. Orthographic image of the project area (Google Earth 2018).



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 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**.

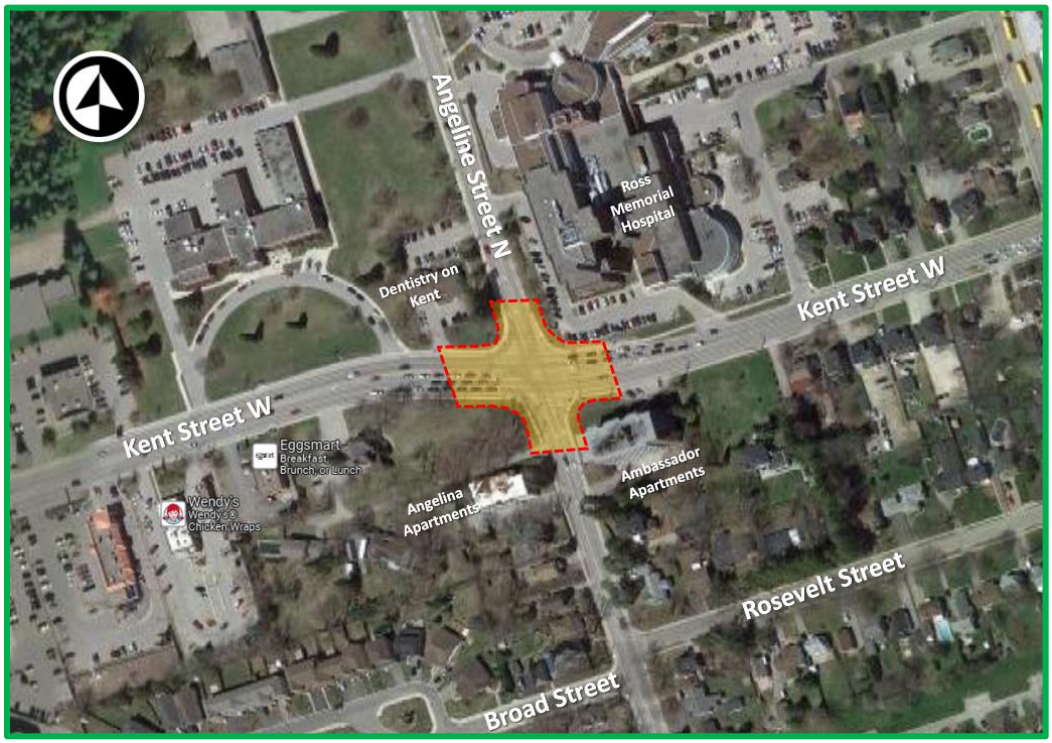


Figure 1: Intersection Location

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.

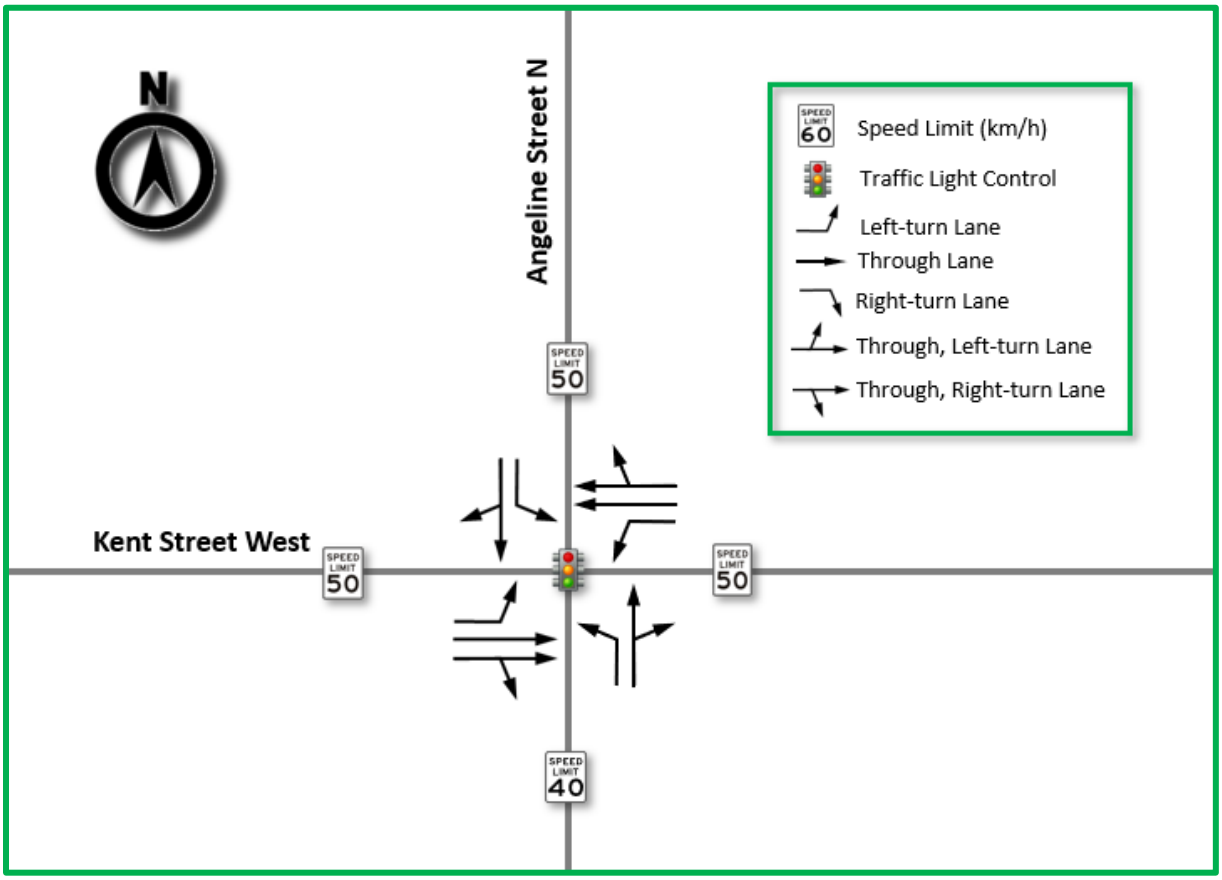


Figure 2: Intersection Configuration

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.

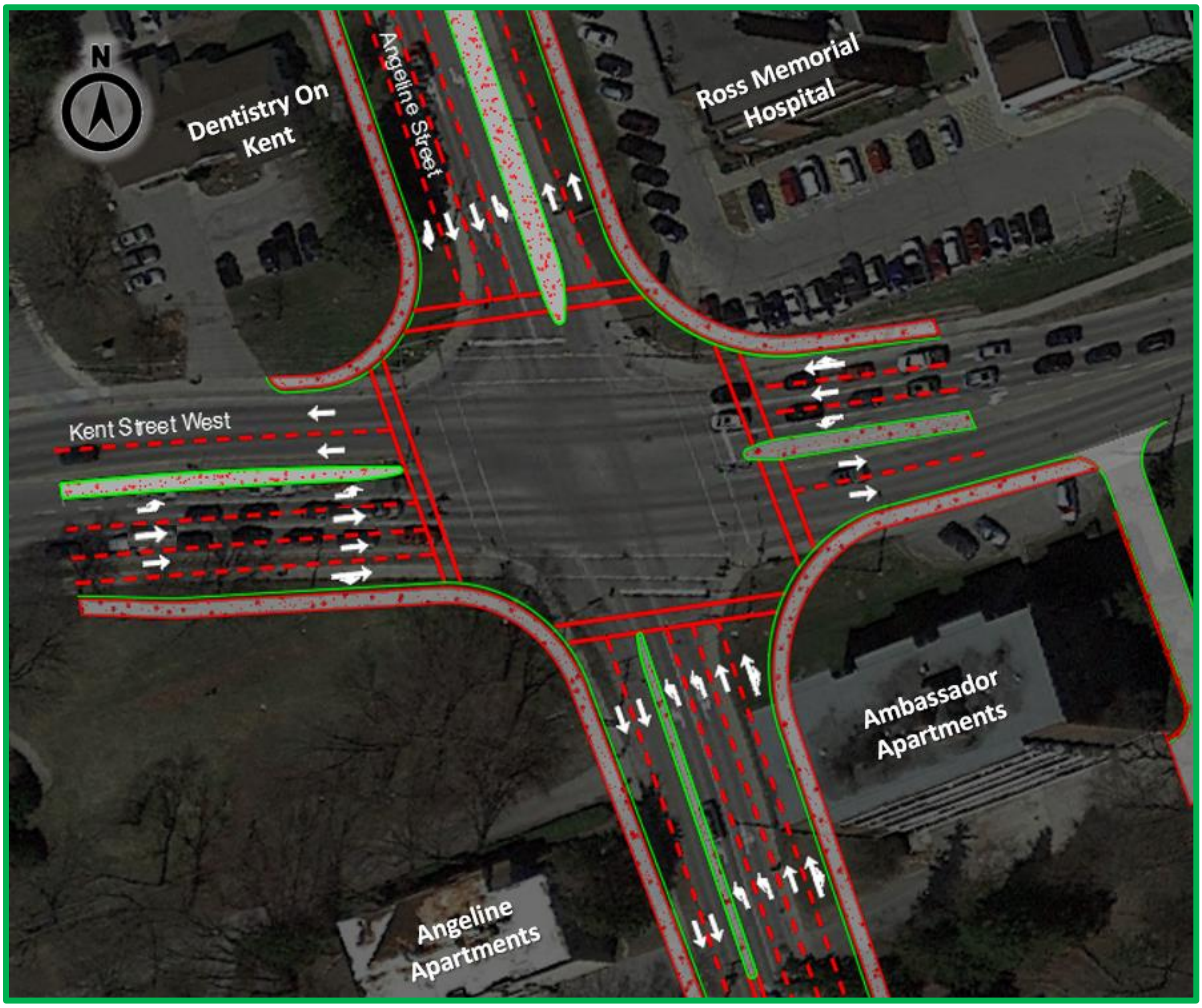


Figure 3: Preferable Alternative to Improve Traffic Operation in the Intersection

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).

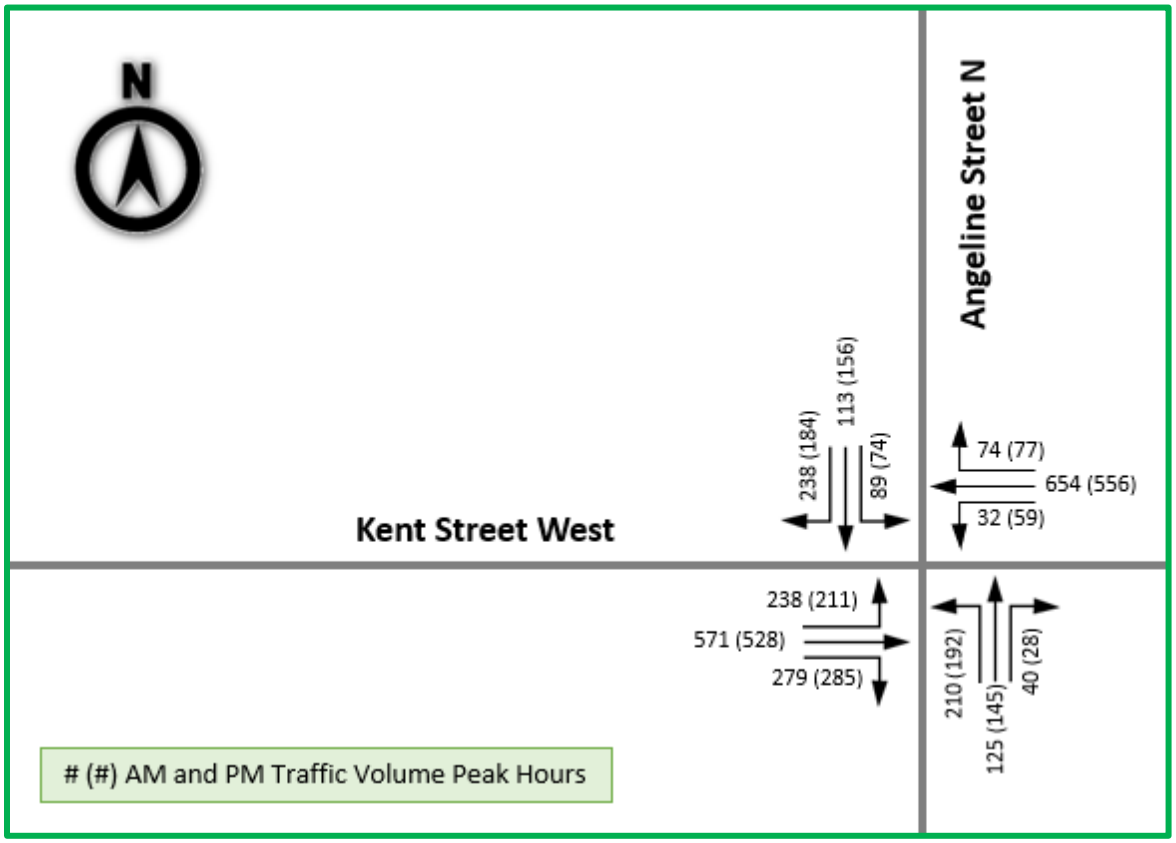


Figure 4: Exiting Traffic Volume AM and PM Peak Hours

[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**.

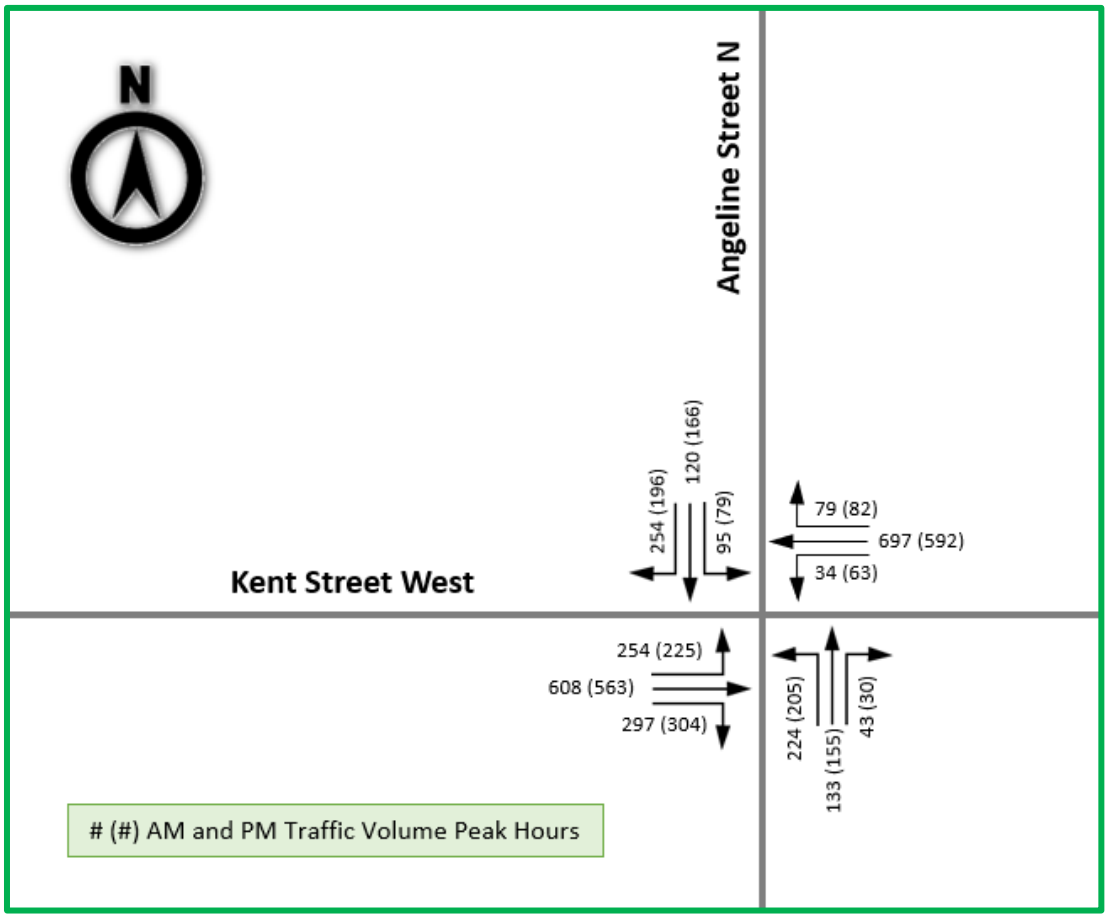


Figure 5: Background Traffic Counts AM and PM Peak Hours – 2027

[5] City of Kawartha Lakes, Growth Management Strategy and Municipal Master Plan Project, Transportation Master Plan, February 2012.

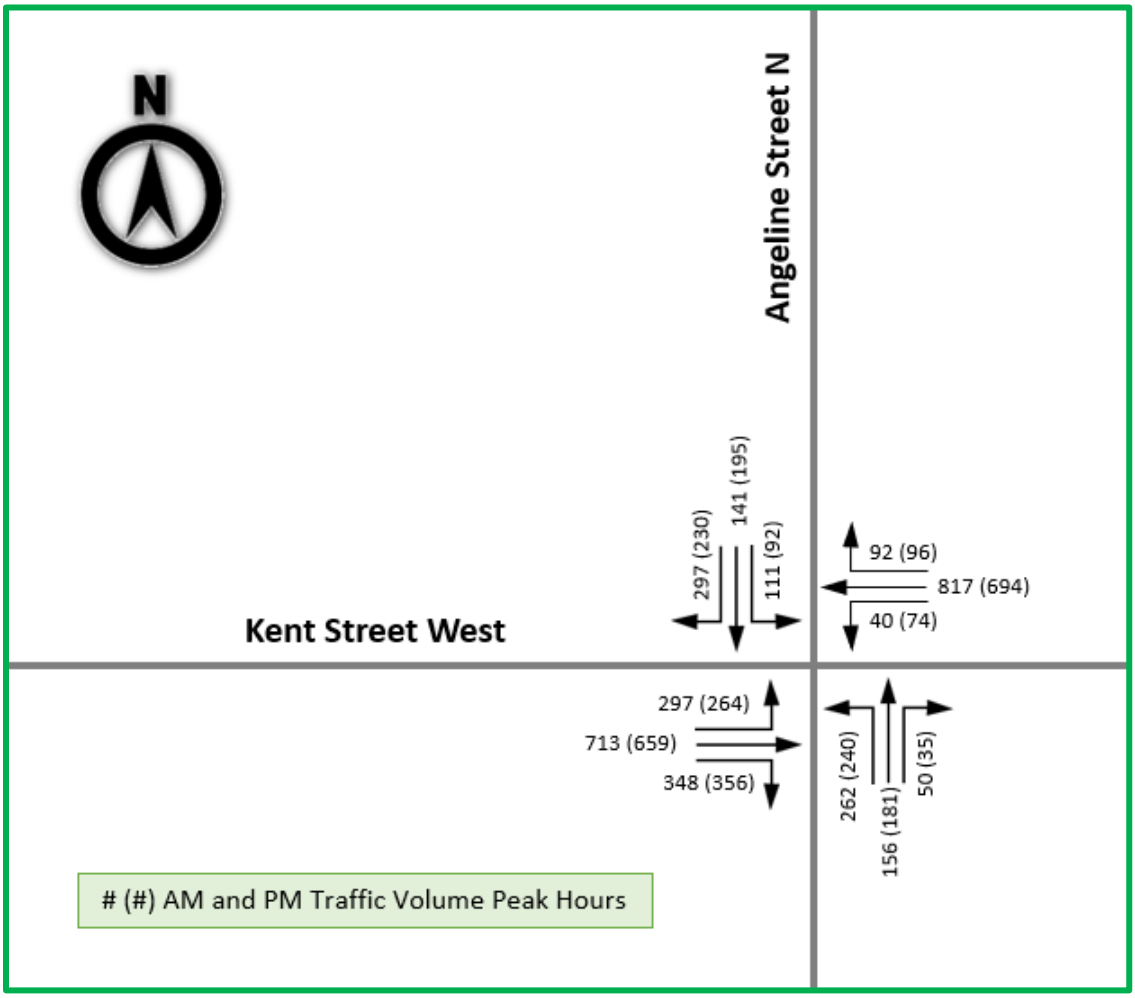


Figure 6: Background Traffic Counts AM and PM Peak Hours – 2037

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 95th 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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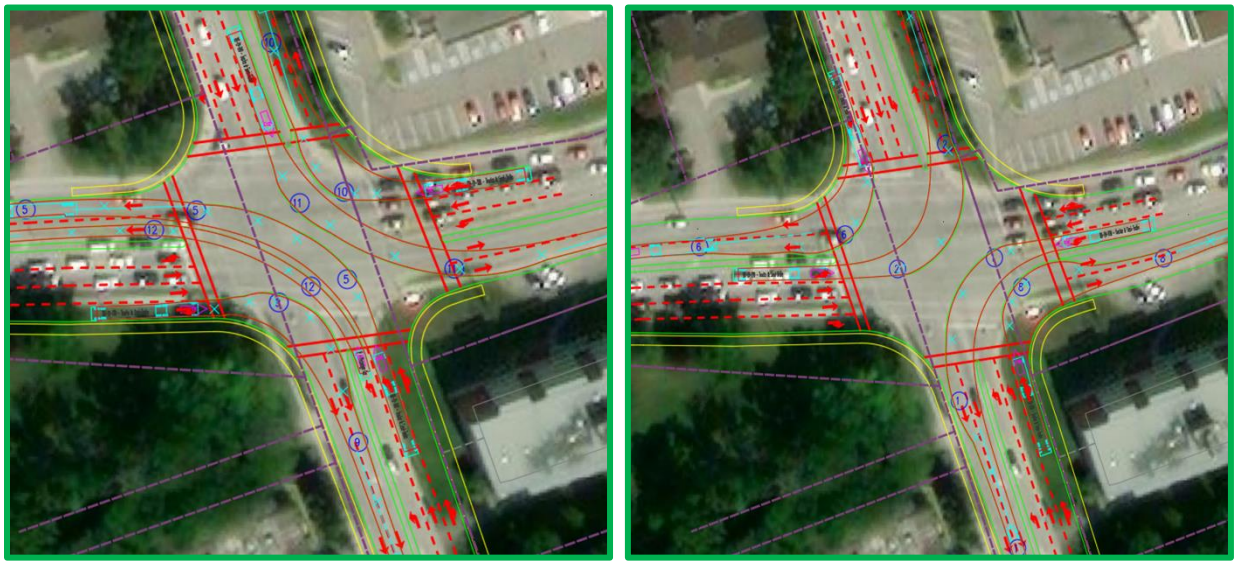


Figure 9: Swept Path Analysis for Option 1



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.

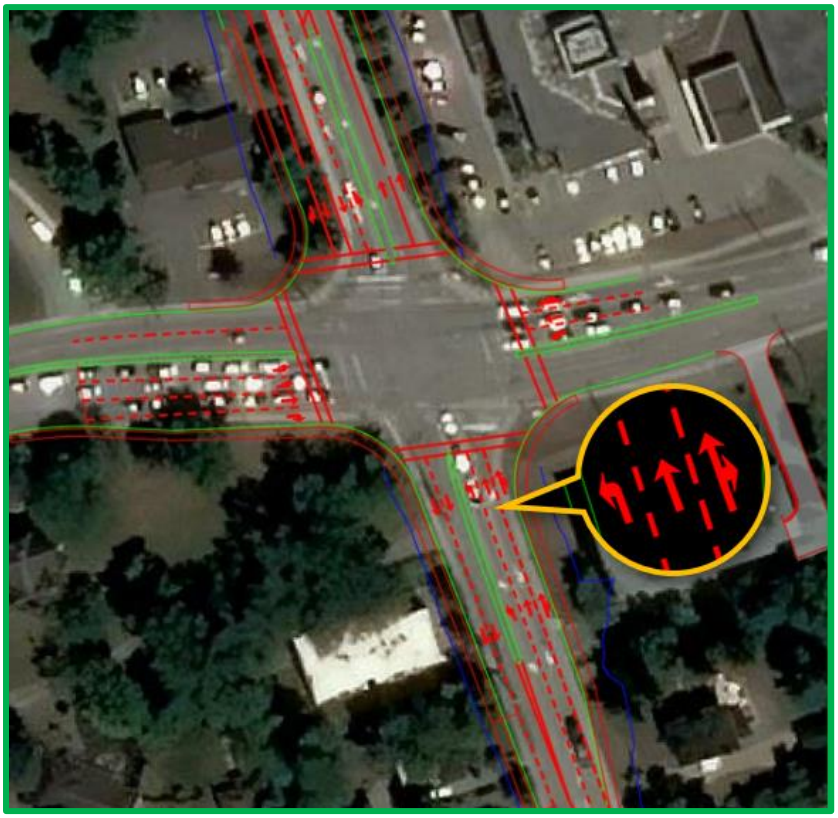


Figure 11: South Approach Configuration of the Preferred Option

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.

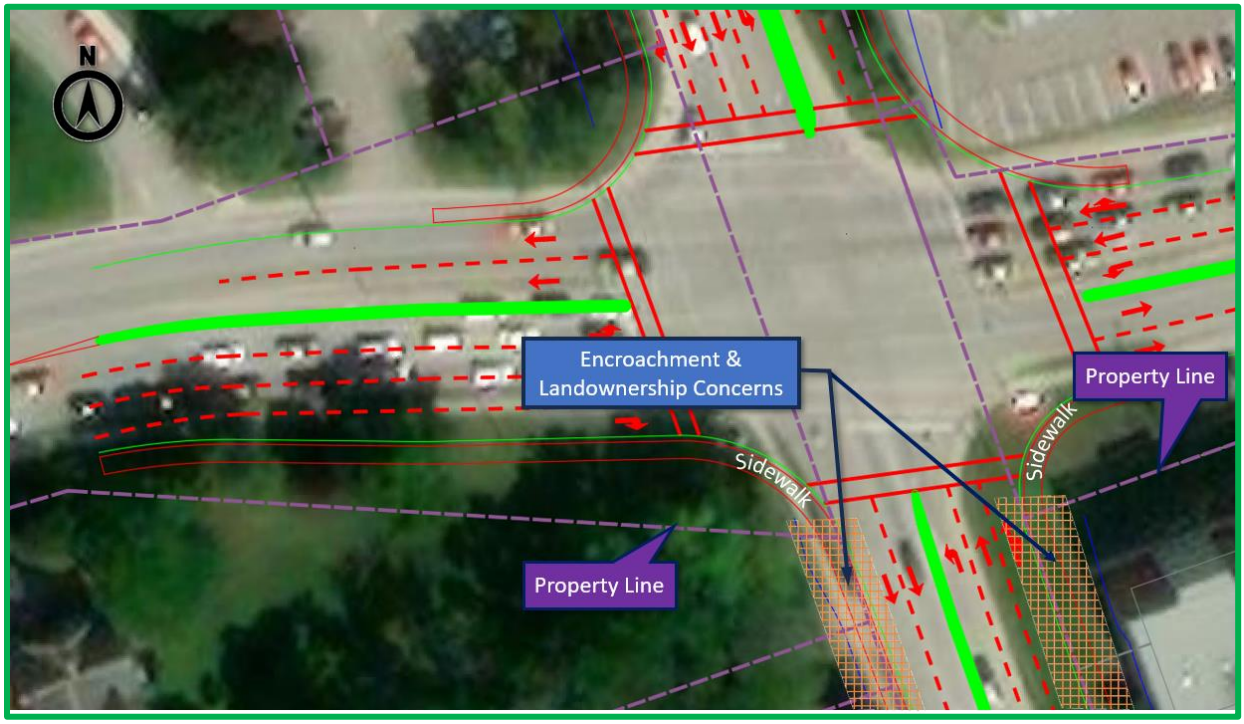


Figure 15: South Approach - Encroachment and Landownership Concerns.

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.

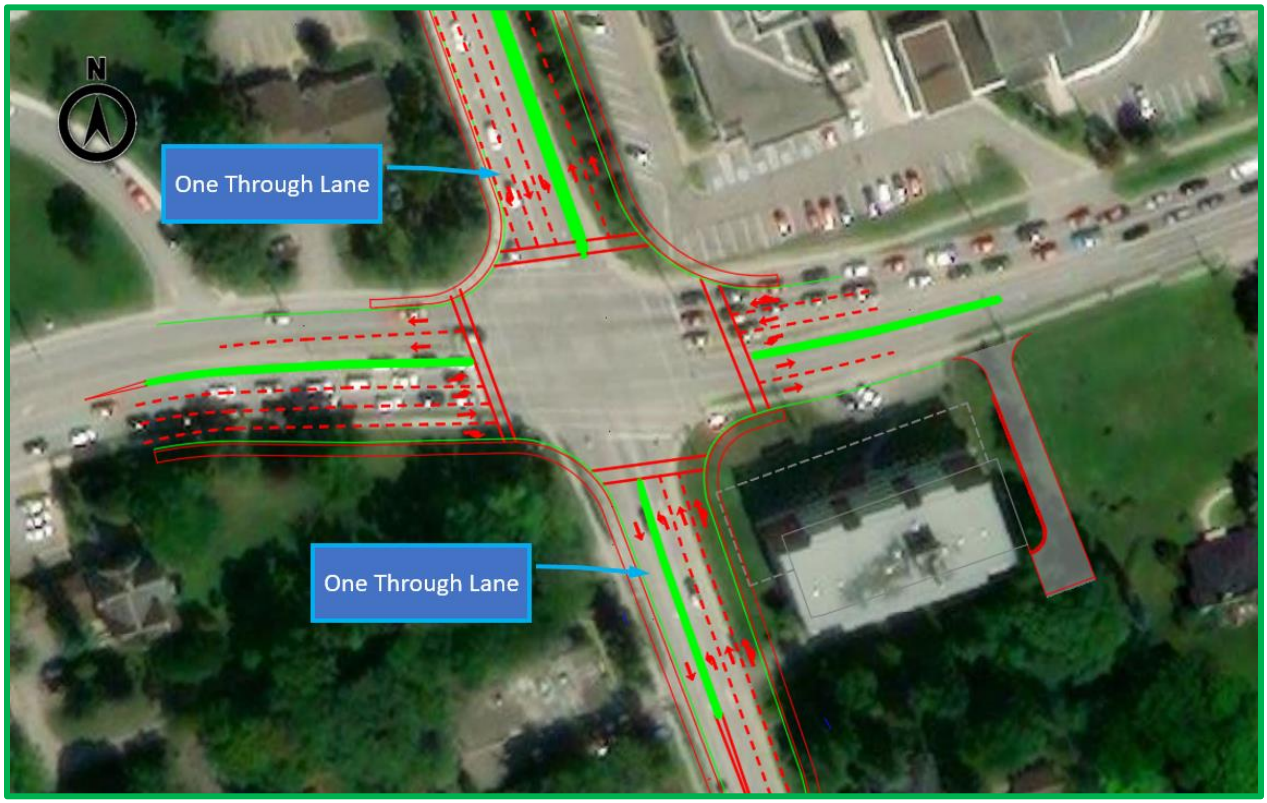


Figure 16: Reducing Another Lane from North and South Approaches

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

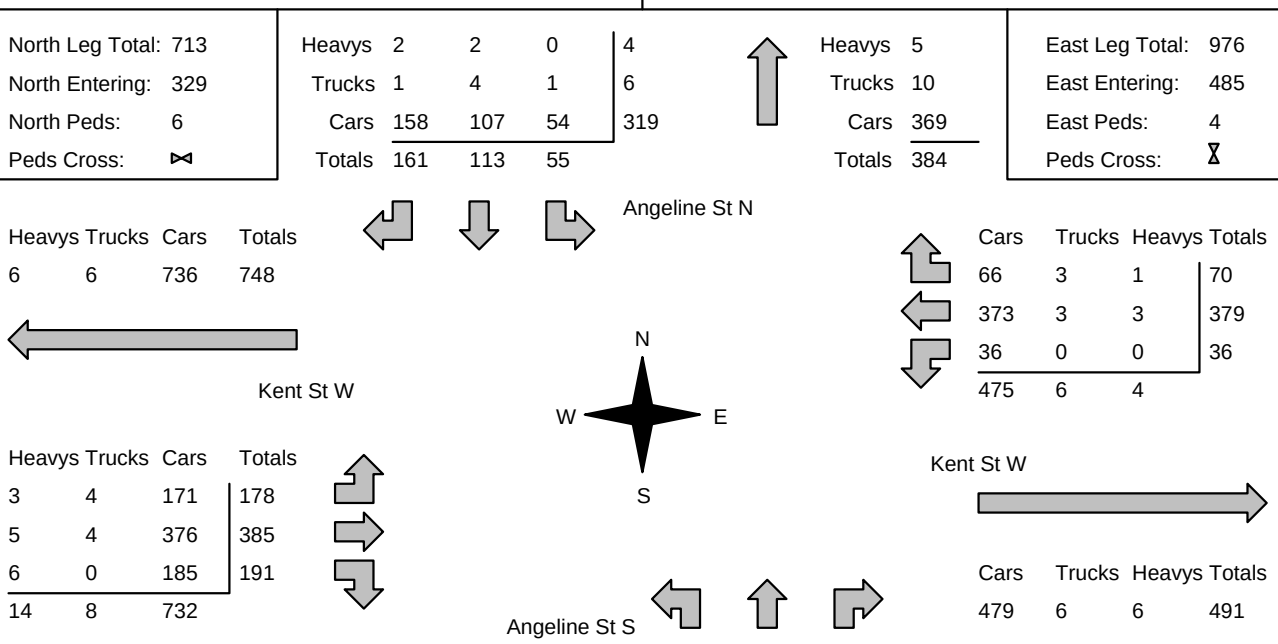
Municipality: Lindsay
Site #: 2318400001
Intersection: Kent St W & Angeline St S
TFR File #: 1
Count date: 1-Aug-23

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

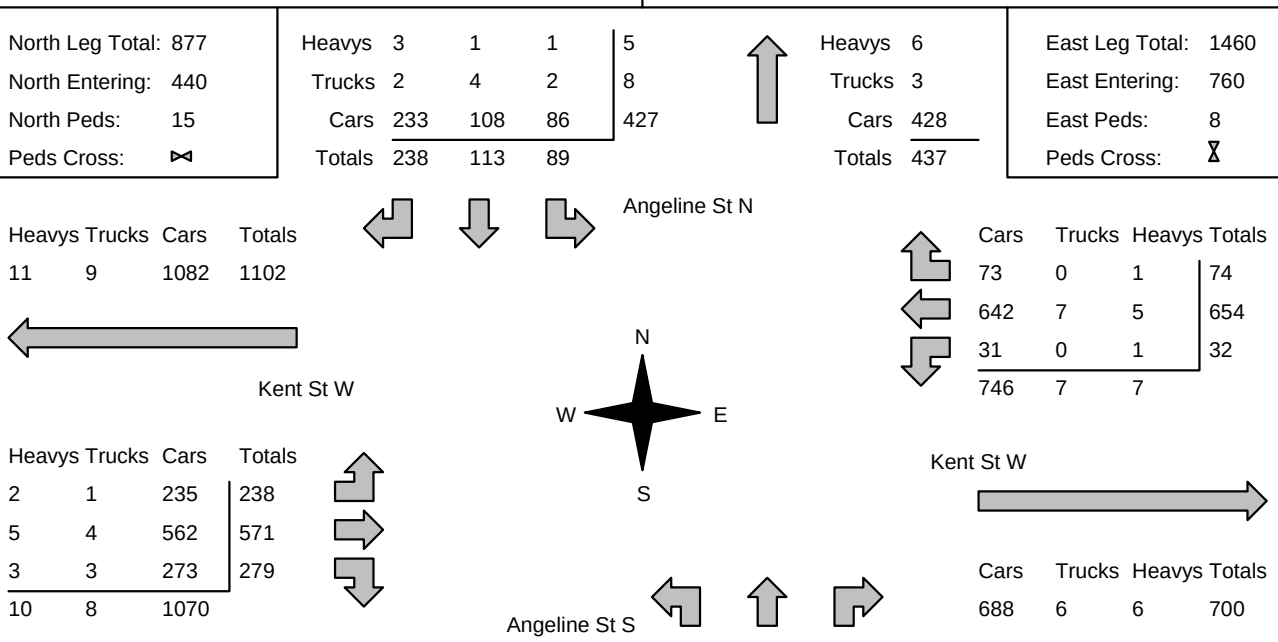
Municipality: Lindsay
Site #: 2318400001
Intersection: Kent St W & Angeline St S
TFR File #: 1
Count date: 1-Aug-23

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

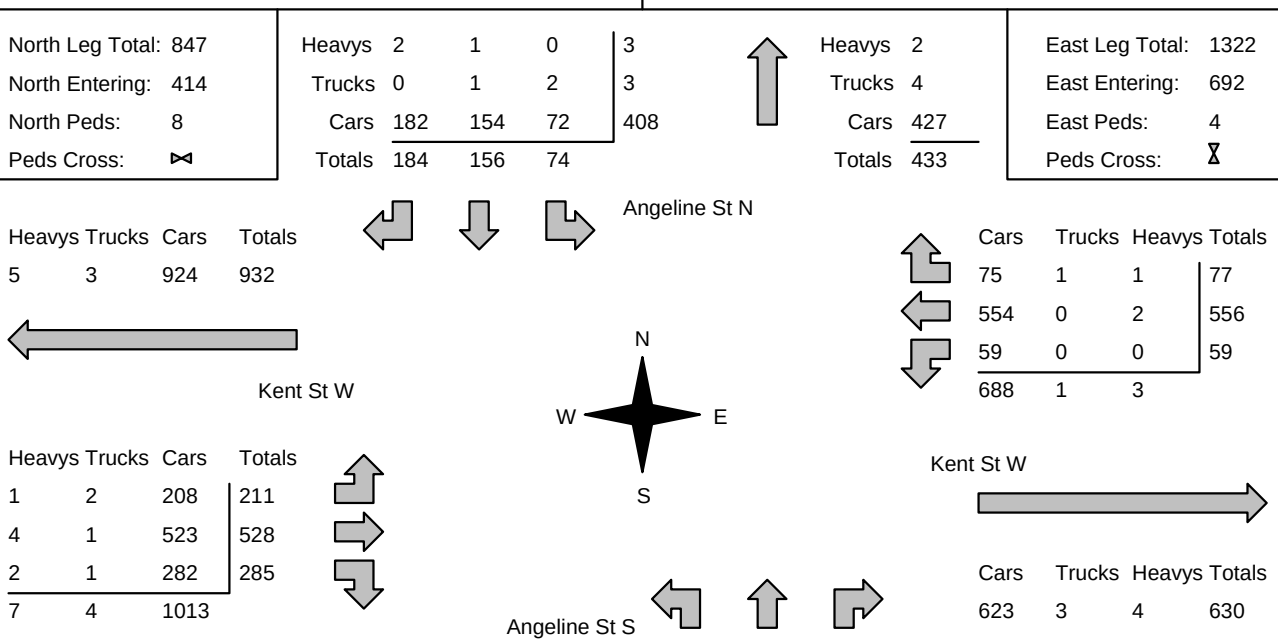
Municipality: Lindsay
Site #: 2318400001
Intersection: Kent St W & Angeline St S
TFR File #: 1
Count date: 1-Aug-23

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

North Leg Total: 5930
North Entering: 2846
North Peds: 101
Peds Cross: ⋈

Heavys	21	12	5	38
Trucks	9	16	5	30
Cars	1303	960	515	2778
Totals	1333	988	525	

Heavys	41
Trucks	32
Cars	3011
Totals	3084

East Leg Total: 8781
East Entering: 4411
East Peds: 49
Peds Cross: ⧗

Angeline St N

Heavys	Trucks	Cars	Totals
62	44	6346	6452

Cars	Trucks	Heavys	Totals
513	5	12	530
3560	25	23	3608
270	1	2	273
4343	31	37	

Kent St W

N
W E
S

Heavys	Trucks	Cars	Totals
13	15	1474	1502
27	25	3478	3530
32	10	1718	1760
72	50	6670	

Kent St W

Cars	Trucks	Heavys	Totals
4302	35	33	4370

Angeline St S

Peds Cross: ⧗
West Peds: 81
West Entering: 6792
West Leg Total: 13244

Cars	2948
Trucks	27
Heavys	46
Totals	3021

Cars	1483	1024	309	2816
Trucks	10	12	5	27
Heavys	18	16	1	35
Totals	1511	1052	315	

Peds Cross: ⋈
South Peds: 157
South Entering: 2878
South Leg Total: 5899

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

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	North/South Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	26	97	83	206	5	480
9:00:00	56	113	127	296	9	666
10:00:00	55	113	161	329	6	724
11:00:00	0	0	0	0	0	0
12:00:00	94	122	207	423	15	803
13:00:00	75	105	220	400	14	794
15:00:00	0	0	0	0	0	0
16:00:00	61	154	184	399	28	745
17:00:00	95	161	185	441	13	806
18:00:00	63	123	166	352	11	706
Totals:	525	988	1333	2846	101	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	East/West Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	25	170	32	227	2	645
9:00:00	24	297	48	369	7	992
10:00:00	36	379	70	485	4	1239
11:00:00	0	0	0	0	0	0
12:00:00	32	588	79	699	12	1728
13:00:00	34	652	77	763	5	1859
15:00:00	0	0	0	0	0	0
16:00:00	35	495	75	605	8	1587
17:00:00	51	542	76	669	7	1656
18:00:00	36	485	73	594	4	1497
Totals:	273	3608	530	4411	49	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

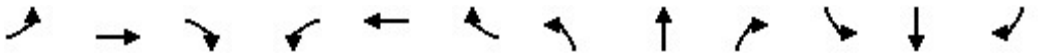
Intersection: 3: Angeline St N & Kent St W

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

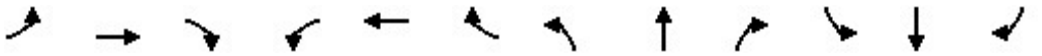
Intersection: 3: Angeline St N & Kent St W

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

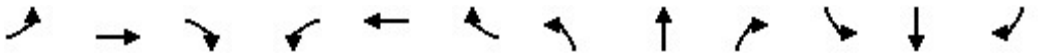
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	L	TR	L	T
Maximum Queue (m)	93.1	125.4	103.3	48.1	80.8	218.3	216.8	50.9	60.4	62.2	30.6	36.5
Average Queue (m)	62.1	63.6	48.8	17.5	27.6	155.3	148.5	13.2	34.0	31.9	13.9	16.0
95th Queue (m)	97.5	104.6	79.4	35.4	83.7	262.5	256.9	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	

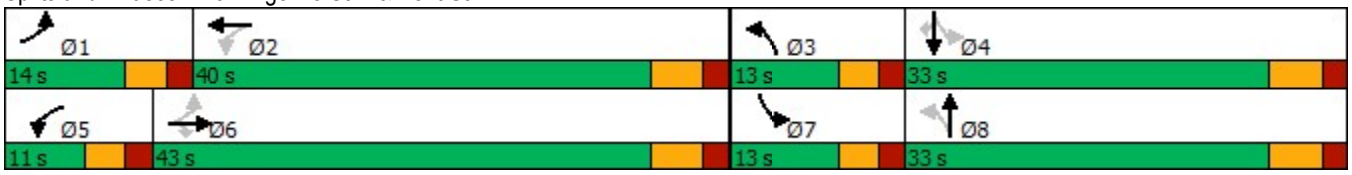
Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

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

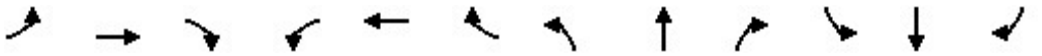
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	L	TR	L	T
Maximum Queue (m)	95.9	196.0	187.7	62.3	80.7	118.9	106.5	55.4	65.3	52.3	38.6	37.4
Average Queue (m)	65.4	71.6	57.1	17.9	12.0	78.4	70.6	13.7	35.3	28.5	13.9	15.4
95th Queue (m)	103.3	152.4	132.1	41.3	47.9	115.1	103.0	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

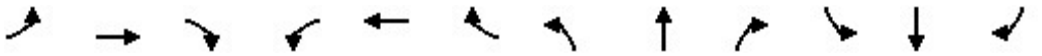
Intersection: 3: Angeline St N & Kent St W

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

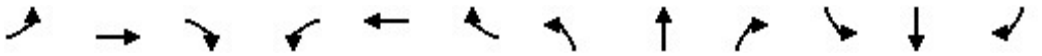
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	L	TR	L	T
Maximum Queue (m)	96.0	303.3	306.0	94.6	80.9	270.4	269.3	58.7	66.8	76.2	44.6	170.0
Average Queue (m)	94.9	275.6	265.9	28.4	28.4	260.8	260.5	23.6	43.1	43.8	19.2	101.7
95th Queue (m)	104.8	368.4	376.5	64.9	86.9	265.2	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

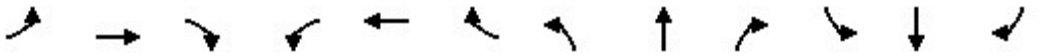
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	L	TR	L	T
Maximum Queue (m)	96.0	224.5	199.2	78.8	80.9	268.0	265.6	65.1	77.8	83.7	43.2	93.0
Average Queue (m)	79.2	110.3	93.2	21.0	36.1	253.6	250.1	33.7	49.2	43.0	17.3	27.5
95th Queue (m)	112.4	224.3	203.3	47.6	97.7	287.8	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

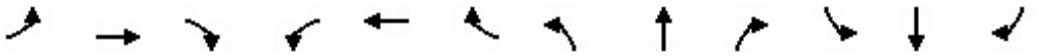
Intersection: 3: Angeline St N & Kent St W

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		

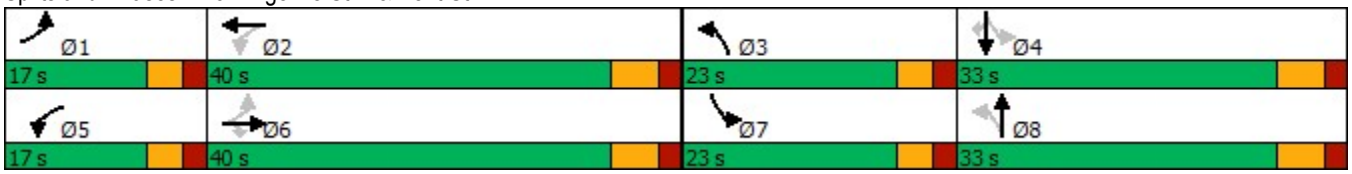
c Critical Lane Group



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

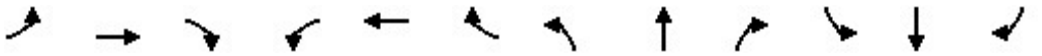
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (m)	86.3	105.8	96.8	56.5	80.8	148.0	139.8	81.7	34.2	36.2	38.6	32.1
Average Queue (m)	48.9	50.7	41.9	14.7	16.0	90.8	84.3	38.1	14.8	15.0	13.9	17.3
95th Queue (m)	78.6	84.4	71.7	35.1	58.6	136.8	130.7	63.9	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		

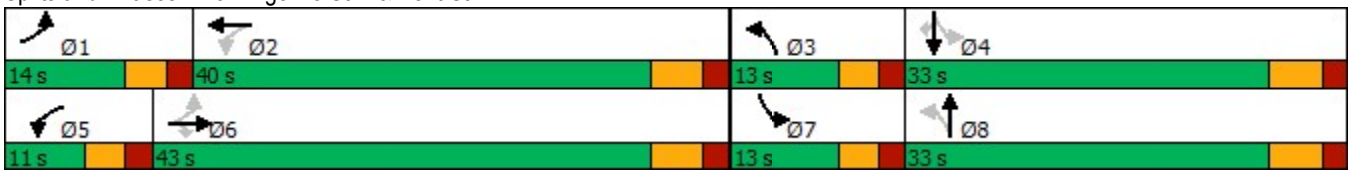
c Critical Lane Group



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

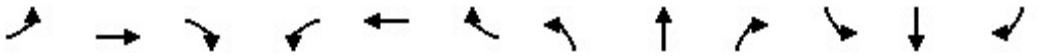
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (m)	88.3	112.6	85.6	30.7	80.8	128.4	122.0	87.1	72.8	36.4	39.6	31.7
Average Queue (m)	53.0	51.8	39.0	15.1	13.0	75.2	65.6	42.6	20.6	16.6	15.3	15.6
95th Queue (m)	88.2	97.7	74.6	27.2	49.2	115.9	109.0	71.8	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

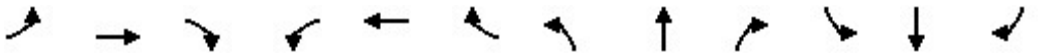
Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	28.9	55.4
Average Queue (m)	7.7	27.9
95th Queue (m)	19.3	47.5
Link Distance (m)	231.5	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		70.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

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		

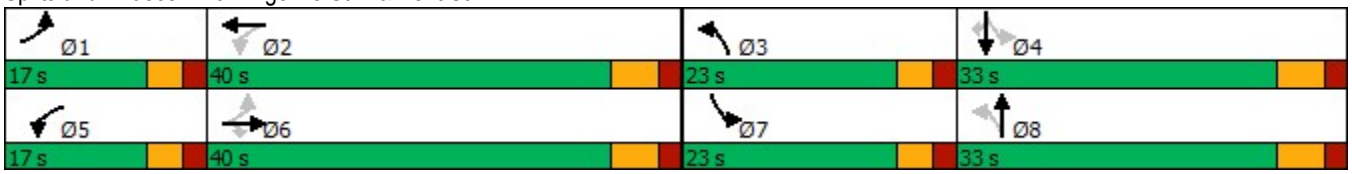
c Critical Lane Group



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

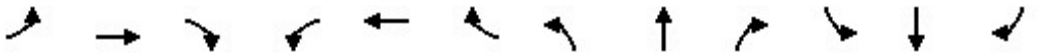
Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (m)	96.0	307.5	310.4	95.4	81.0	268.6	267.6	89.3	104.9	44.6	49.6	38.5
Average Queue (m)	95.0	276.7	270.5	31.1	38.7	259.0	258.2	50.8	27.2	21.5	17.4	22.6
95th Queue (m)	102.3	371.3	378.8	76.9	99.5	263.3	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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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.

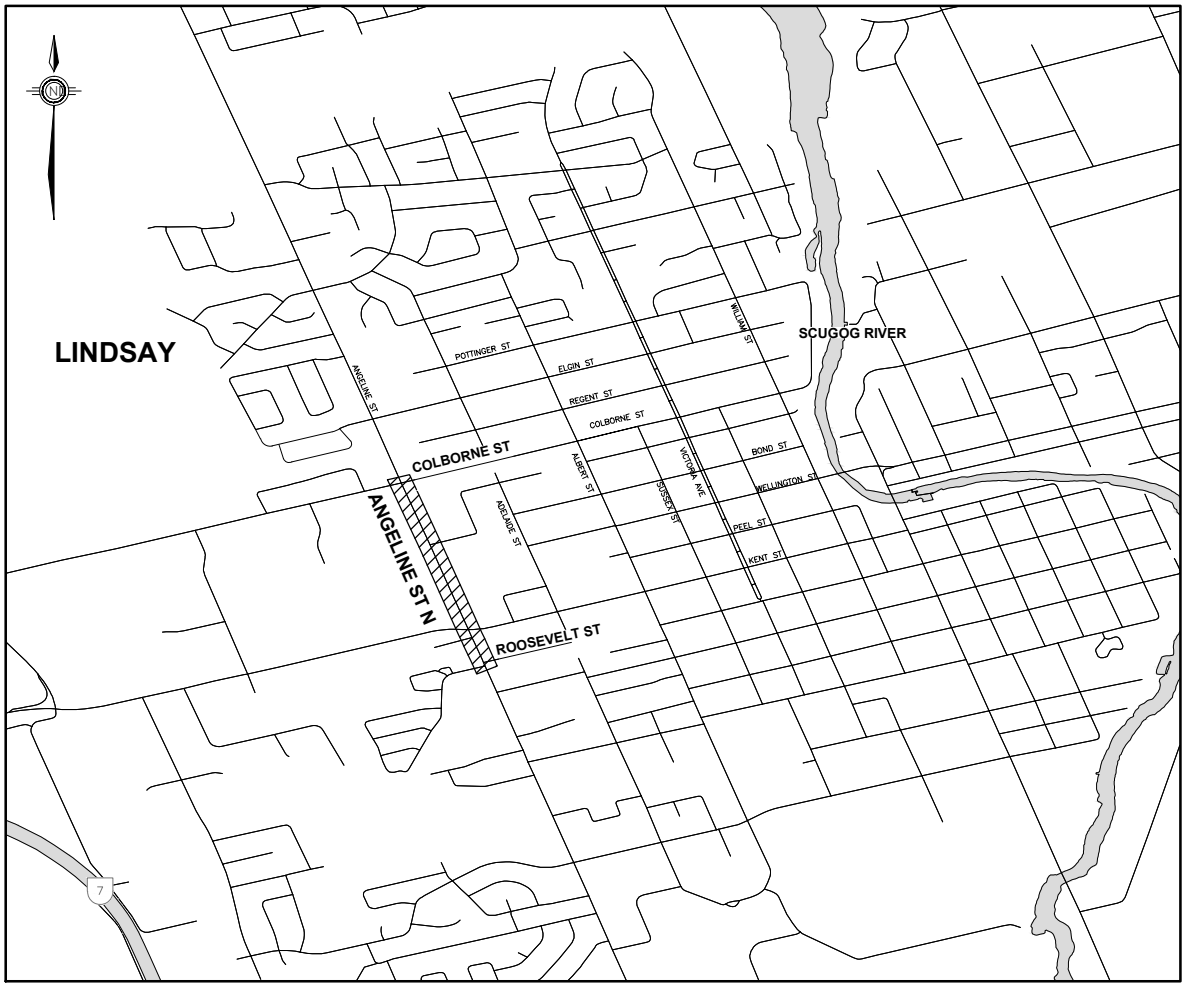
5.0 CLOSURE

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

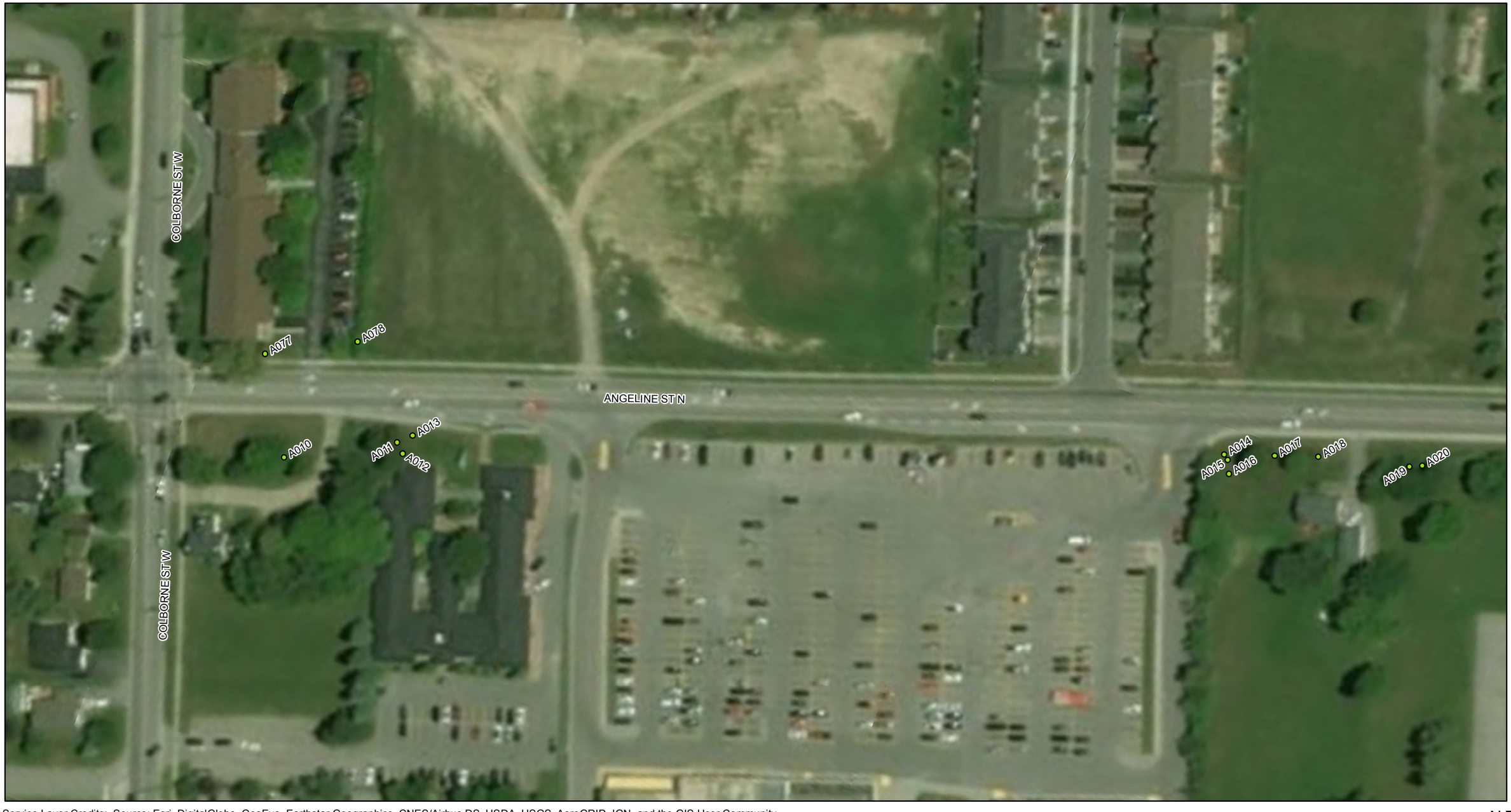
DIMENSIONS ARE IN METRES
AND/OR MILLIMETERS
UNLESS OTHERWISE SHOWN

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.



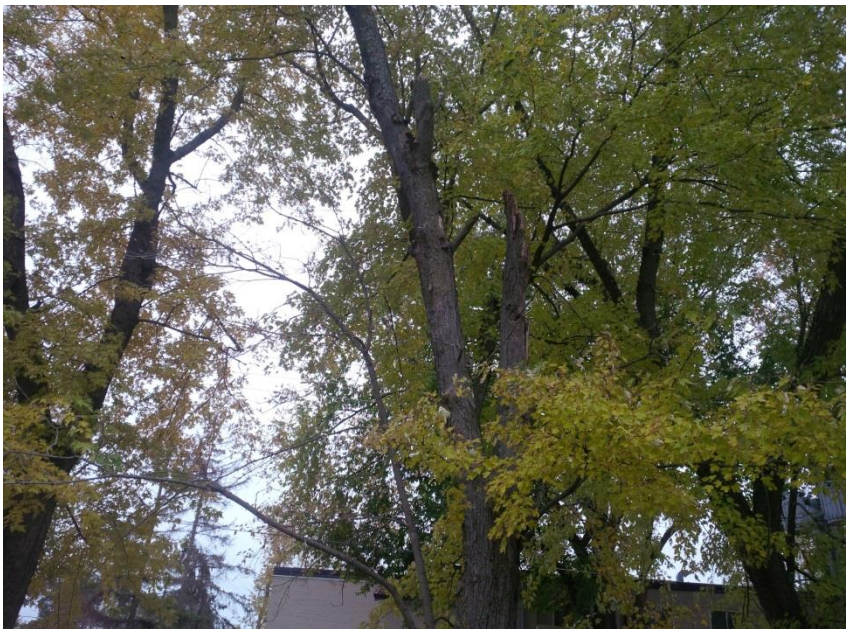
Photograph 5. Typical healthy White Spruce – November 26, 2018.



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.

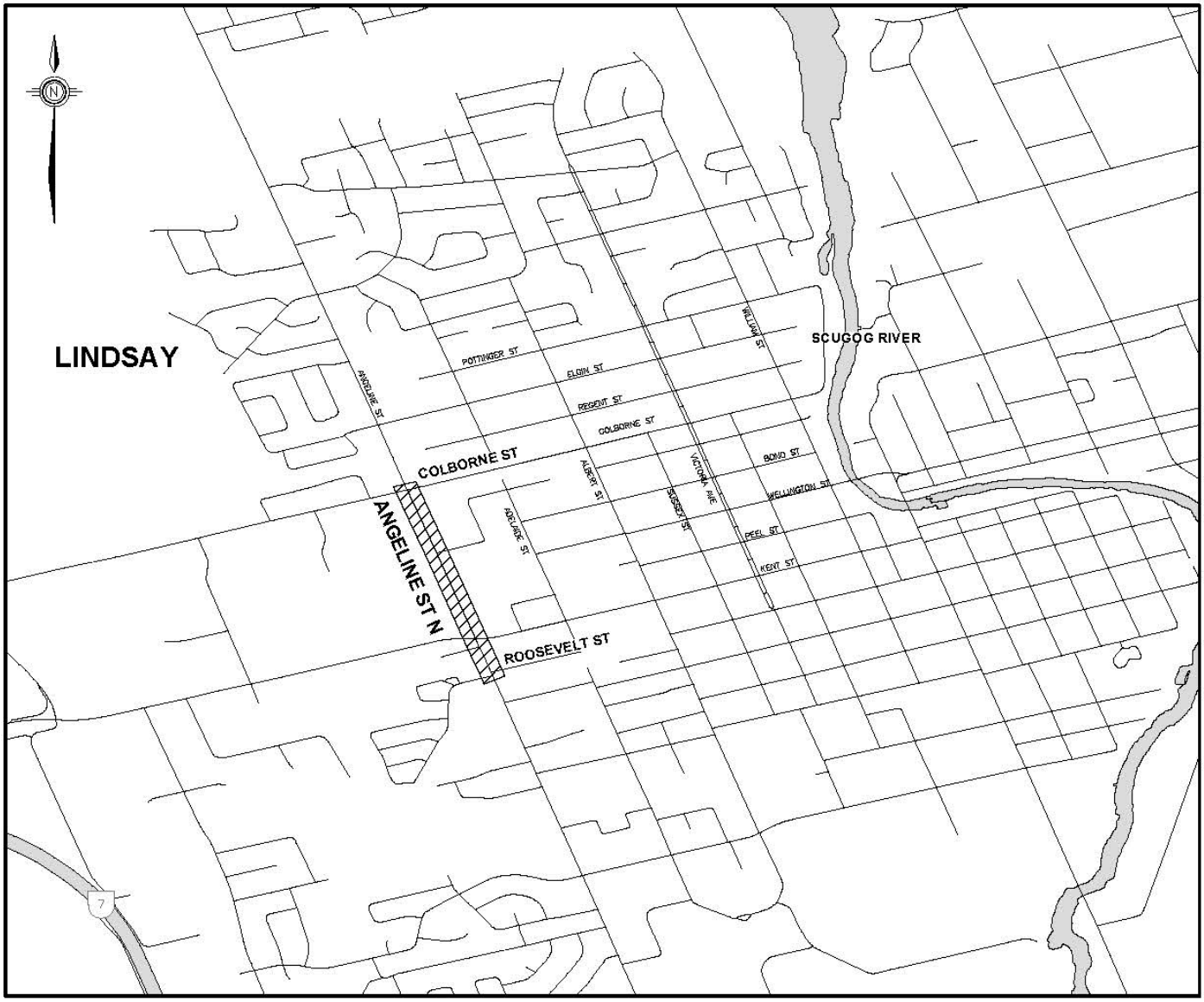
Sincerely,



Scott Reynolds, B.Sc.(Env), EP
Consultant Environmental Planner

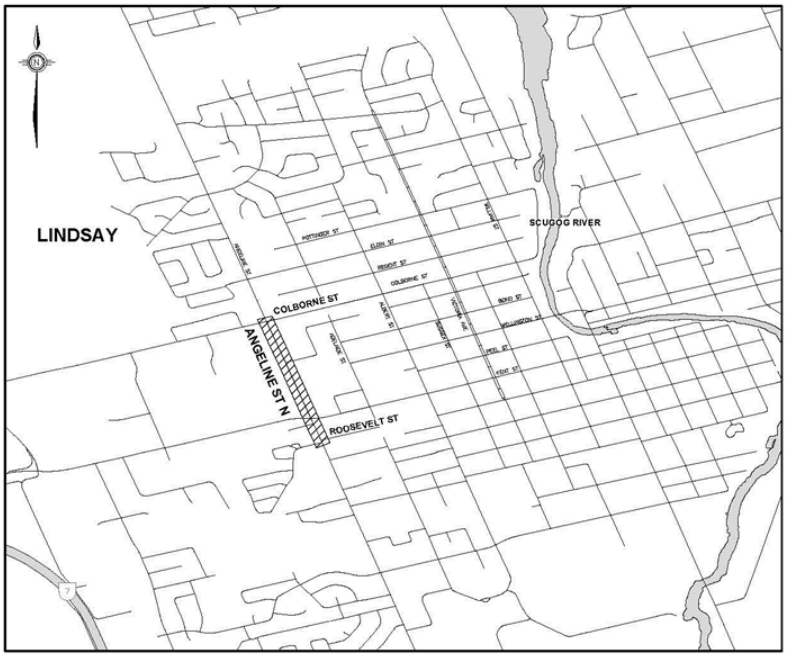
cc. Elizabeth Bonucchi, P.Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Supervisor, Infrastructure Design and Construction – City of Kawartha Lakes

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.



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 4:30 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
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.on.ca

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Sincerely,

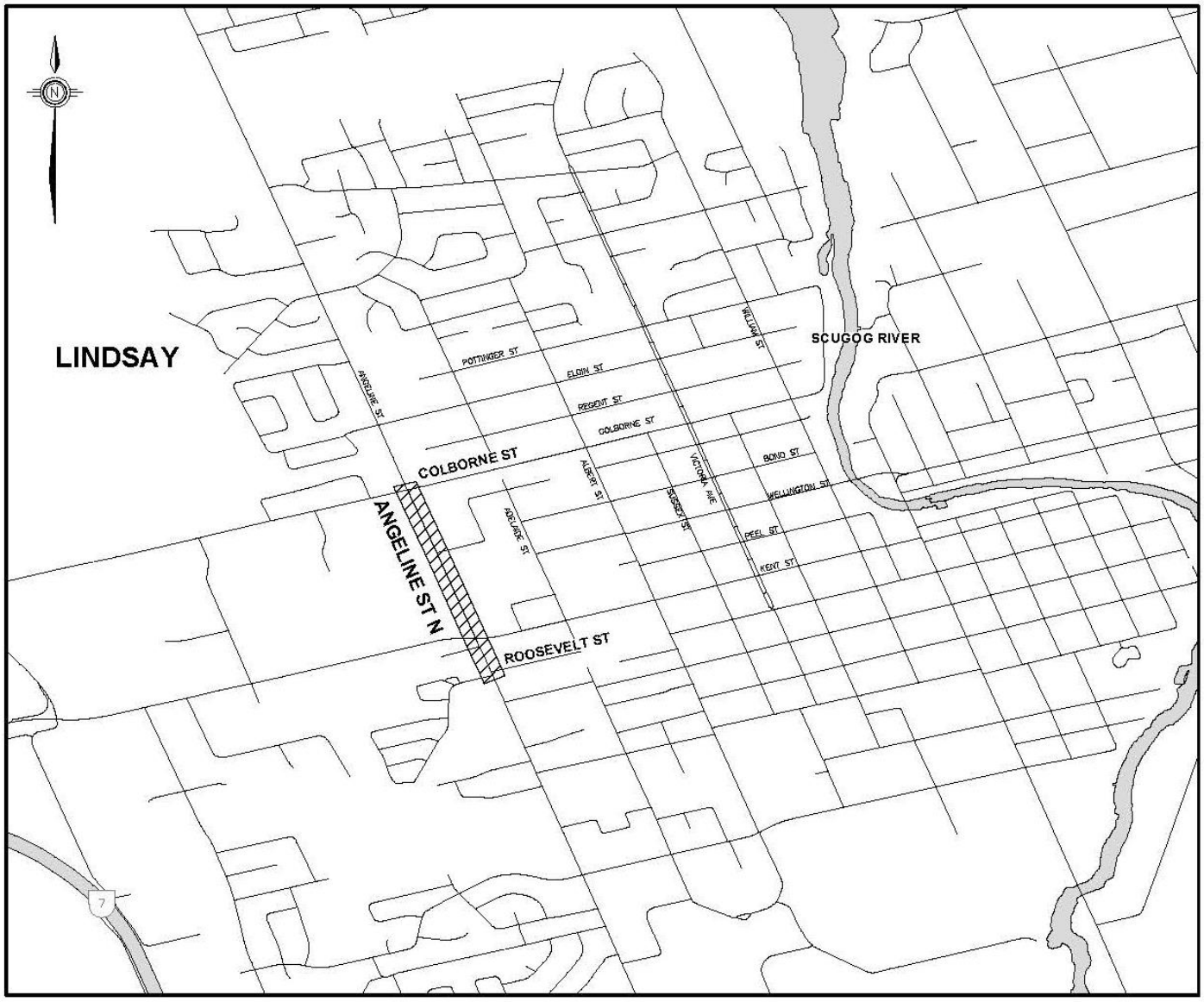
AINLEY GRAHAM & ASSOCIATES LIMITED



Scott Reynolds, B.Sc. (Env), EP
Consultant Environmental Planner

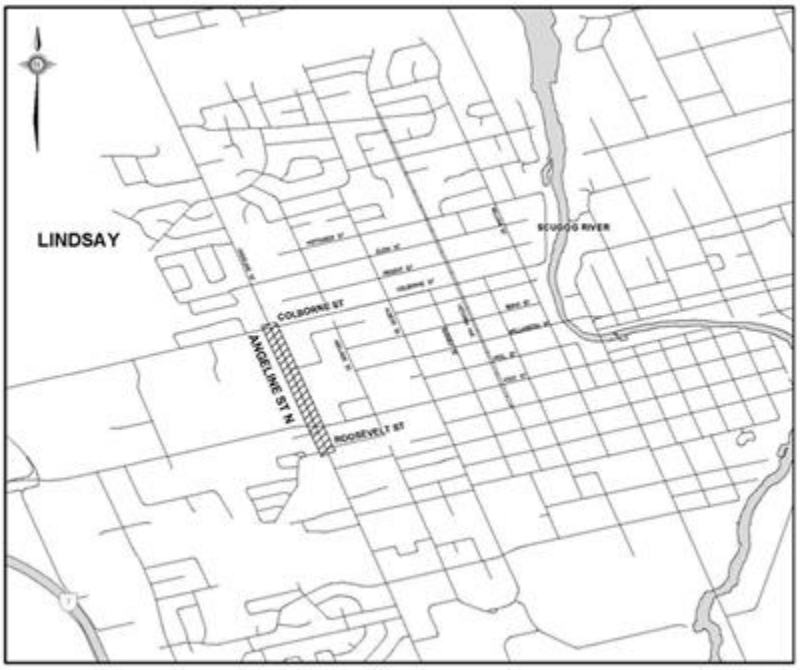
cc. Alex Wilkinson, P. Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Manager, Infrastructure Design and Construction – City of Kawartha Lakes

Project Location Plan
(not to scale)



Notice of Second Public Information Centre (PIC)
City of Kawartha Lakes
Municipal Class Environmental Assessment and Design
for the Reconstruction of Angeline Street North

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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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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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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

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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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

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

Some people who received this message don't often get email from alexander.wilkinson@ainleygroup.com. Learn why this is important

CAUTION/Wewena sa naa!: This is an external email from outside Curve Lake First Nation. Please take care when clicking links or opening attachments and check the senders e-mail address. When in doubt contact the sender by phone or reach out to the IT Department (aasnaa@curvelake.ca) | Ow waasmo-biijbii'gan gii-biwnjibaamgad n'goji maa goj'yi'iing Oshkiigamaag. Aangwaam'zin pii ewanaab'ndman aan'koobjig'nan maage'sh zheyaakonaman gegoon e-aan'koobdeg,

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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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: 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

- *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: 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

WWW.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]

[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]

GWD 30 YEARS
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NEW GWD OFFICE ALERT: 7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4

[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

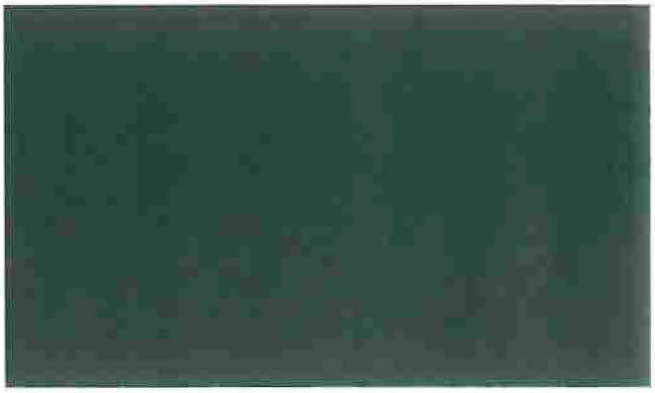
[redacted]

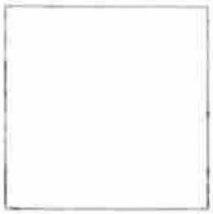
Subject: Re: 18545-2 - Angeline St. N. Reconstruction Project

[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
Gagnon Walker Domes
PROFESSIONAL PLANNERS

[redacted] 855-771-7266
W: www.gwdplanners.com

7685 Hurontario Street, Suite 501, Brampton, ON, L6W 0B4

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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
Cell: (613) 453-8215
Email: alexander.wilkinson@ainleygroup.com

WWW.AINLEYGROUP.COM

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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 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 322 Kent Street West Lindsay, ON
MEETING No:	Kent Street Stakeholder Meeting
PRESENT:	City of Kawartha Lakes (CKL): • Juan Rojas, Director of Eng. and Corporate Assets; jrojas@kawarthalakes.ca • Joseph Kelly, Sr. Eng. Tech., Eng. & Corporate Assets; jkelly@kawarthalakes.ca • Corby Purdy, Mgr, Infrastructure Design and Const.; cpurdy@kawarthalakes.ca Dentistry on Kent: [redacted] Ross Memorial Hospital: • Veronica Nelson, Vice President & Chief Operating Officer; vnelson@rmh.org • Mark Zahra, Director of Facilities; mzahra@rmh.org Ambassador Apartments: [redacted] Ainley Group: • Alex Wilkinson, Project Engineer; alexander.wilkinson@ainleygroup.com • Scott Reynolds, Mgr. of Enviro. Planning; scott.reynolds@ainleygroup.com
DISTRIBUTION:	• All Ainley Group and City of Kawartha Lakes Staff present Ainley Group: • Lois-Ann Hayes, Vice Pres. and Branch Mgr.;lois-ann.hayes@ainleygroup.com • 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. 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]
[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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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 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

AINLEY GRAHAM & ASSOCIATES LIMITED
139 Front Street, Unit 100, Belleville, ON K8N 2Y6
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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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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).

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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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 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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[redacted]

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Angeline Street North Reconstruction, City of Kawartha Lakes

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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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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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April 24, 2024 File No. 18545-2

[redacted]

[redacted]

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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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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.

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]

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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
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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

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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).

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]

[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]

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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AINLEY GRAHAM & ASSOCIATES LIMITED
1-50 Grant Timmins Drive, Kingston, ON K7M 8N2
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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45 South Front Street
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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Figure 1 Key Map

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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**.

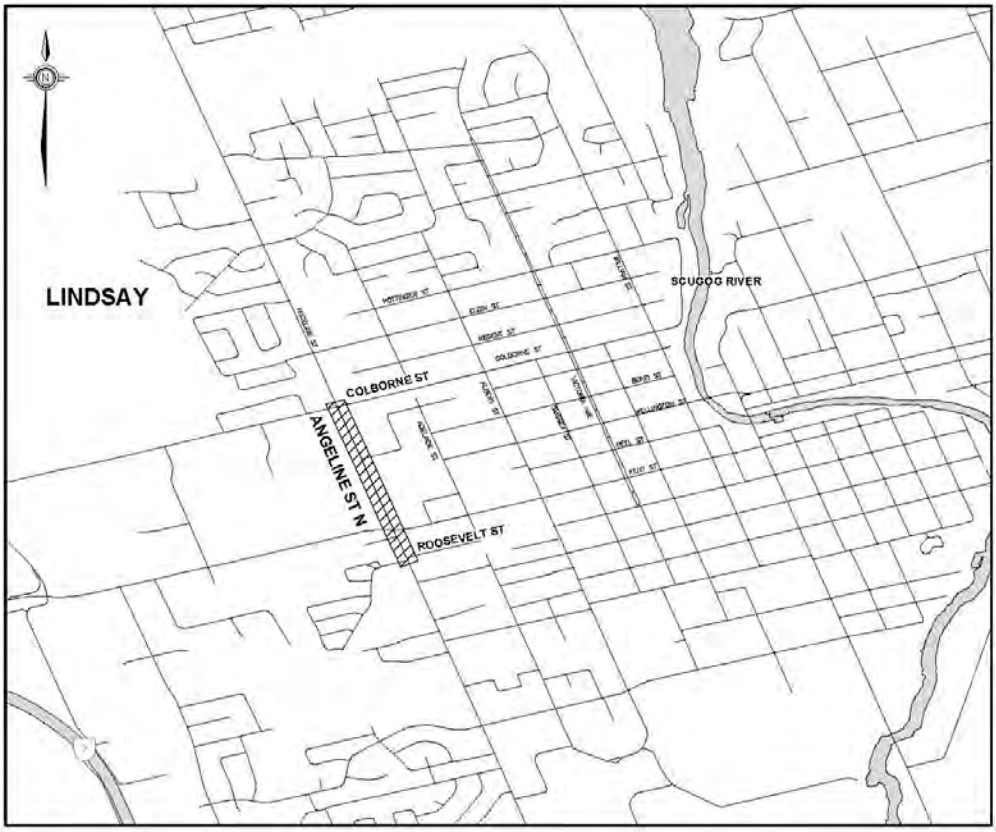


Figure 1 - Key Map

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.

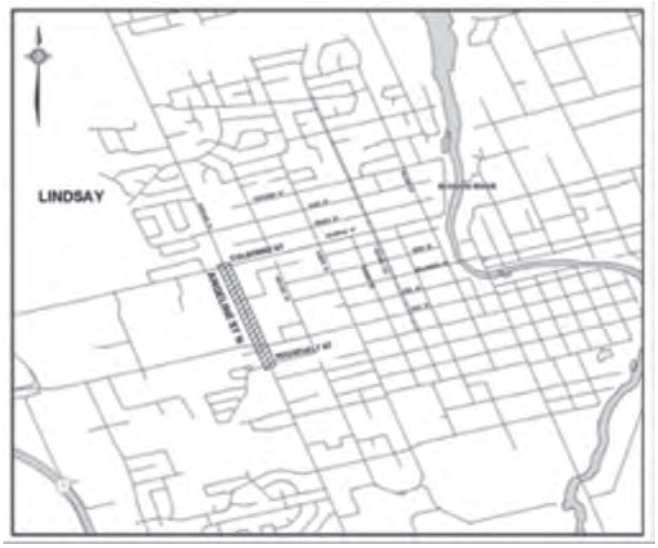
Appendix A

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

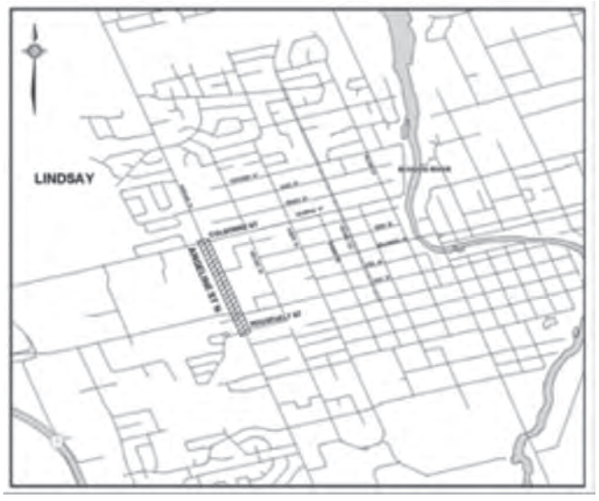
Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

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

Notice of Study Commencement and PIC
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Municipal Class Environmental Assessment and Design for the Reconstruction of Angeline Street North

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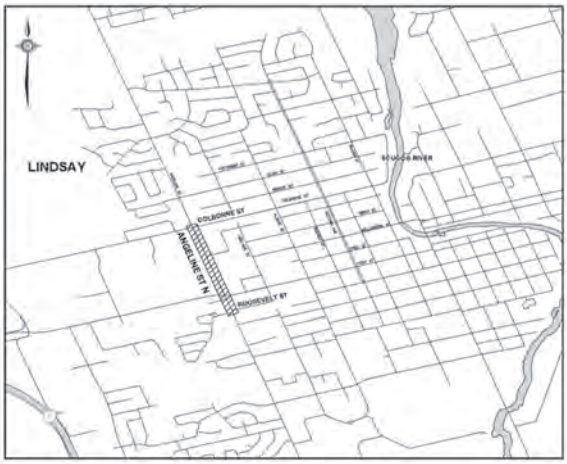
Mr. Corby Purdy, C.E.T.
Supervisor, Infrastructure Design and Construction
City of Kawartha Lakes
12 Peel Street
Lindsay, ON K9V 5R8

Phone: (705) 324-9411 extension 1155
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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



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.

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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.
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Mr. Corby Purdy, C.E.T.
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City of Kawartha Lakes
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Phone: (705) 324-9411 extension 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

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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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K9V 5R8

Phone: (705) 324-9411 ext. 1155
Fax: (705) 324-2982
Email: cpurdy@kawarthalakes.ca

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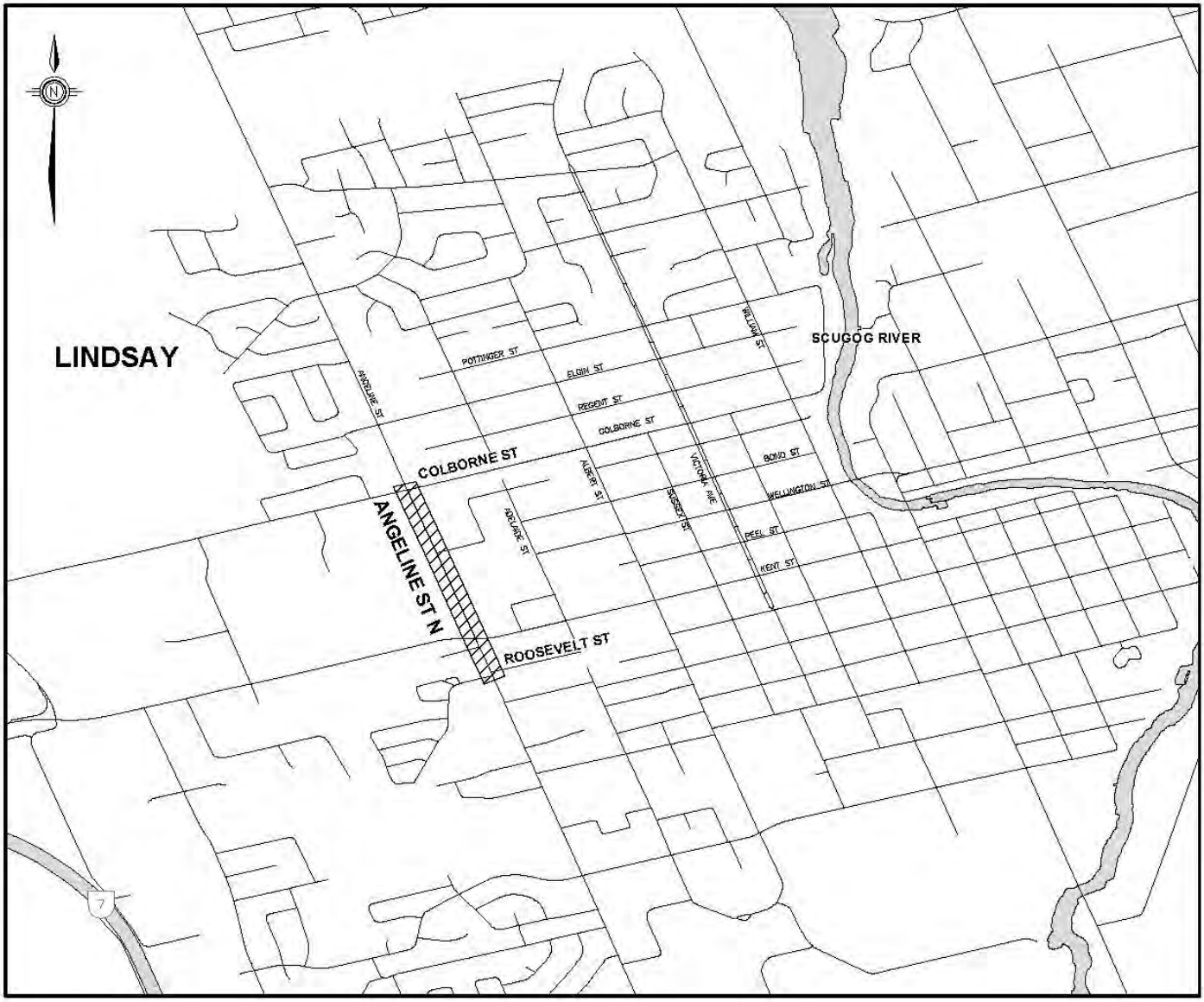
Sincerely,



Scott Reynolds, B.Sc.(Env), EP
Consultant Environmental Planner

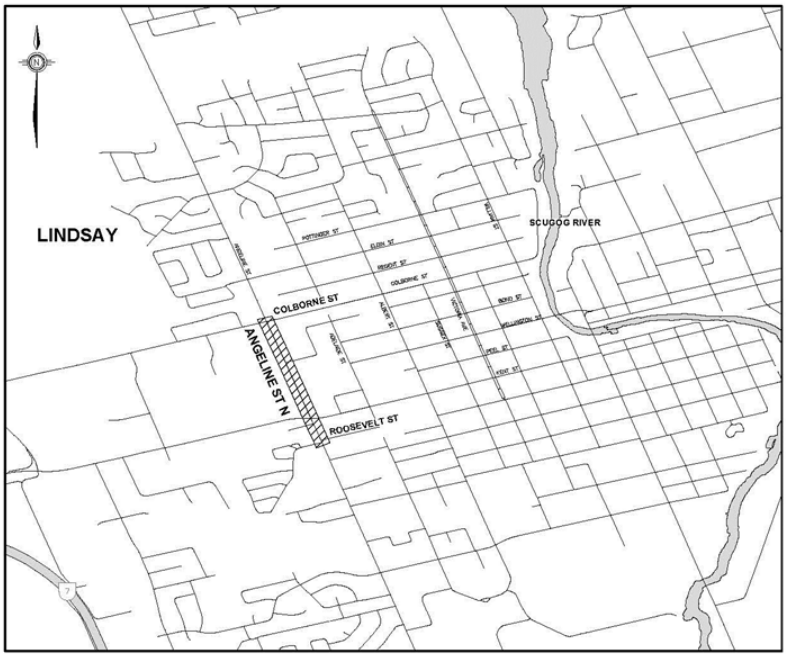
cc. Elizabeth Bonucchi, P.Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Supervisor, Infrastructure Design and Construction – City of Kawartha Lakes

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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Email: cpurdy@kawarthalakes.ca

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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

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

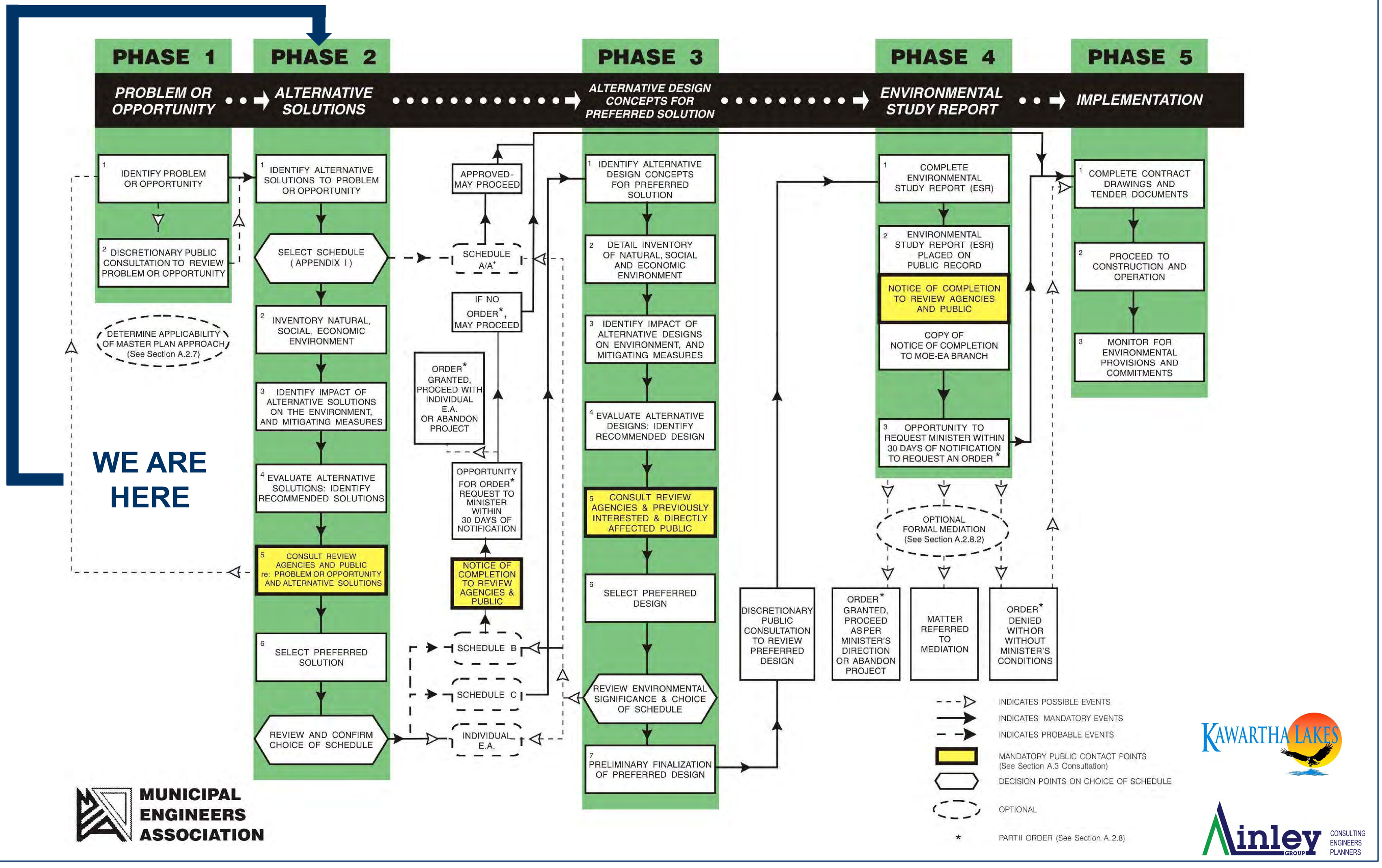
PROJECT LOCATION PLAN



KAWARTHA LAKES

Minley GROUP CONSULTING ENGINEERS PLANNERS

SCHEDULE 'B' MUNICIPAL CLASS EA PROCESS



MUNICIPAL ENGINEERS ASSOCIATION

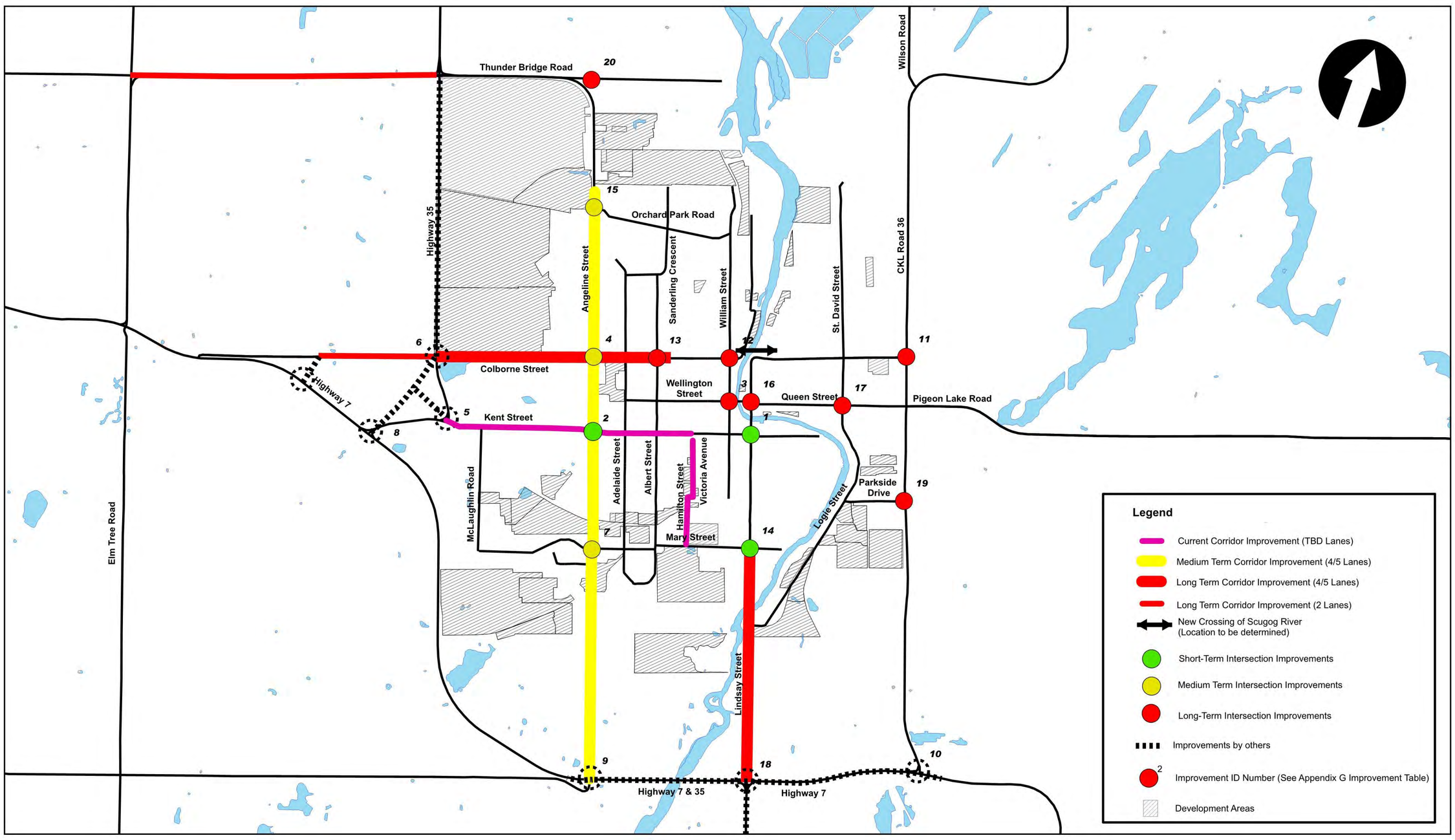
KAWARTHA LAKES

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

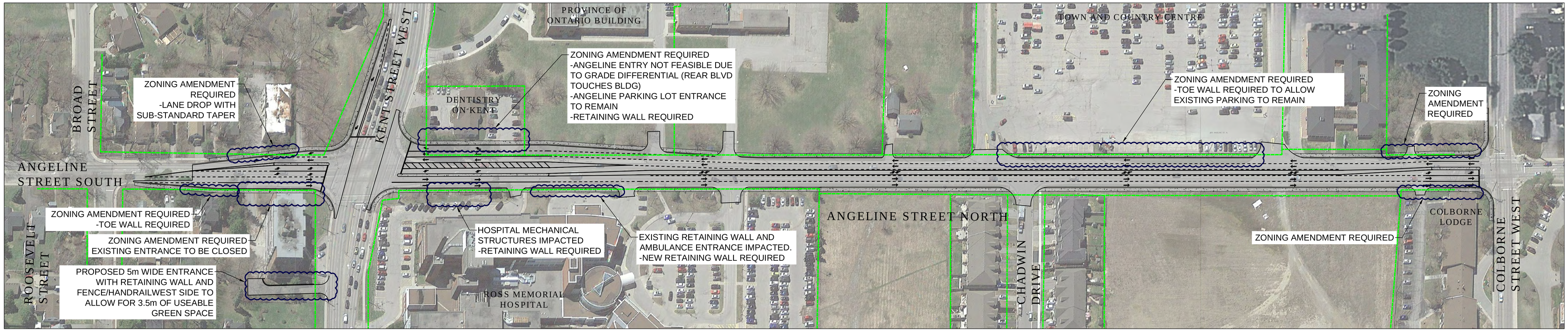
Opportunity Statement

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

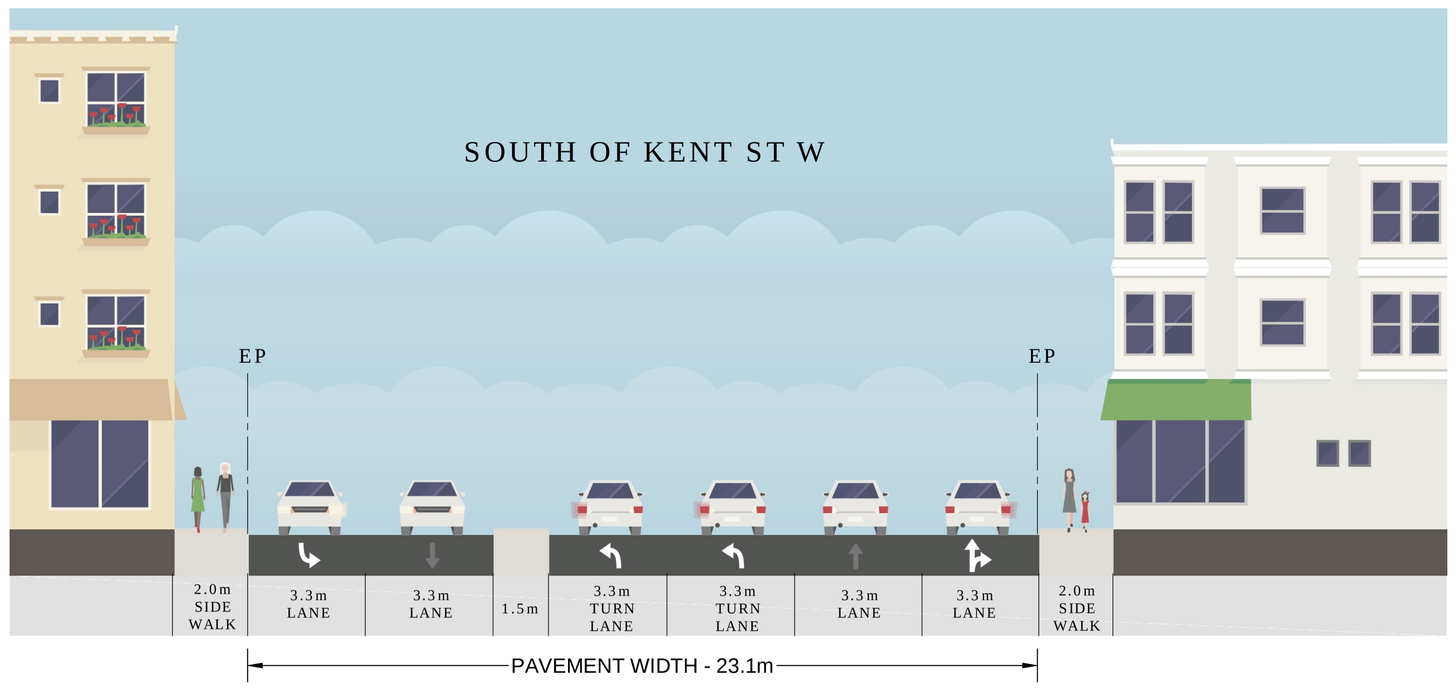
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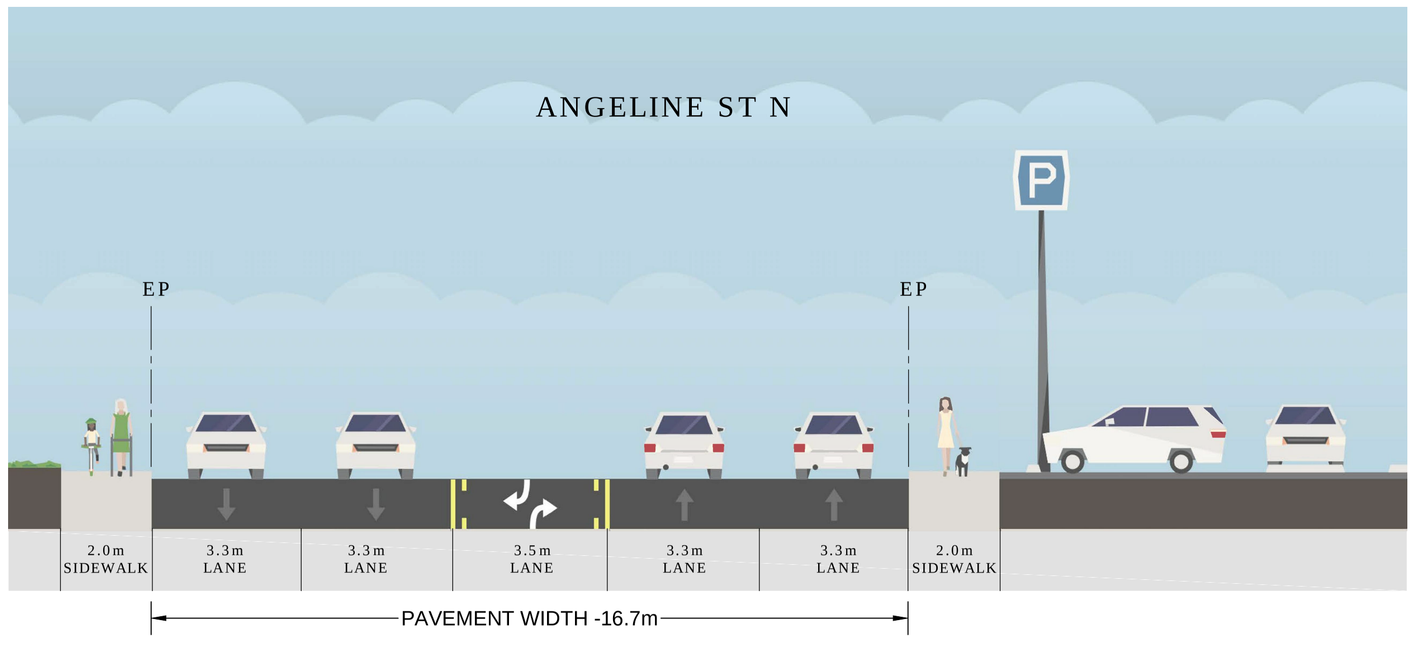


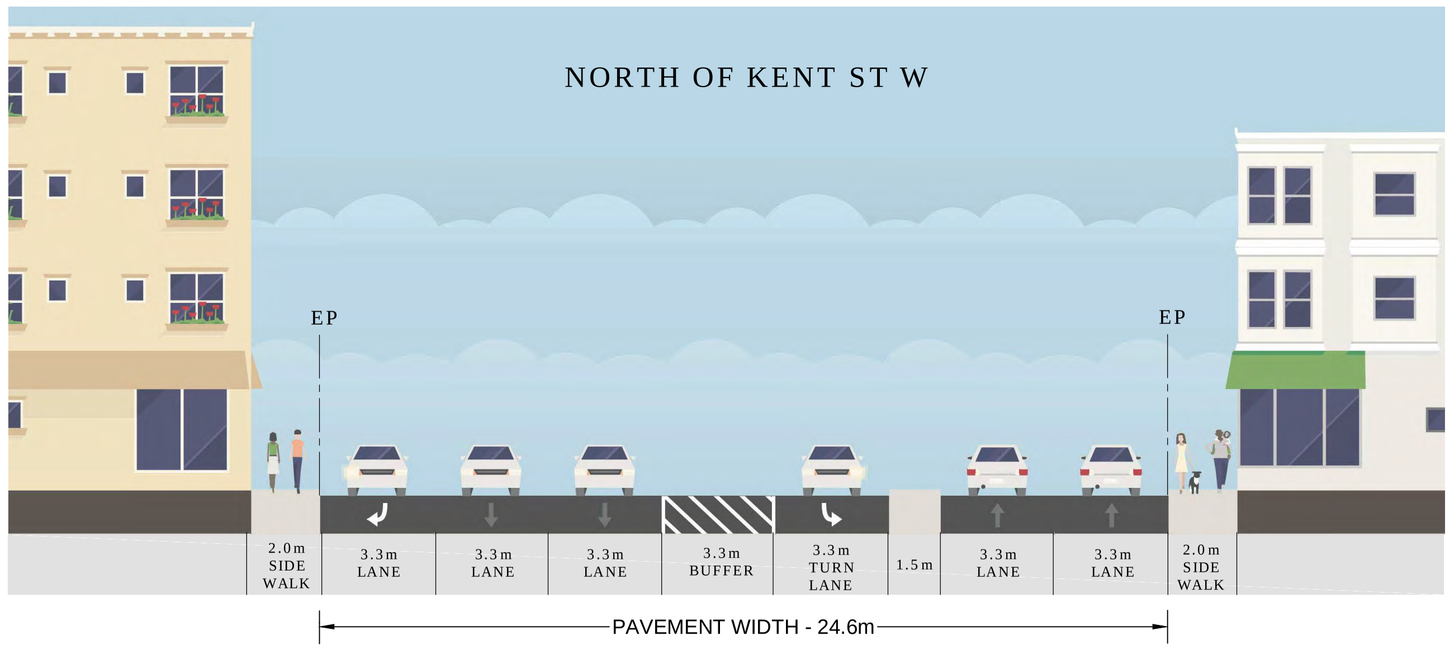
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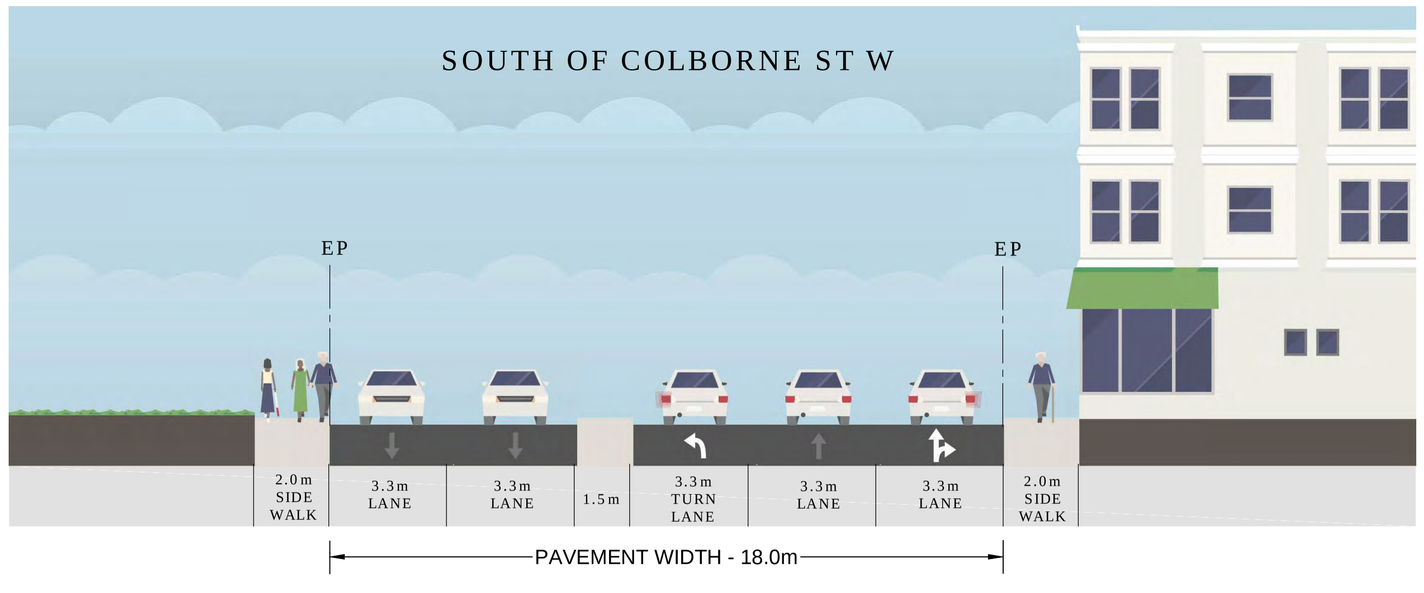
ALTERNATIVE 1

TREES REMOVED = 32
UTILITY POLES RELOCATED = 20

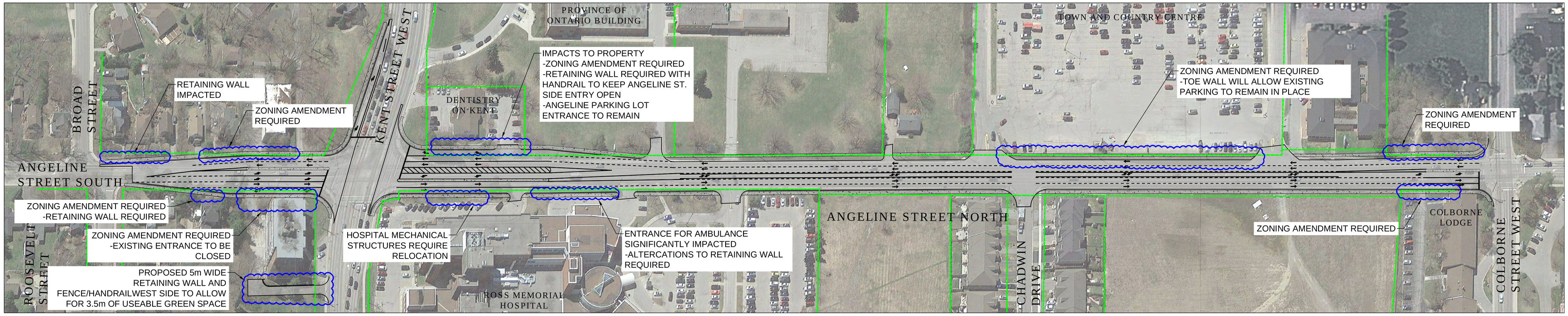








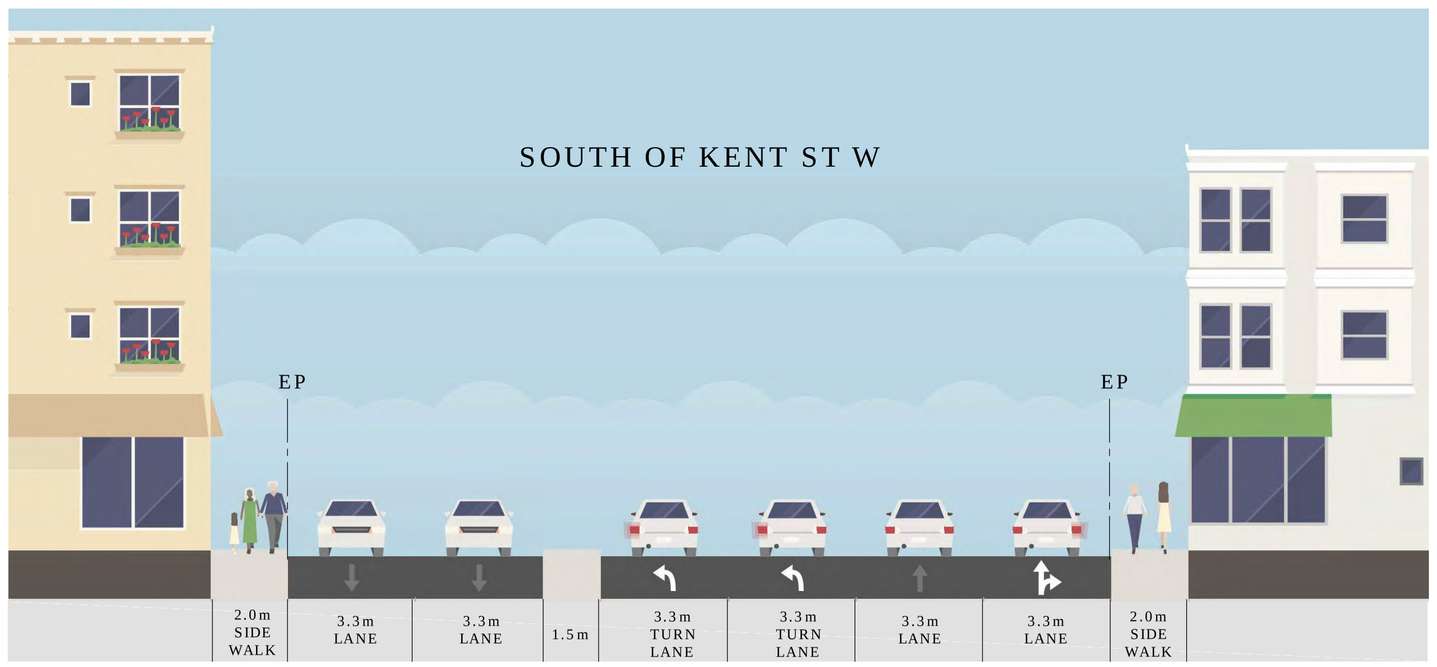
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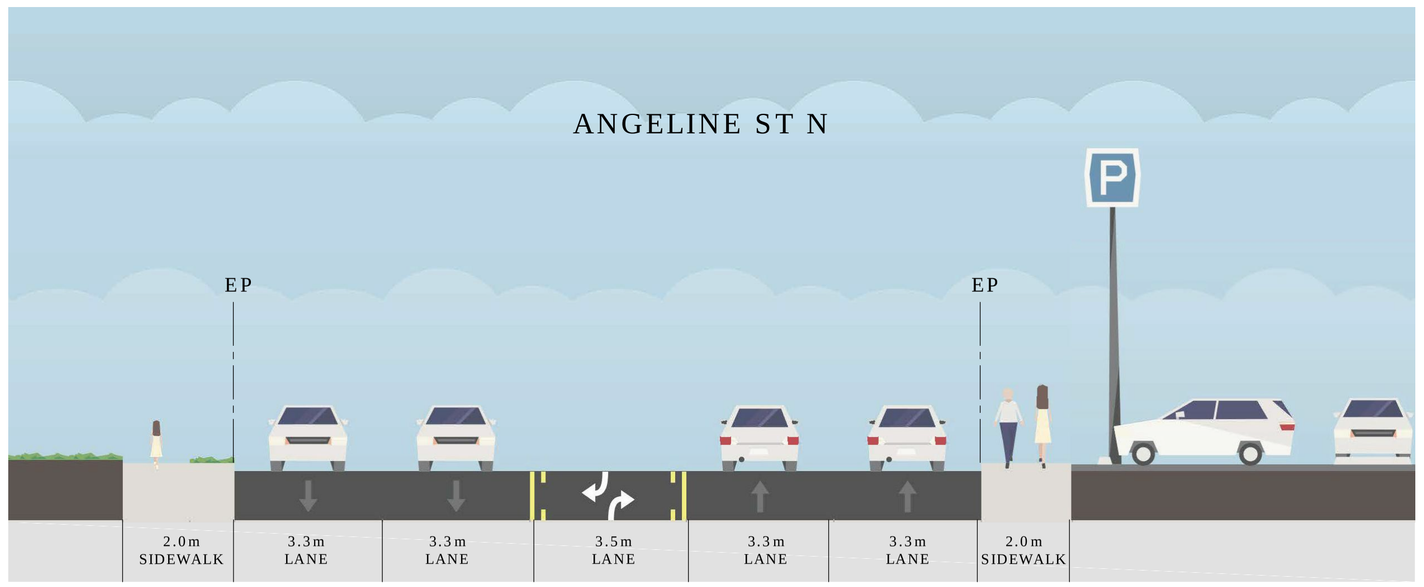


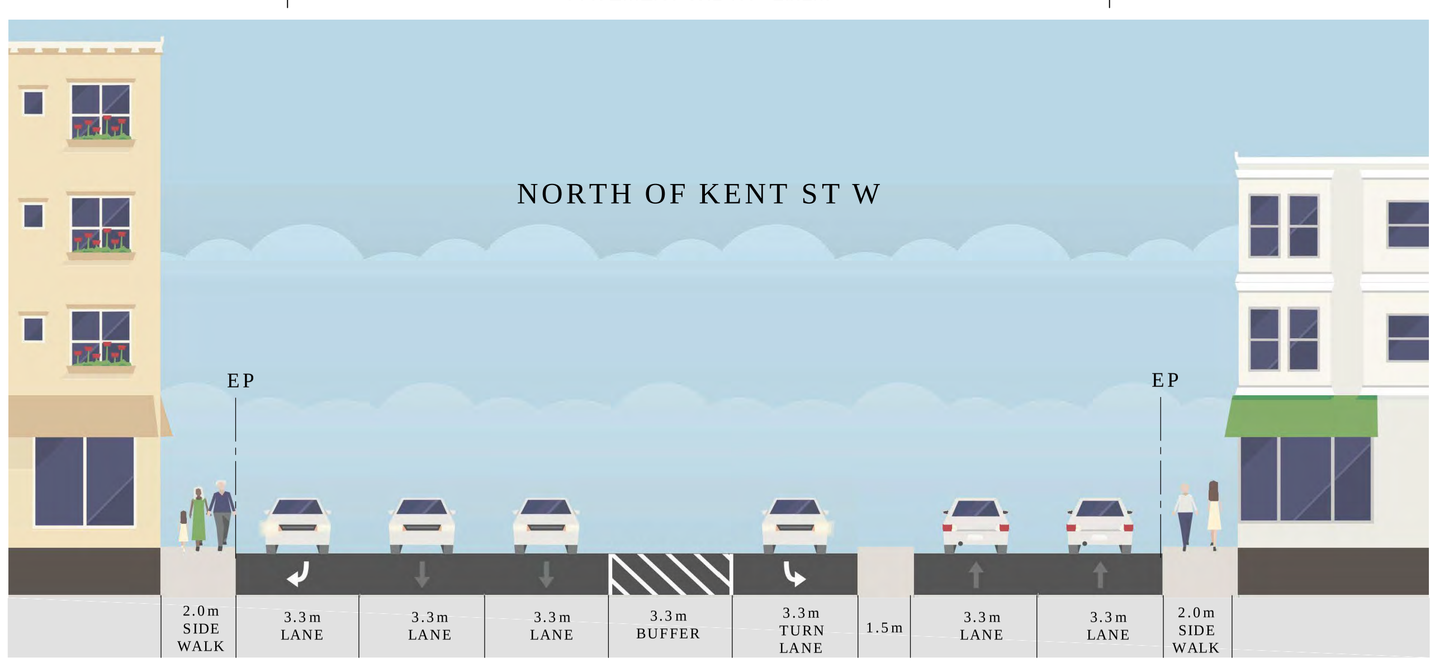
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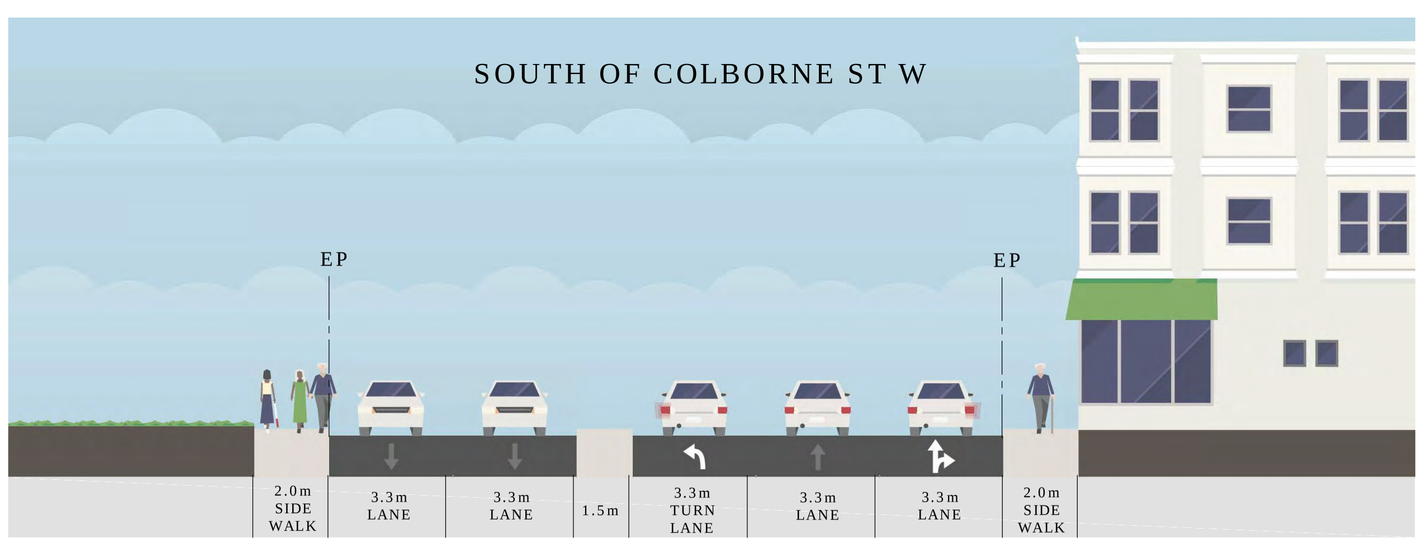
ALTERNATIVE 2

TREES REMOVED = 49
UTILITY POLES RELOCATED = 23



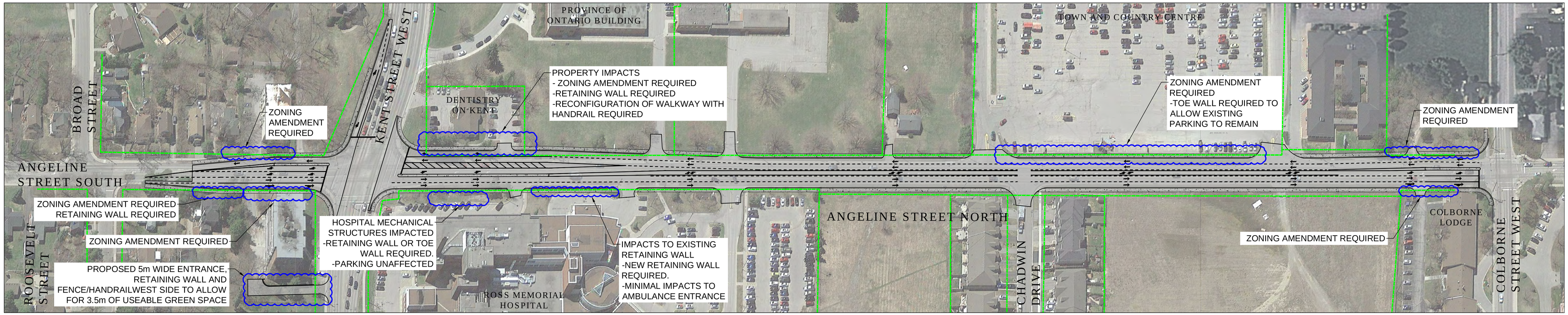






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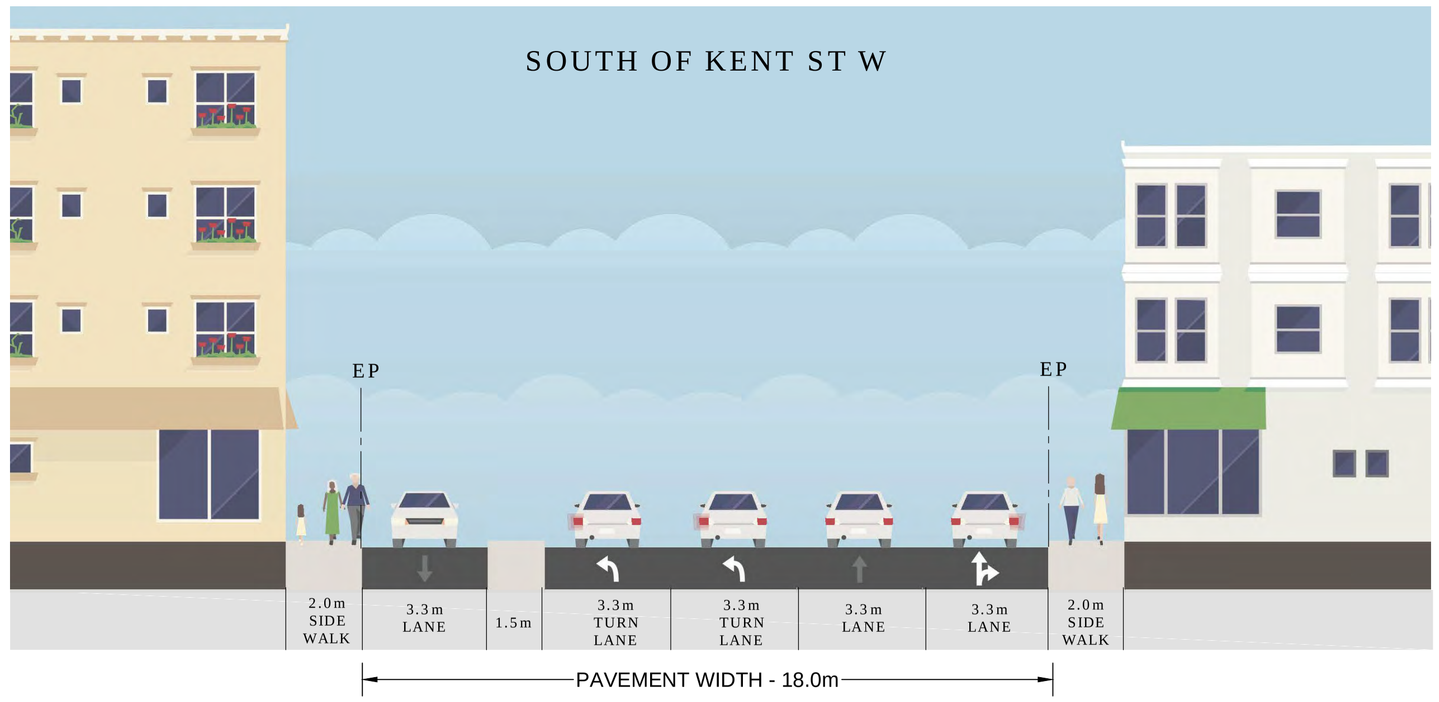
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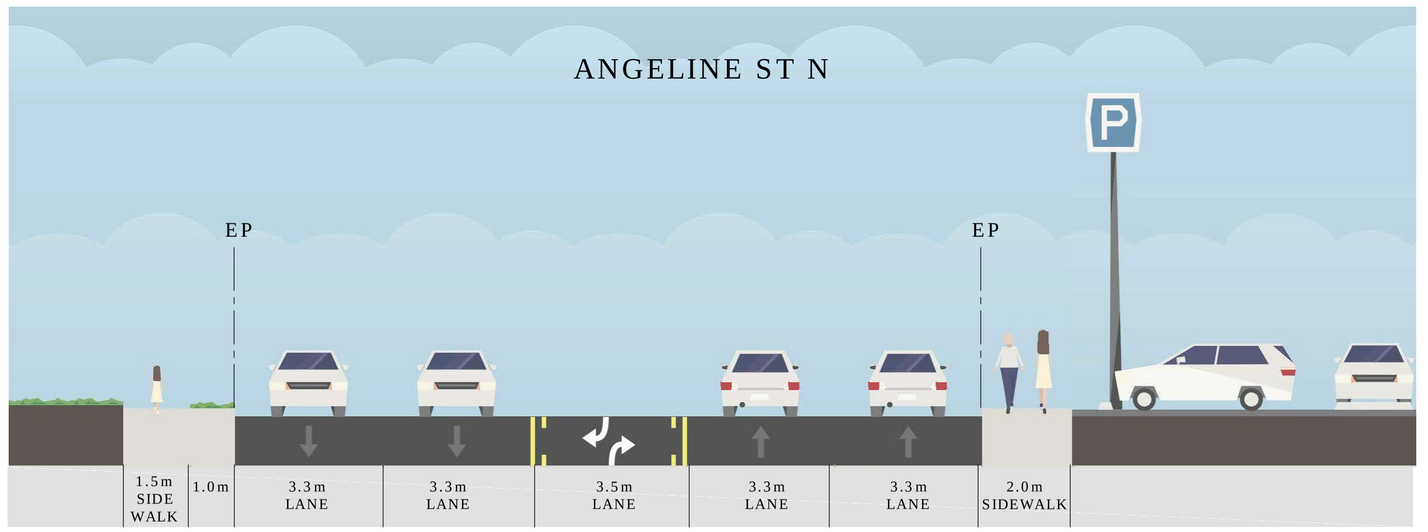


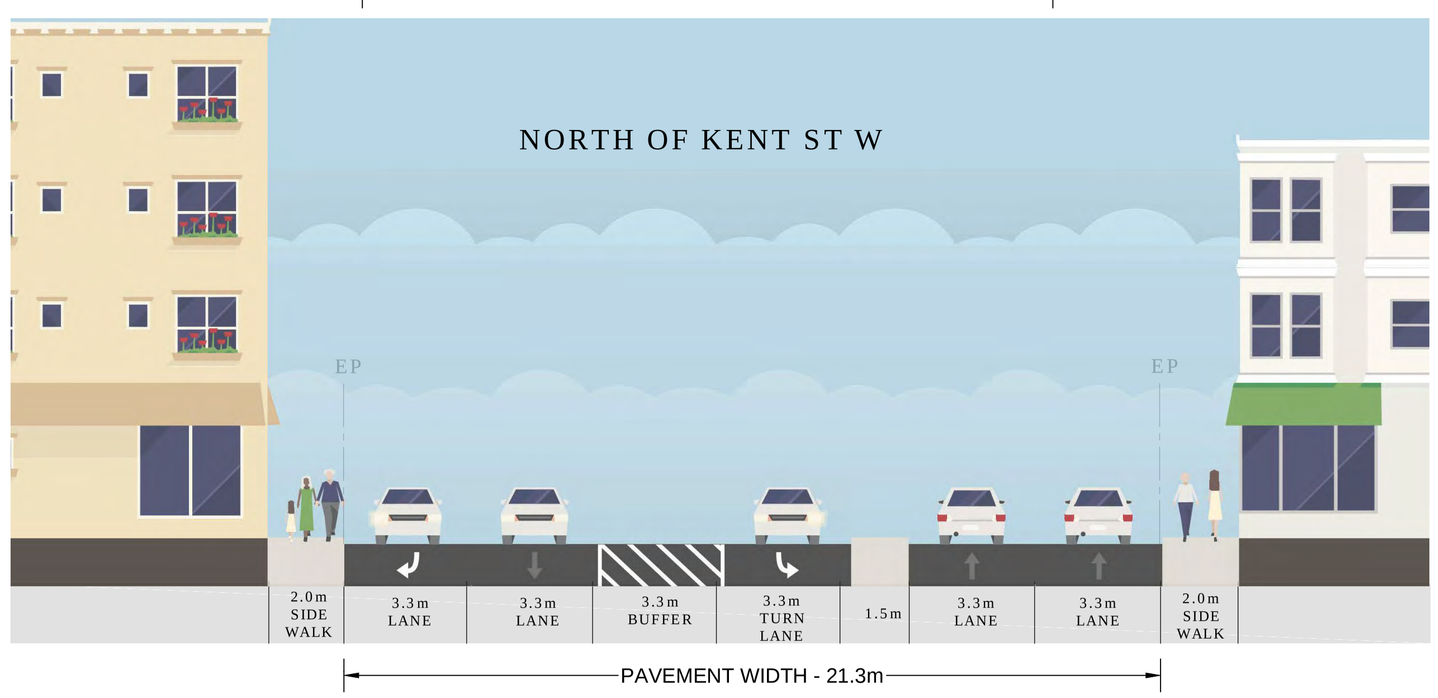
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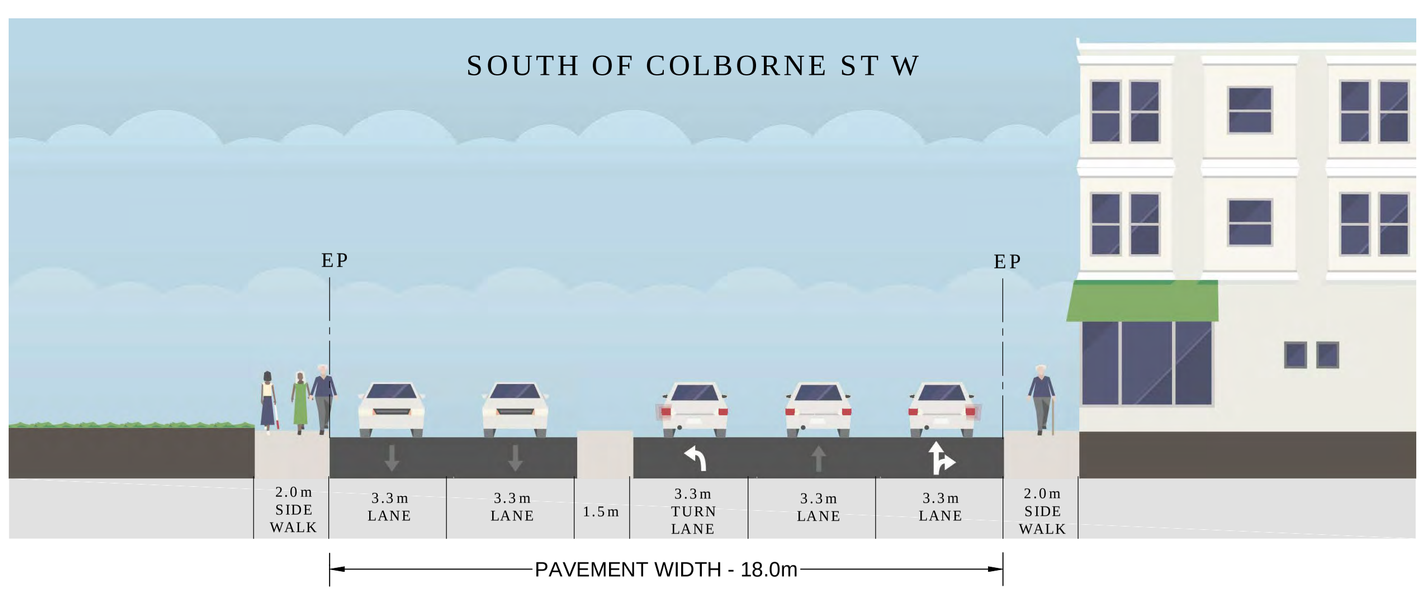
ALTERNATIVE 3

TREES REMOVED = 35
UTILITY POLES RELOCATED = 11

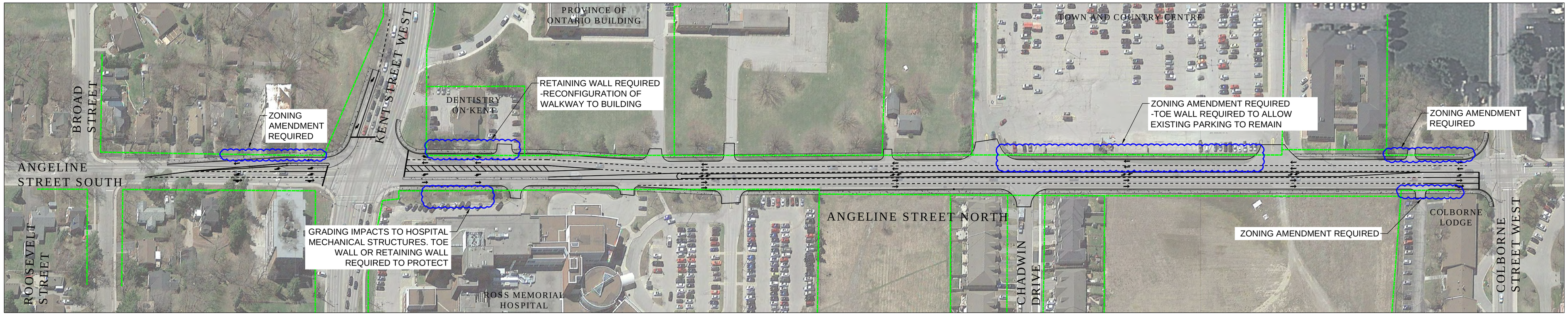








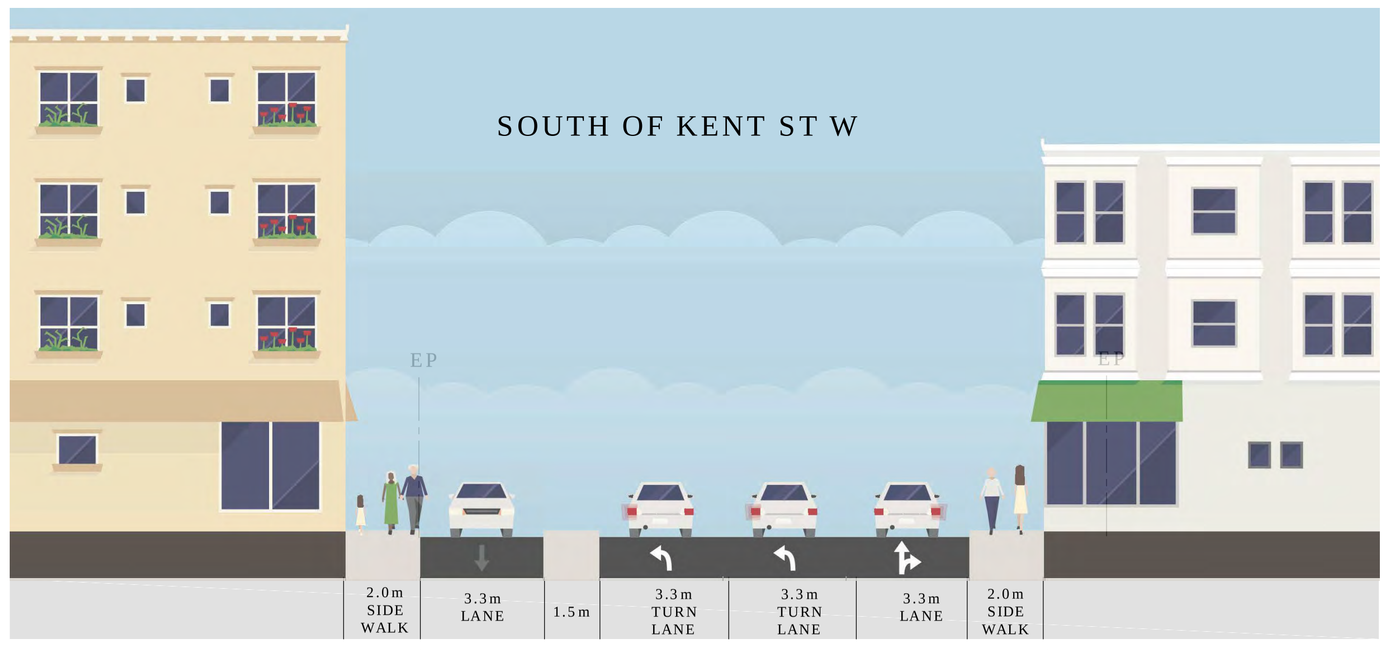
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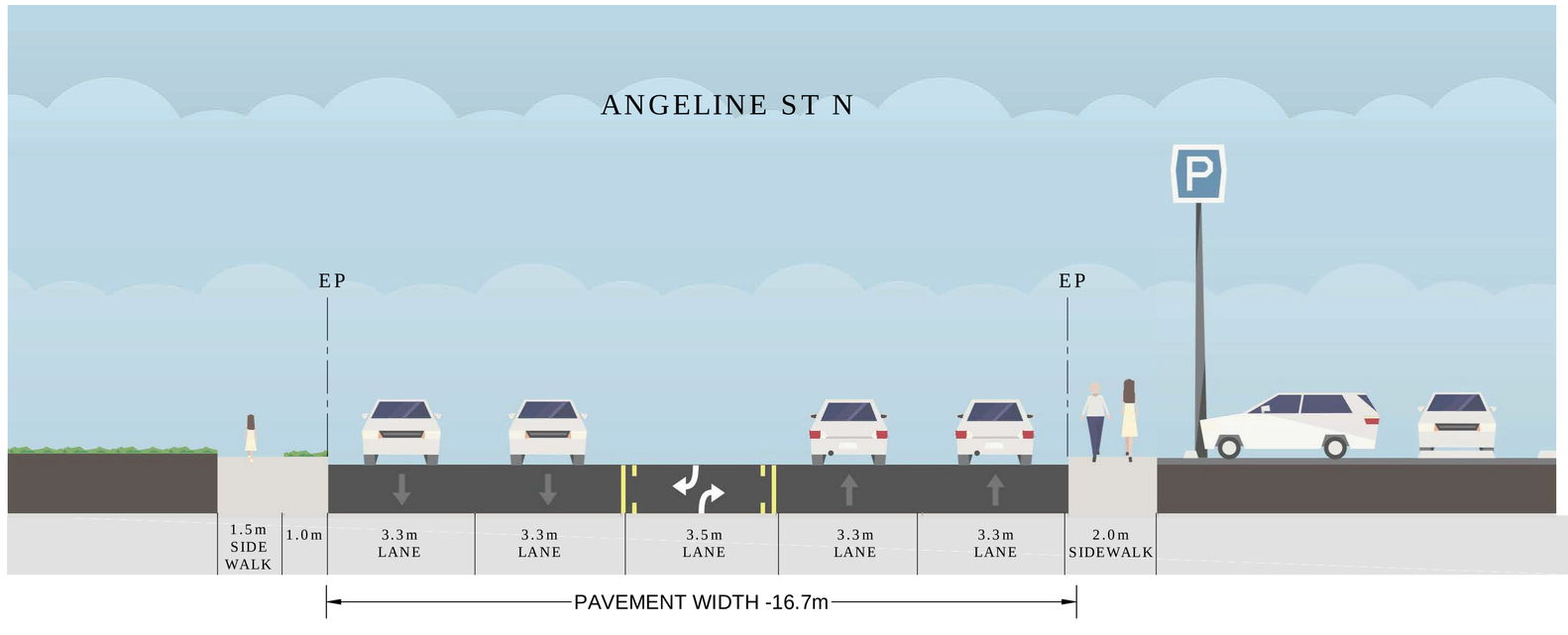


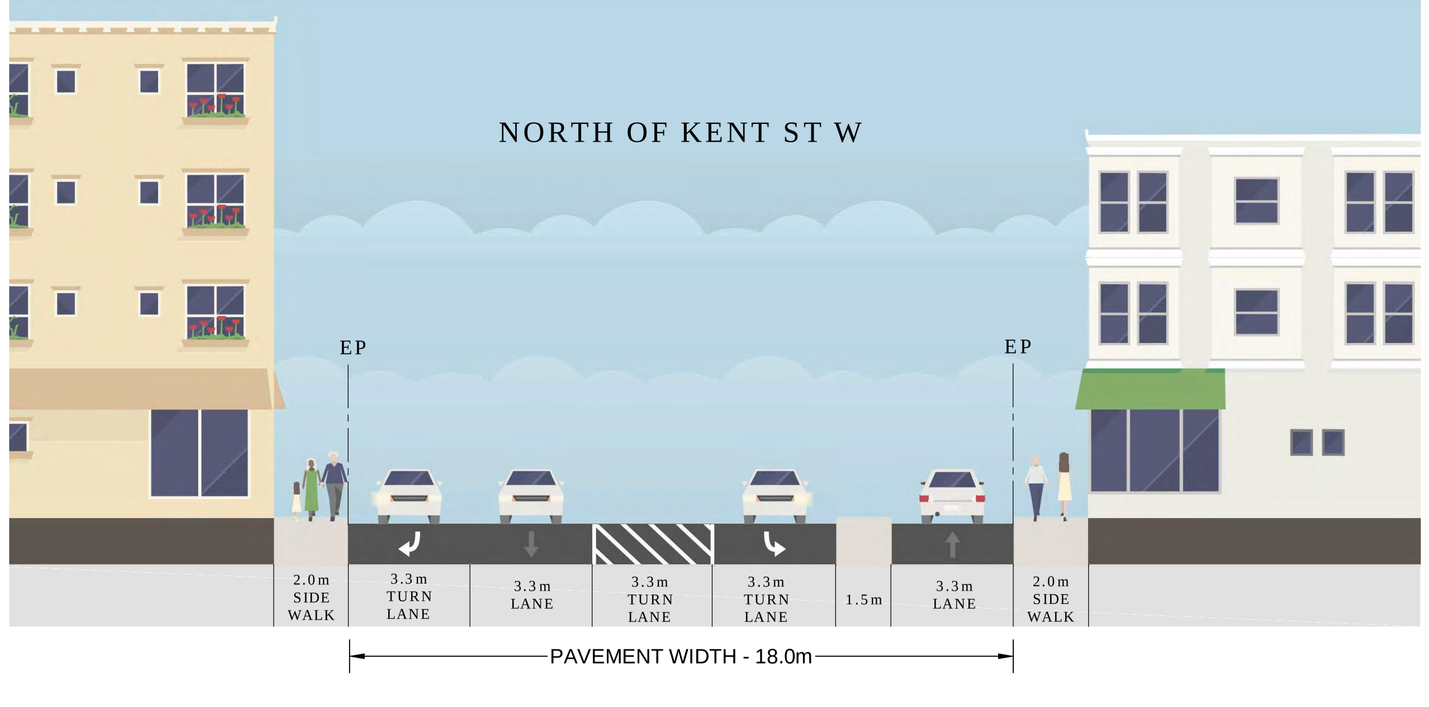
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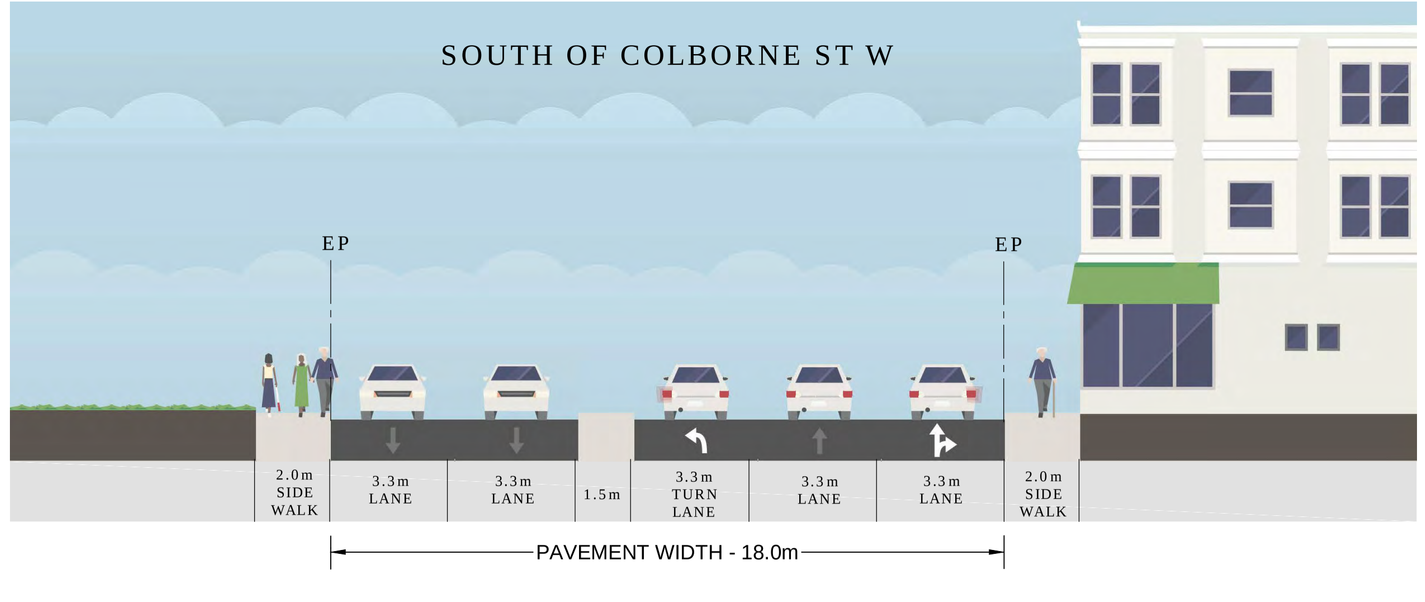
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TREES REMOVED = 28
UTILITY POLES RELOCATED = 8





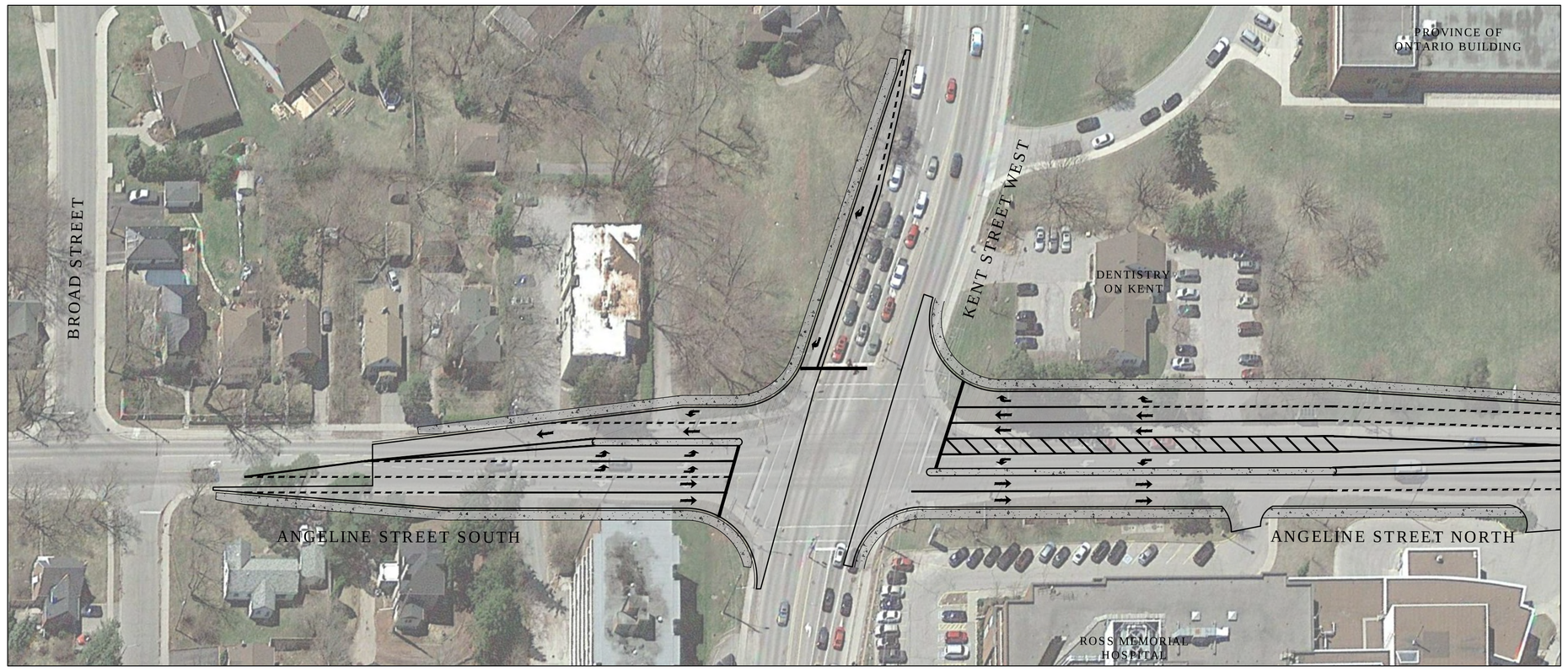


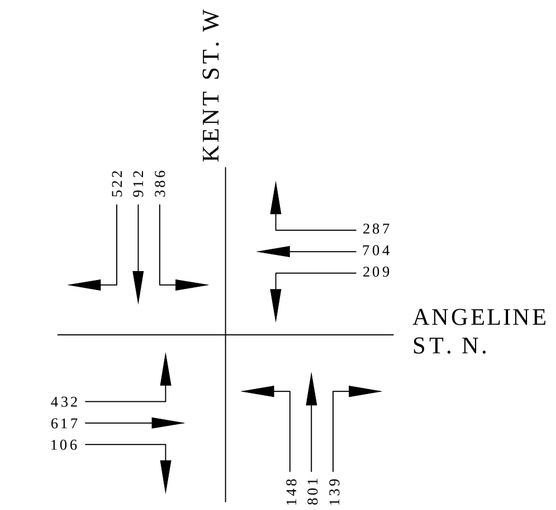


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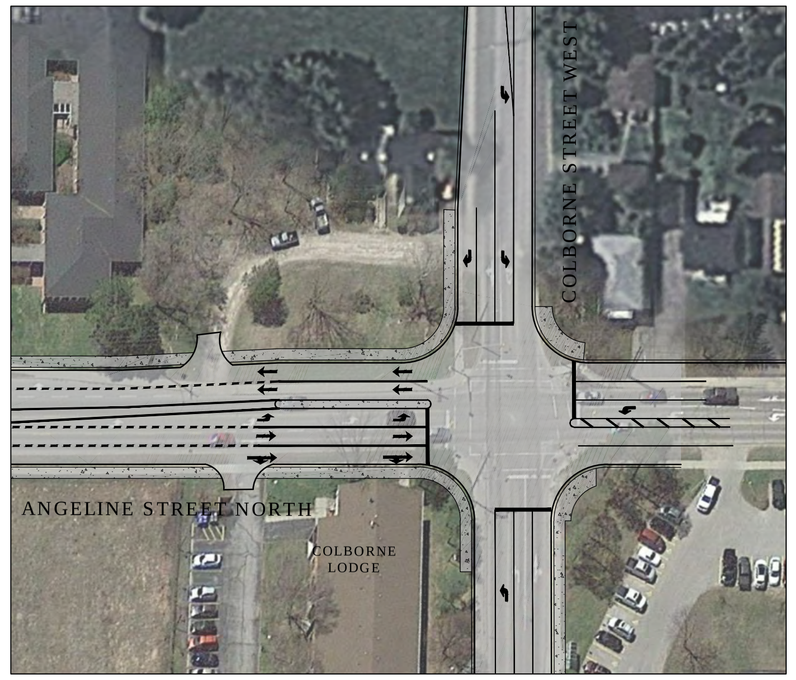
ALTERNATIVE 1
KENT ST. W.
INTERSECTION

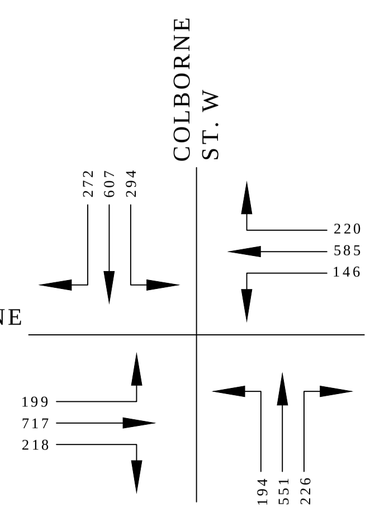




2031 FORECAST
TRAFFIC VOLUMES

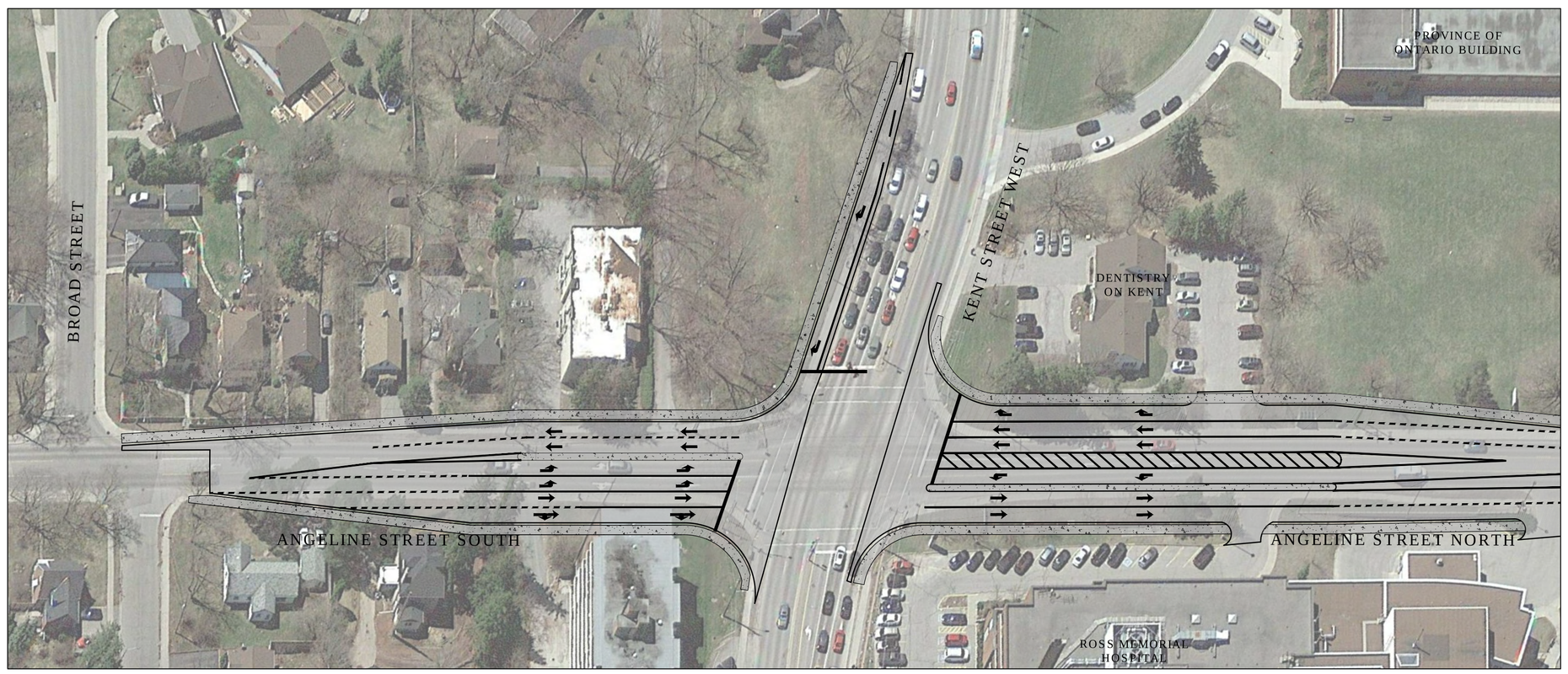
ALTERNATIVE 1
COLBORNE ST. W.
INTERSECTION



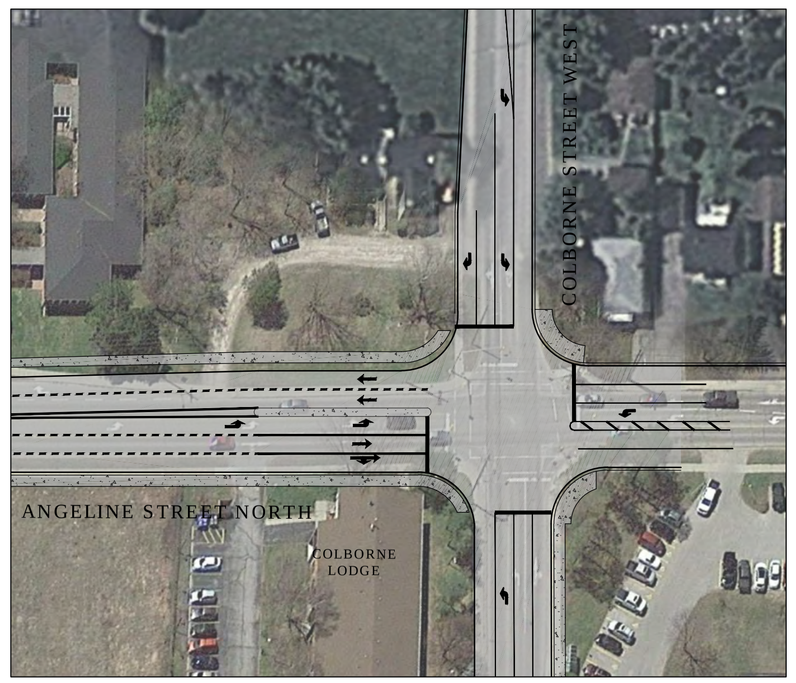


2031 FORECAST
TRAFFIC VOLUMES

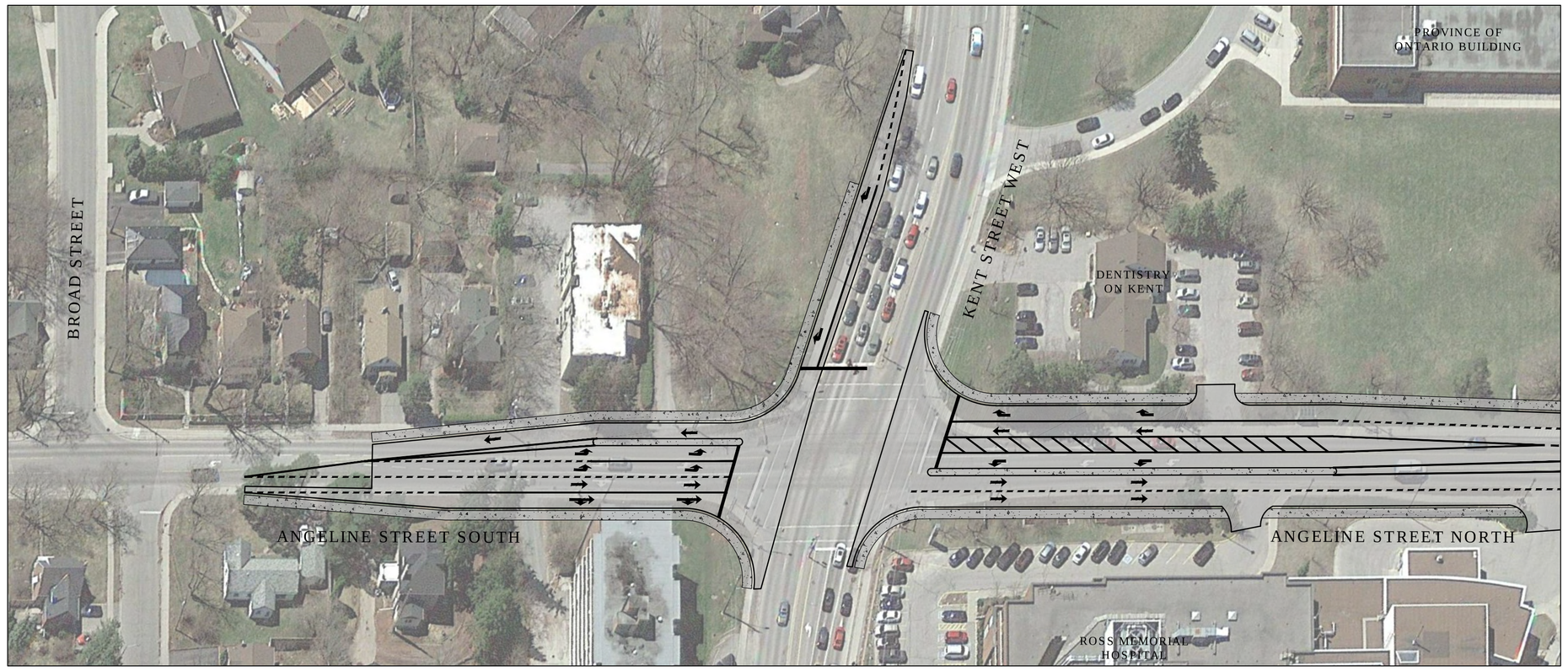
ALTERNATIVE 2
KENT ST. W.
INTERSECTION

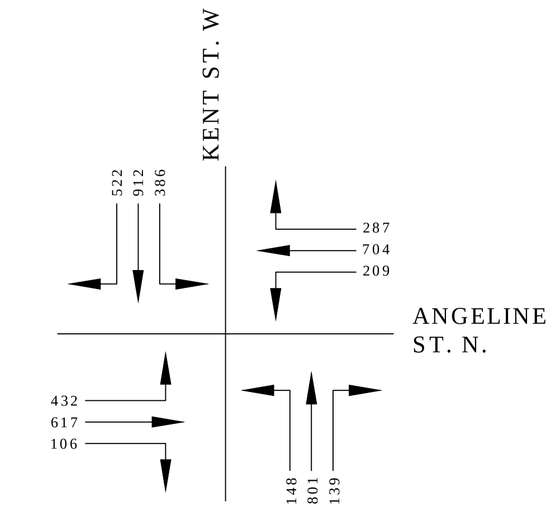


ALTERNATIVE 2
COLBORNE ST. W.
INTERSECTION



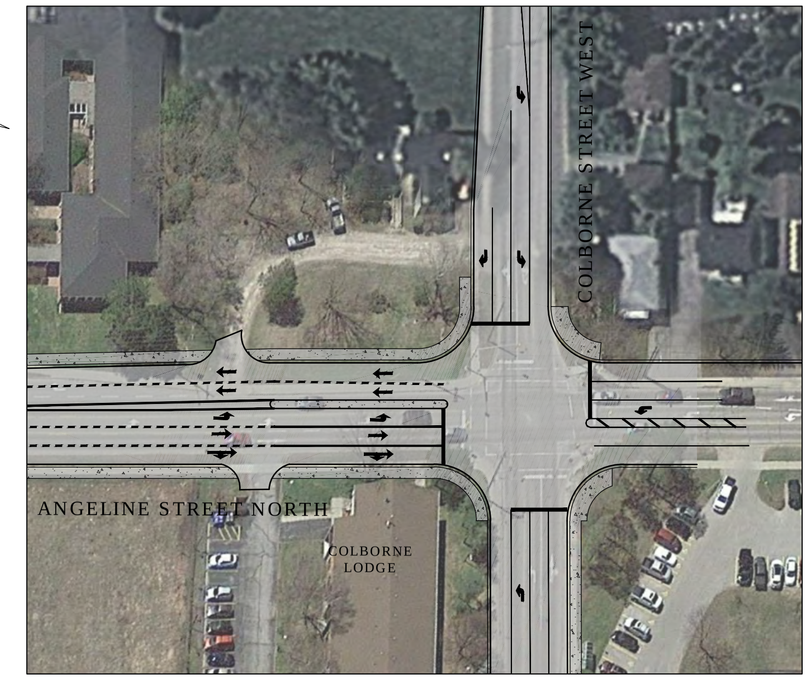
ALTERNATIVE 3
KENT ST. W.
INTERSECTION

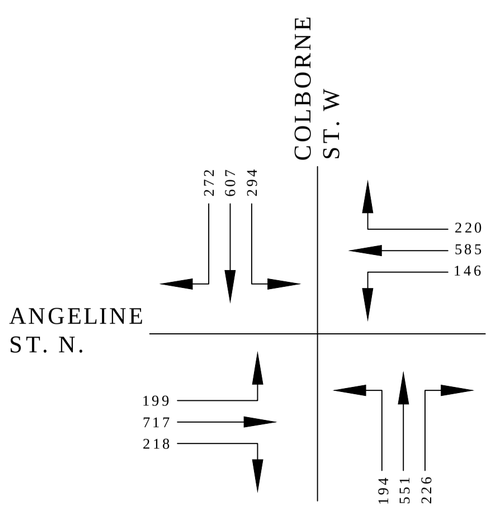




2031 FORECAST
TRAFFIC VOLUMES

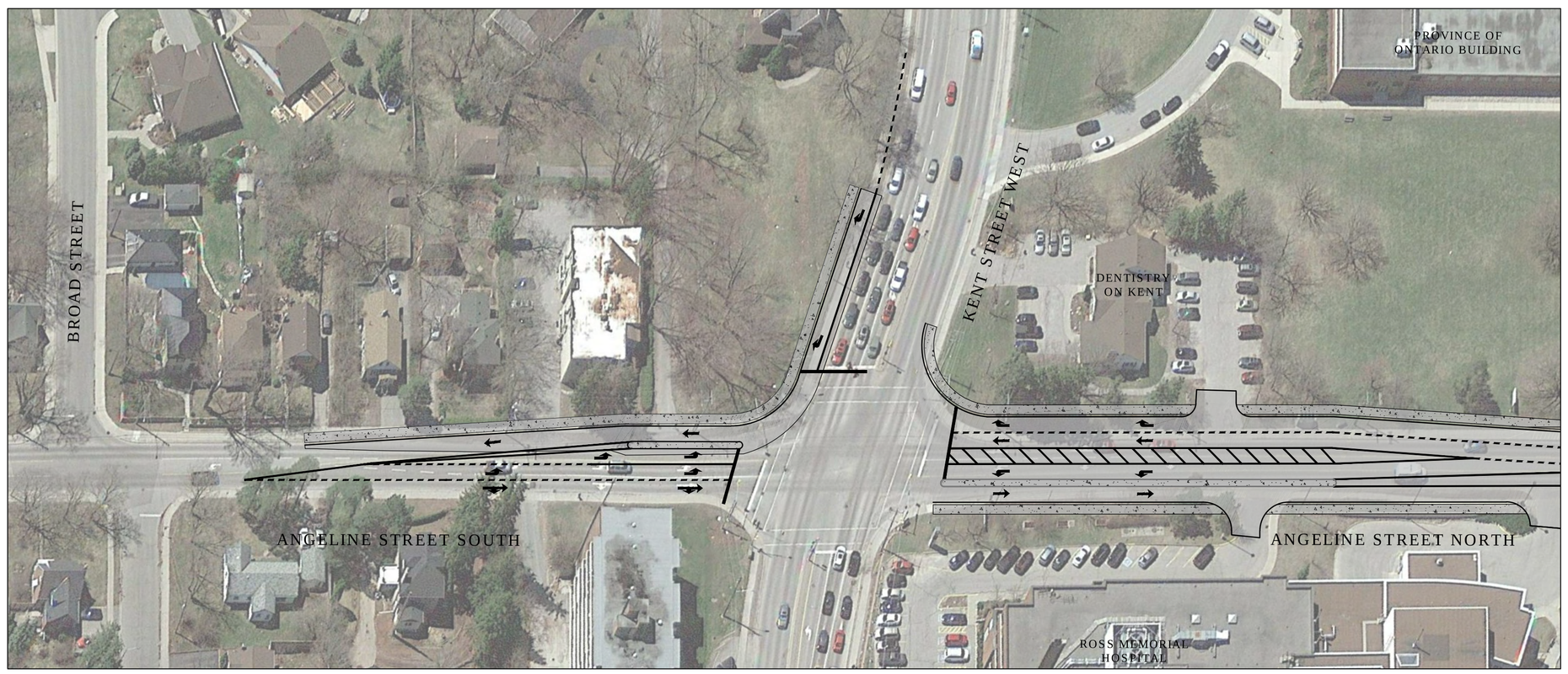
ALTERNATIVE 3
COLBORNE ST. W.
INTERSECTION



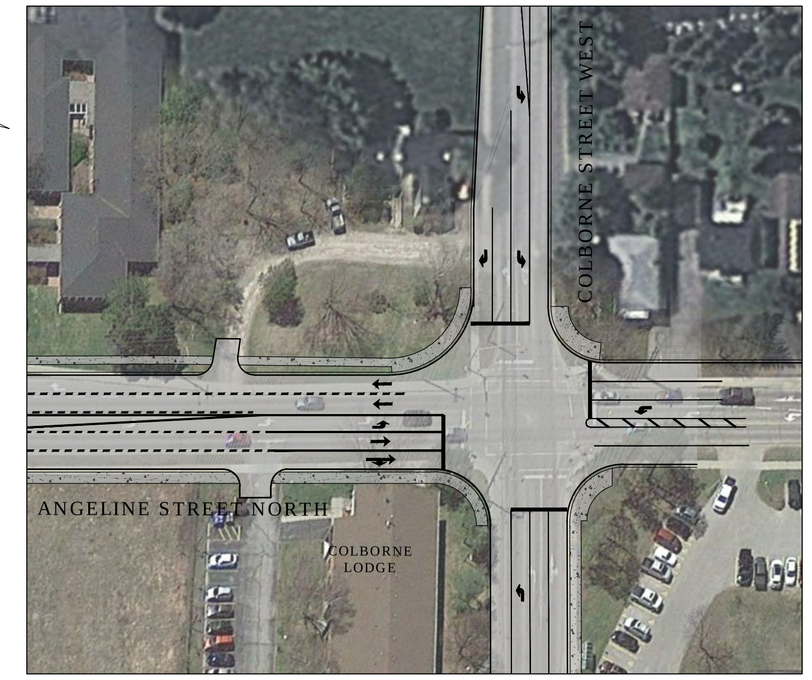


2031 FORECAST
TRAFFIC VOLUMES

ALTERNATIVE 4
KENT ST. W.
INTERSECTION



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.

KAWARTHA LAKES

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

Ainley 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

KAWARTHA LAKES

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

KAWARTHA LAKES

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

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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
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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

Dentistry on Kent

[redacted]

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.

[redacted]

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:

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
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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 –

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

1-50 Grant Timmins Drive
Kingston, ON K7M 8N2
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Fax: (343) 266-002
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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 –

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
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

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
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

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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By submitting your or another individual's personal information to Chippewas of Rama First Nation, its service providers and agents, you agree and confirm your authority from such other individual, to our collection, use and disclosure of such personal information in accordance with our privacy policy.

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 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**.

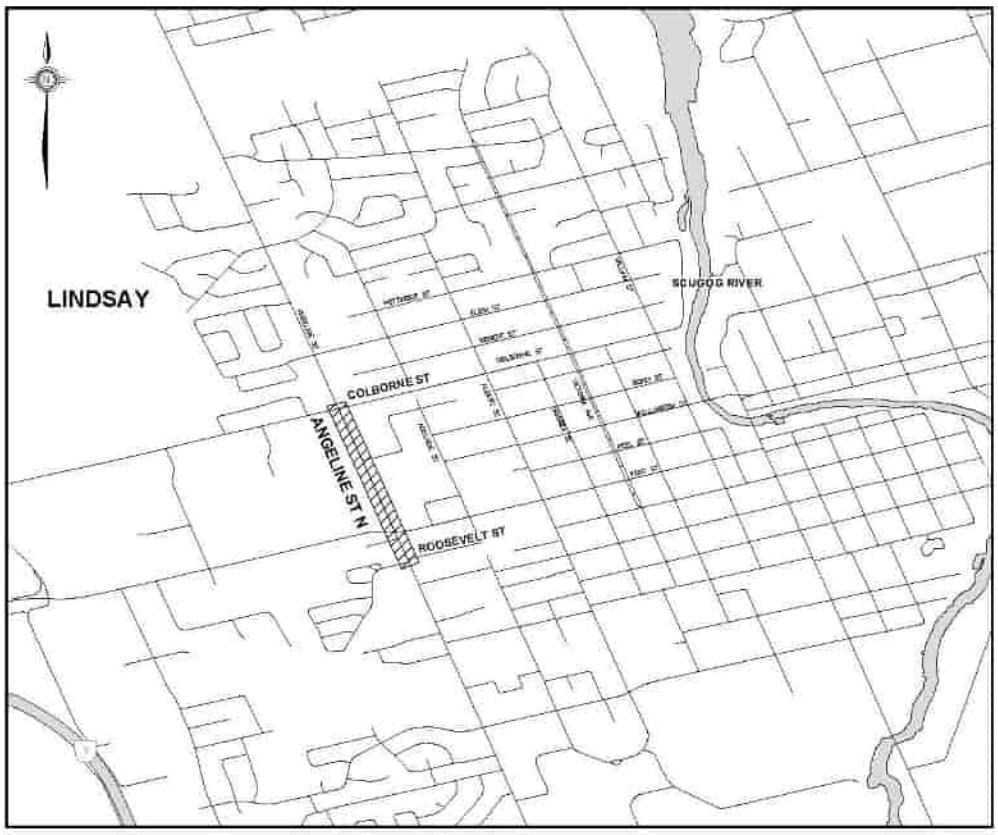


Figure 1 - Key Map

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.

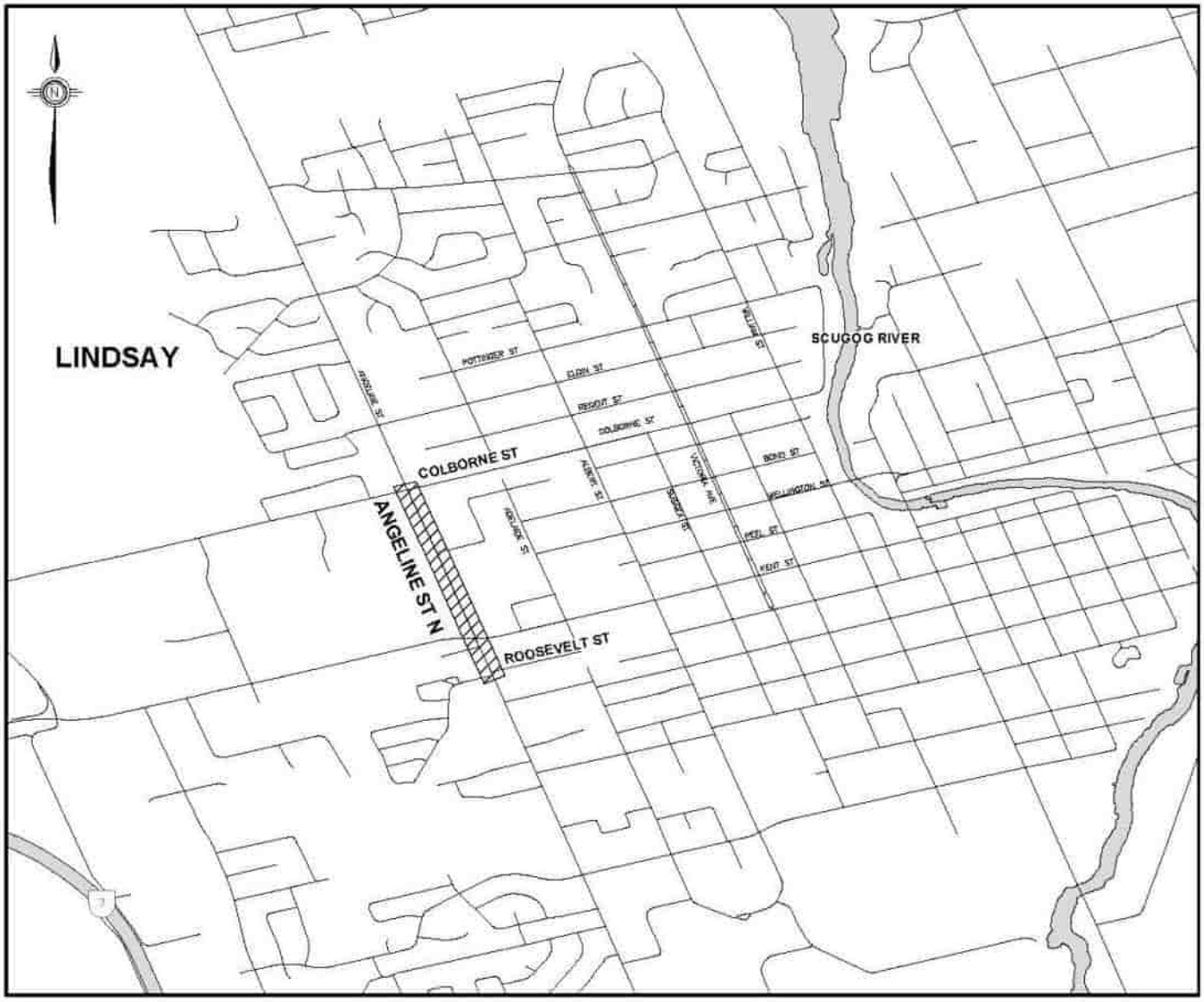
Sincerely,

AINLEY GRAHAM & ASSOCIATES LIMITED

Scott Reynolds, B.Sc. (Env), EP
Consultant Environmental Planner

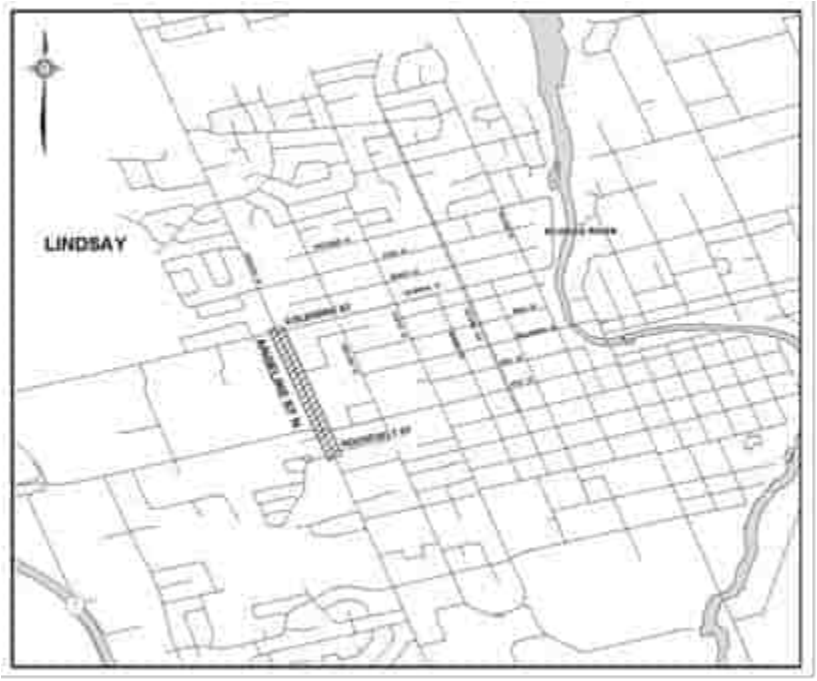
cc. Alex Wilkinson, P. Eng., Consultant Project Manager – Ainley Group
Corby Purdy, Manager, Infrastructure Design and Construction – City of Kawartha Lakes

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)

Public Information Centre #2
May 9, 2024

Angeline Street North Corridor

COMMENTS: _____

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.

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)

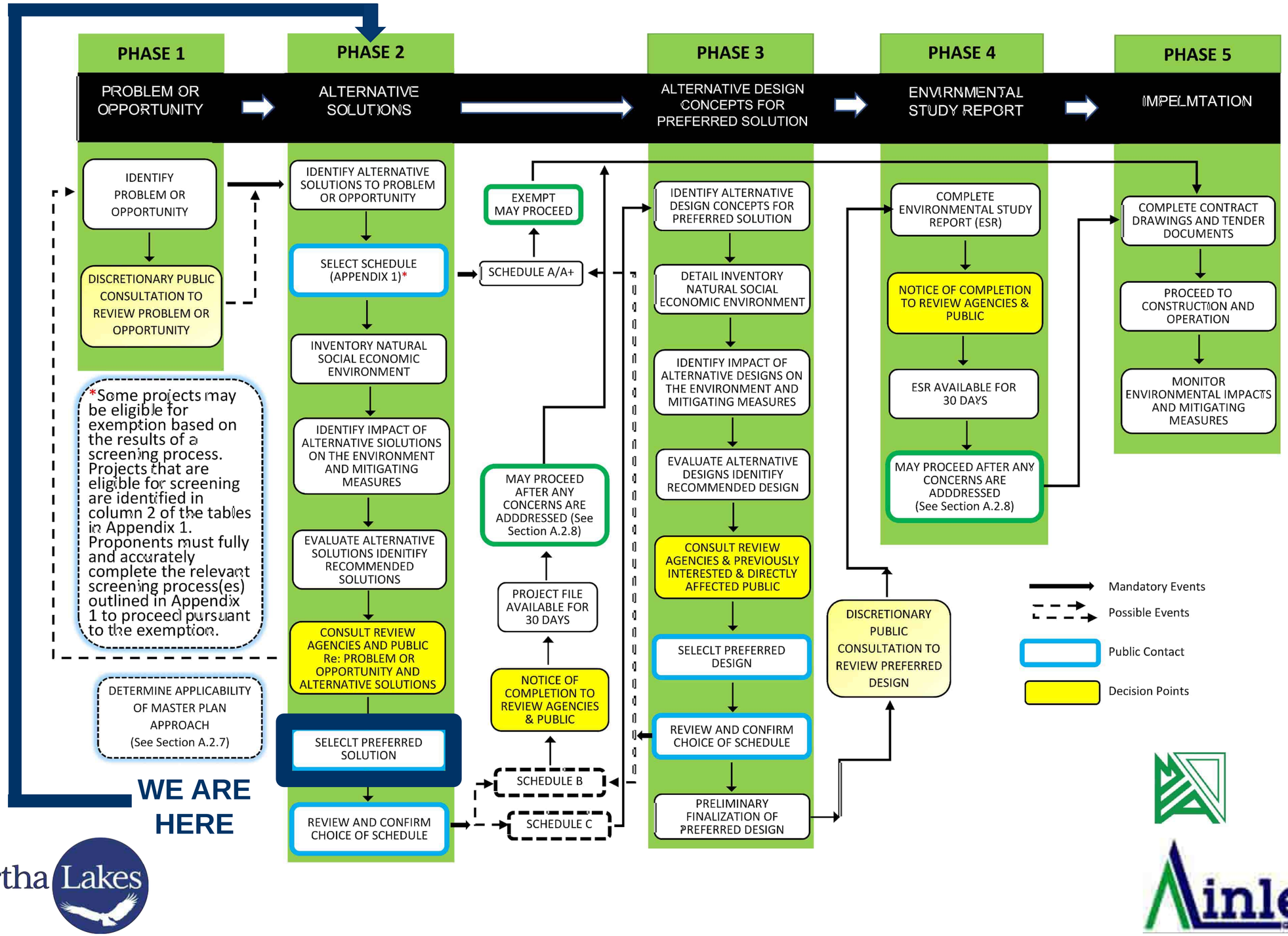
- The City of Kawartha Lakes is currently completing the following relevant studies concurrently with this MCEA process:
  - **Transportation Master Plan Study** – *long-term strategy to guide the planning, expansion and management of a multi-modal transportation system to the year 2051.*
  - **Growth 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

Ainley Group CONSULTING ENGINEERS PLANNERS

MUNICIPAL CLASS EA PROCESS



Kawartha Lakes

Ainley GROUP CONSULTING ENGINEERS PLANNERS

MUNICIPAL CLASS EA PROCESS TO DATE

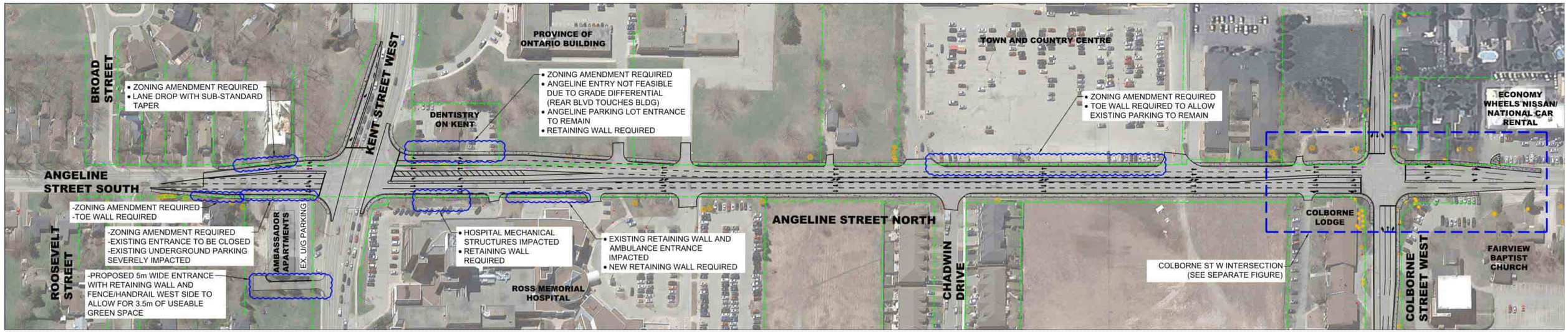
PIC #1 February 28th, 2019

- 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.

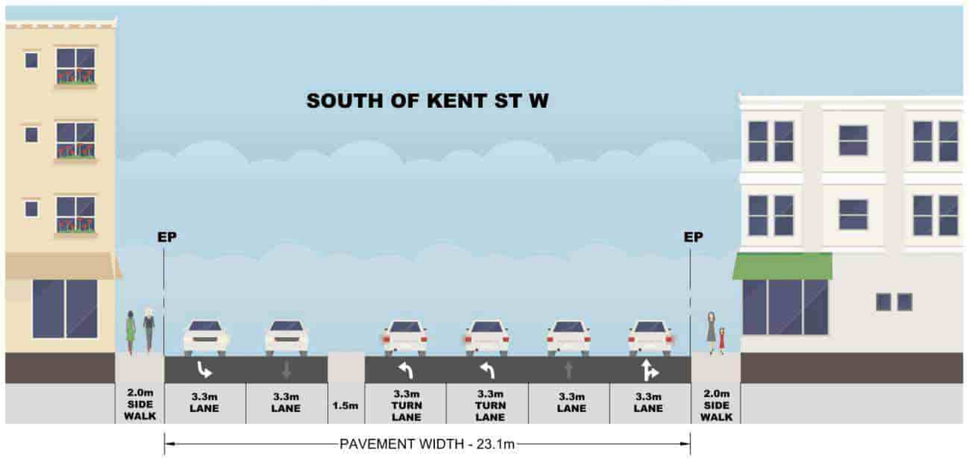
The following alternatives were presented as options to address the Problem Statement at PIC #1.

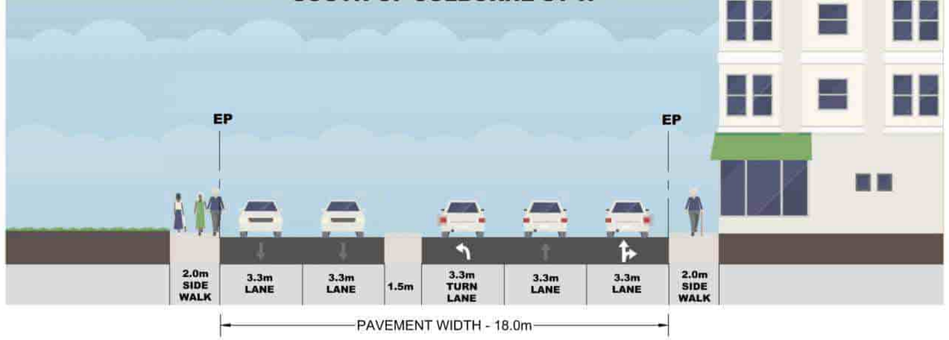


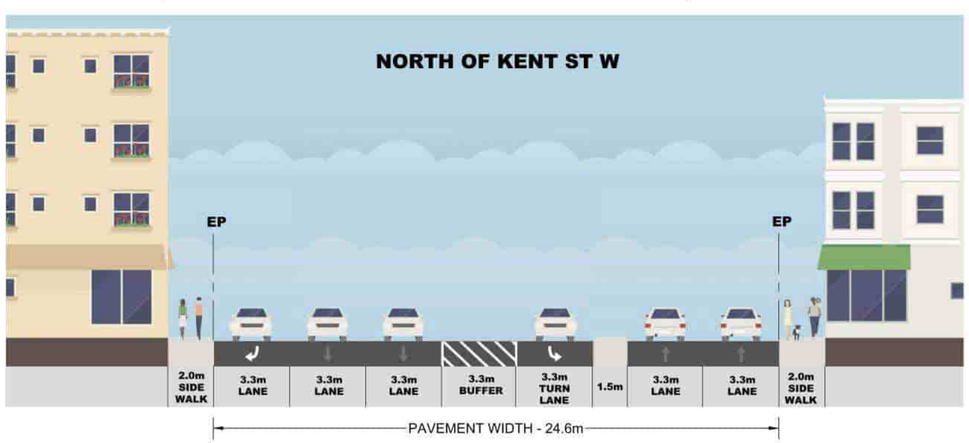
EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

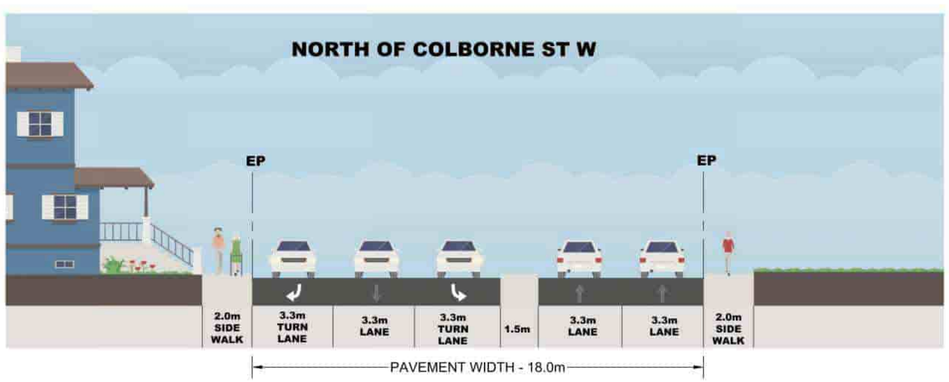
ALTERNATIVE 1

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).

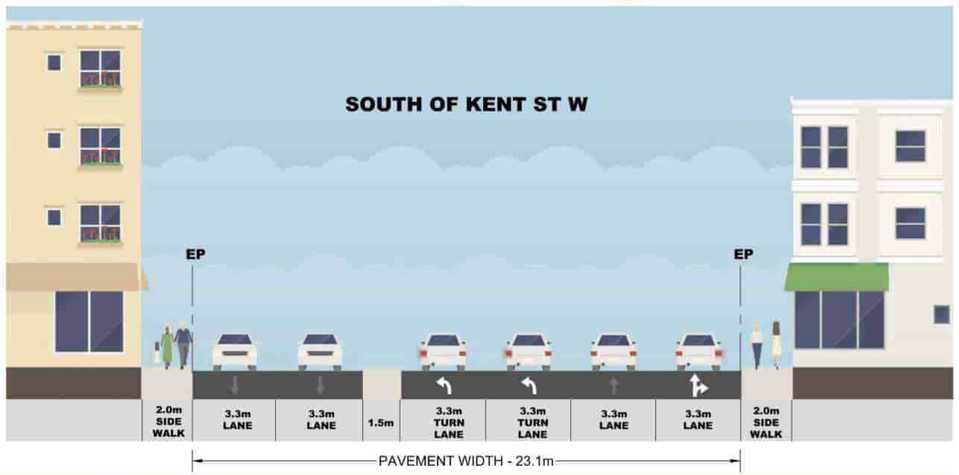


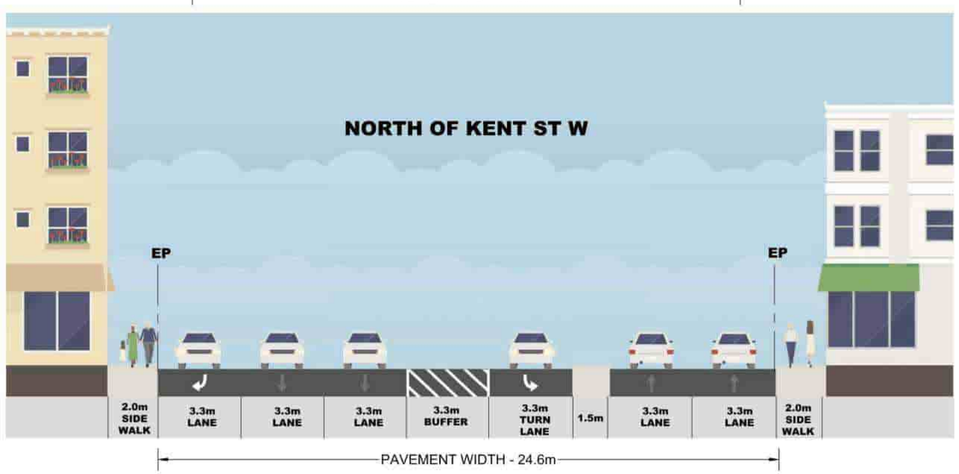
EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

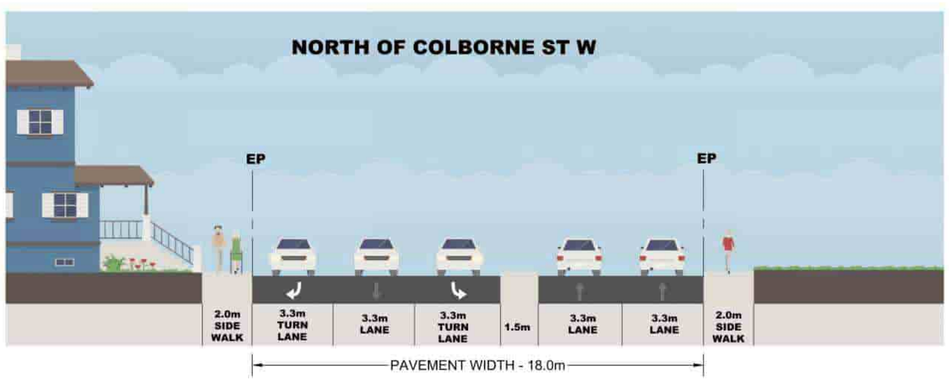
ALTERNATIVE 2

SOUTH OF COLBORNE STREET W INTERSECTION:

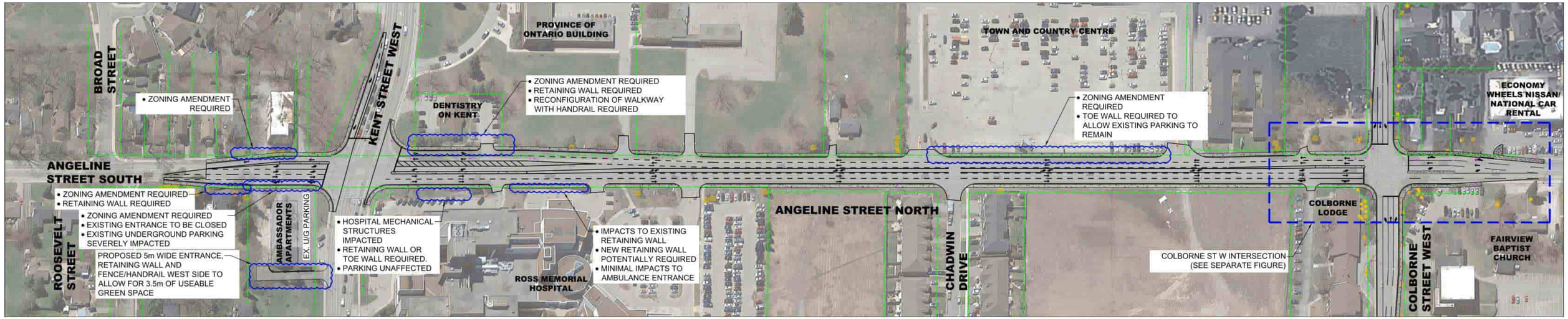
TREES REMOVED = 58 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 22*
***9 MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 3







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

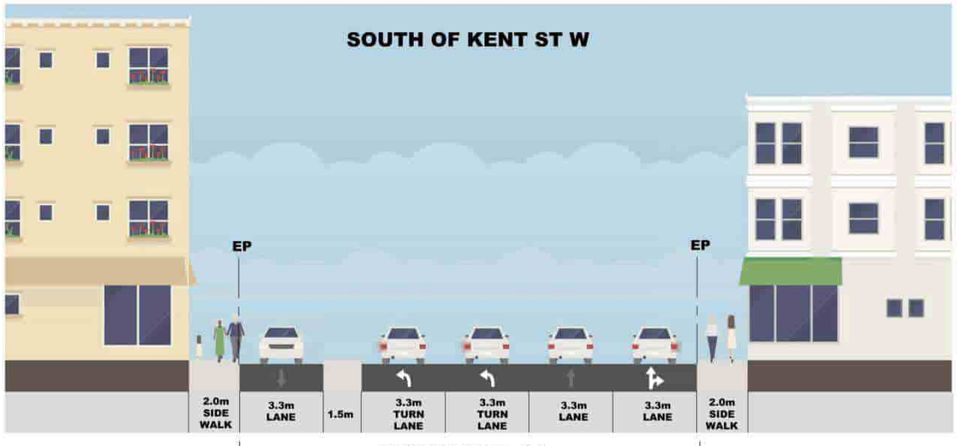


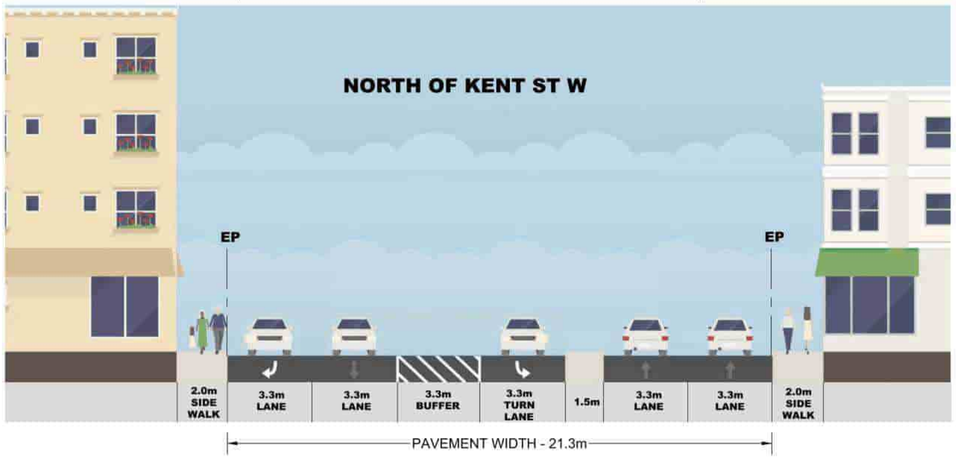
EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

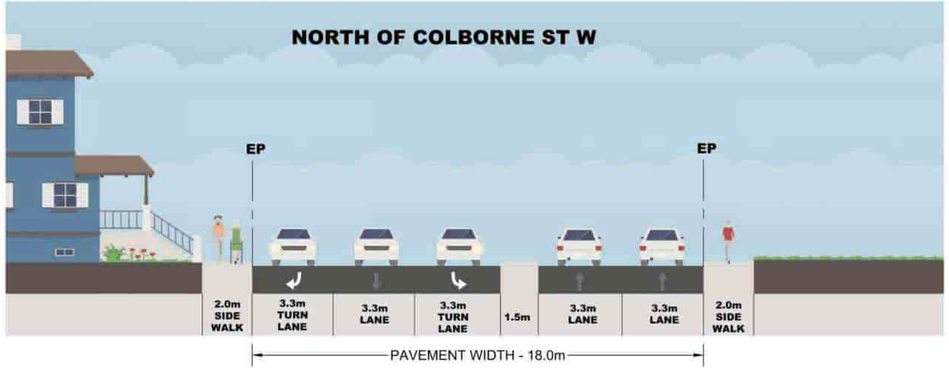
ALTERNATIVE 3

SOUTH OF COLBORNE STREET W INTERSECTION:

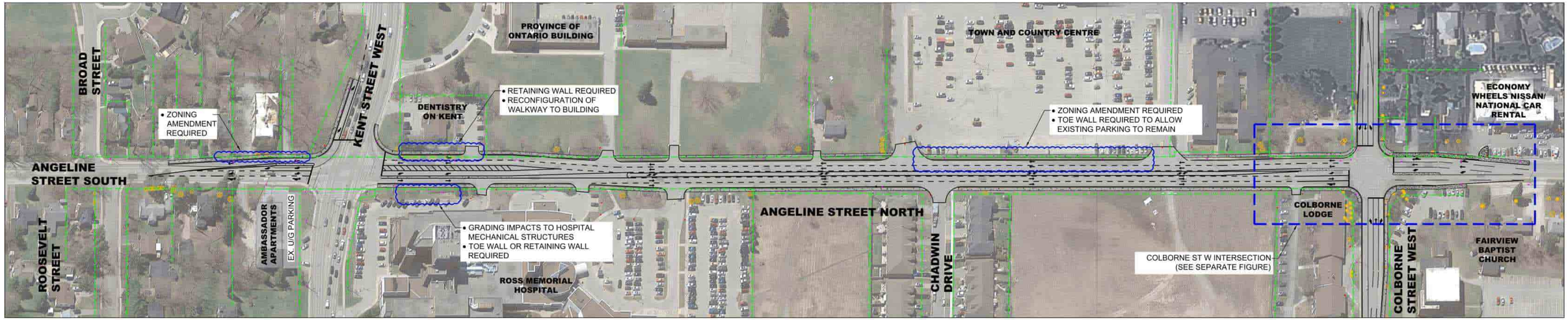
TREES REMOVED = 40 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 20
LIGHT STANDARDS RELOCATED = 3







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

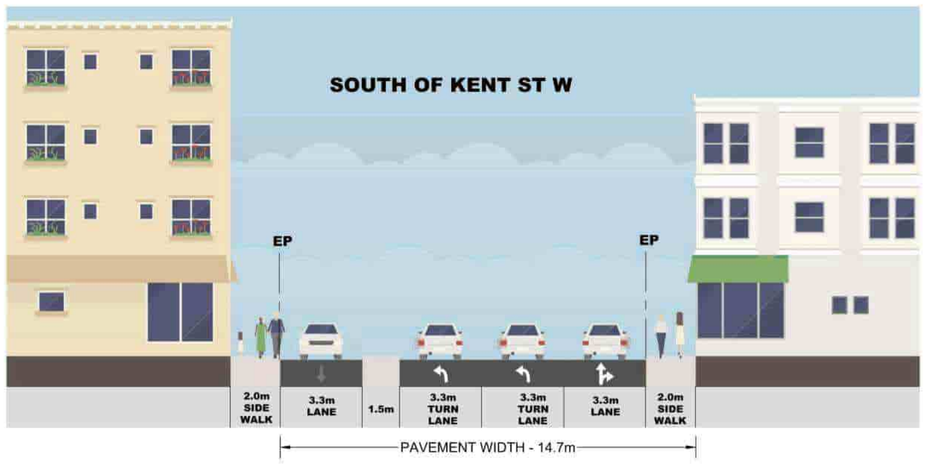


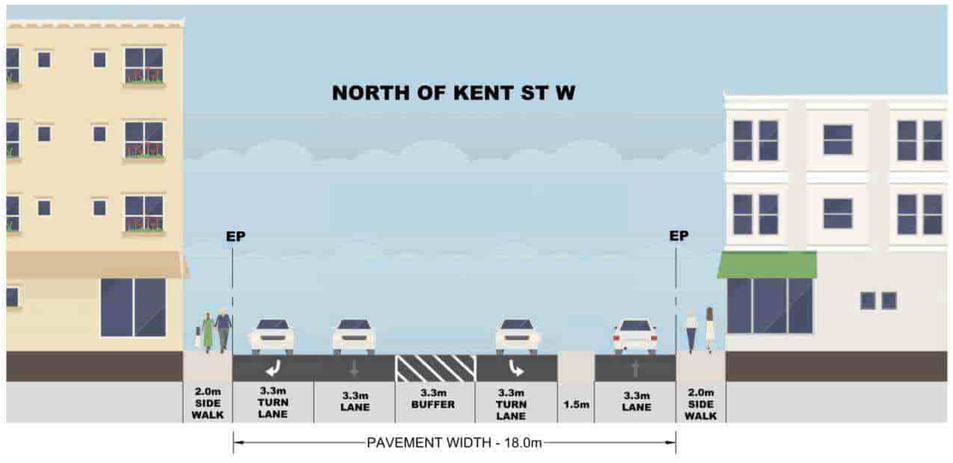
EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

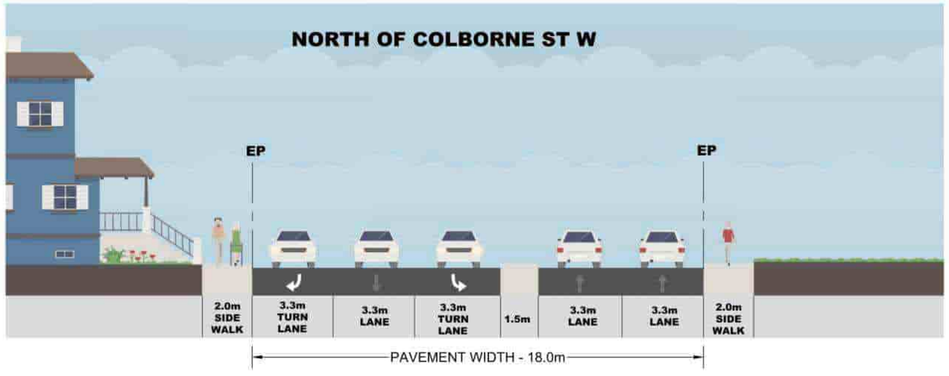
ALTERNATIVE 4

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.

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SELECTION OF PRELIMINARY PREFERRED ALTERNATIVE: ANGELINE STREET NORTH CORRIDOR

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

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.

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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

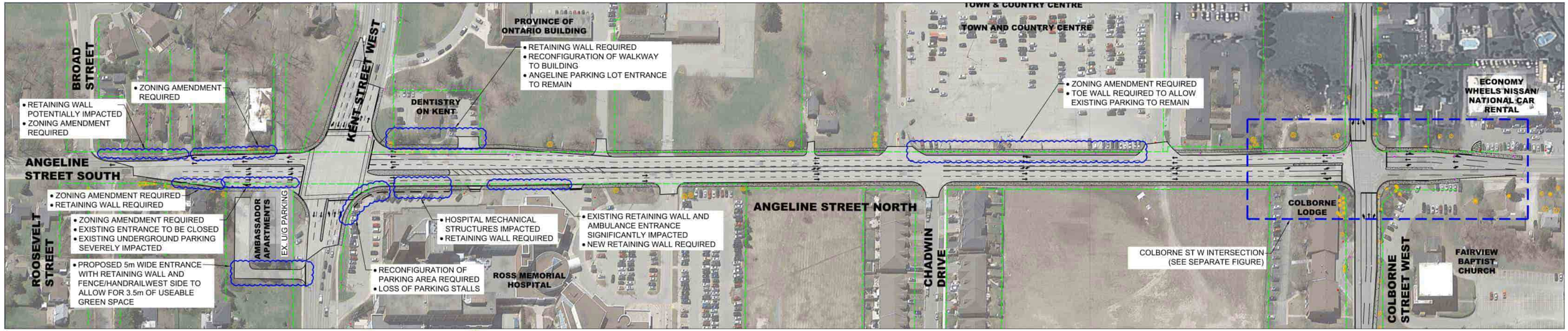
- For Alternative 2, the lane configuration of the Kent Street West intersection reflects that recommended by the previous MCEA process completed for the Kent Street West corridor. The lane configuration was chosen for the Levels of Service it was expected to achieve for the projected 2031 traffic volumes, 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.

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KENT STREET INTERSECTION AND MAIN CORRIDOR ALTERNATIVES

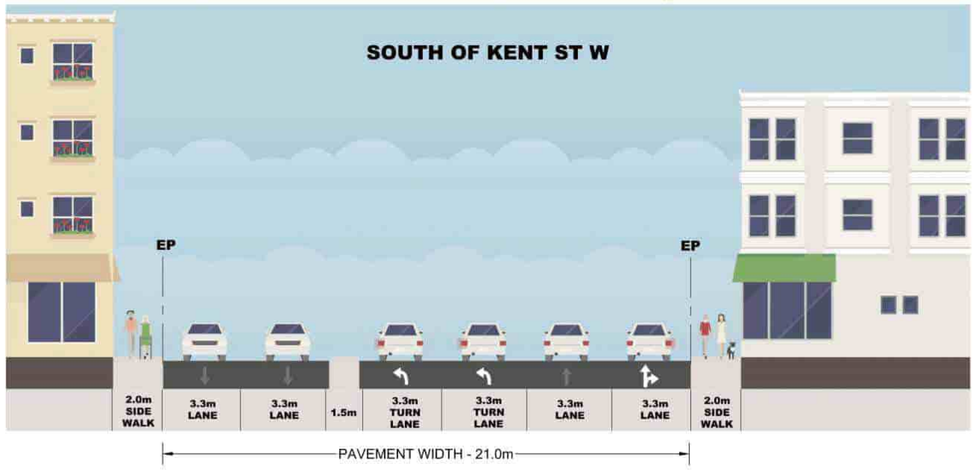


EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

ALTERNATIVE 2A

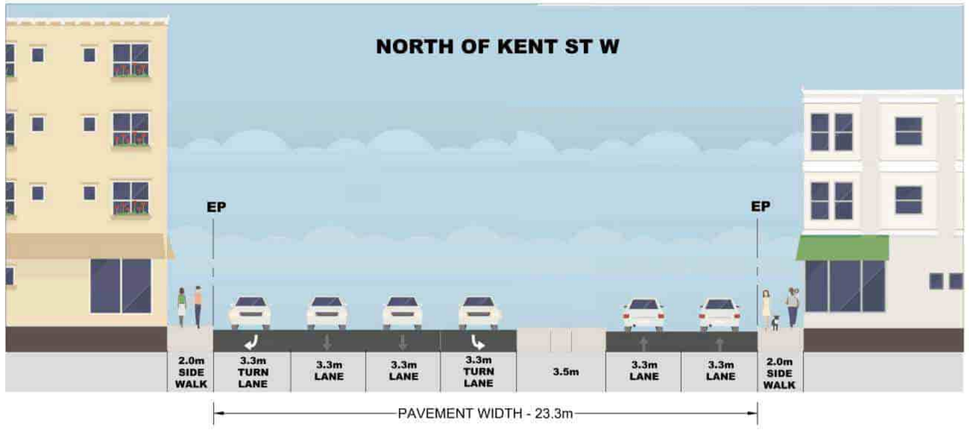
SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 55 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 21*
***9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN**
LIGHT STANDARDS RELOCATED = 4

SOUTH OF KENT ST W

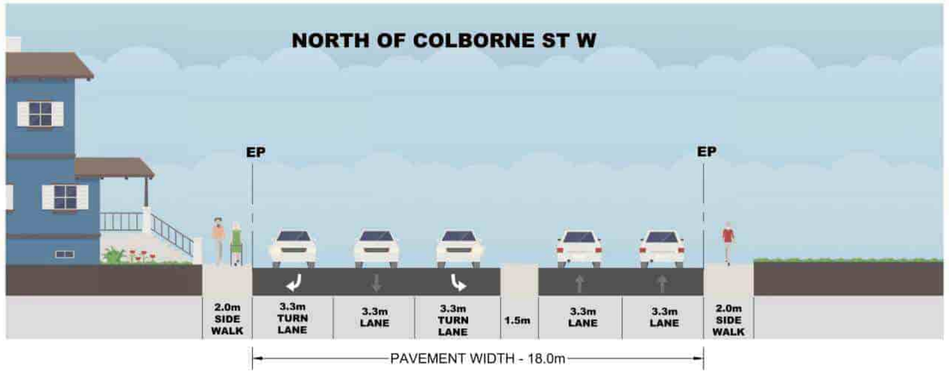


SOUTH OF COLBORNE ST W

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

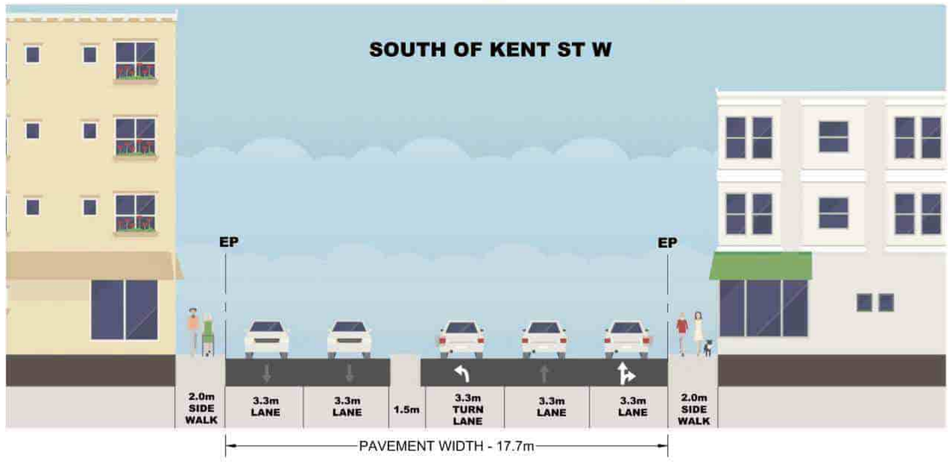


EXISTING R.O.W. · EX. HYDRO POLE · EX. LIGHT STANDARD · EX. DECIDUOUS TREE · EX. CONIFEROUS TREE

ALTERNATIVE 2B

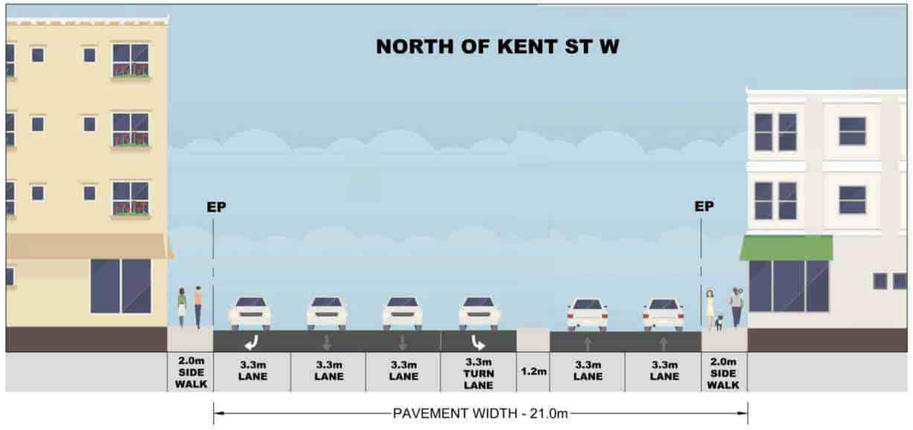
SOUTH OF COLBORNE STREET W INTERSECTION:
TREES REMOVED = 52 + 2 CEDAR HEDGES
UTILITY POLES RELOCATED = 21*
*9 POTENTIALLY MAINTAINED THROUGH DETAILED DESIGN
LIGHT STANDARDS RELOCATED = 4

SOUTH OF KENT ST W

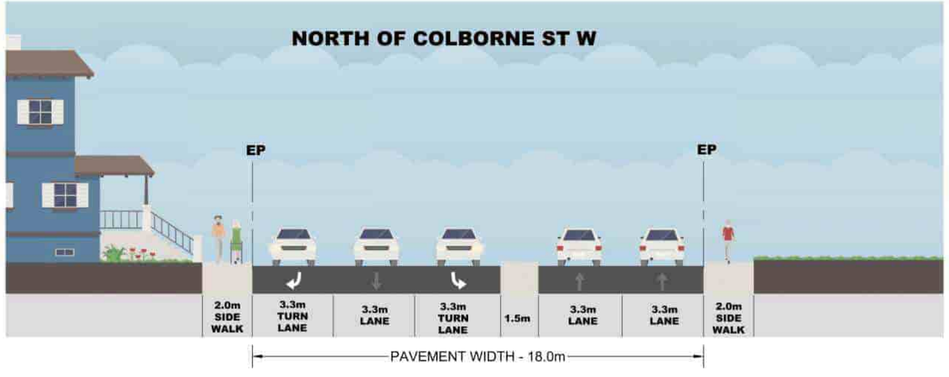


SOUTH OF COLBORNE ST W

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

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

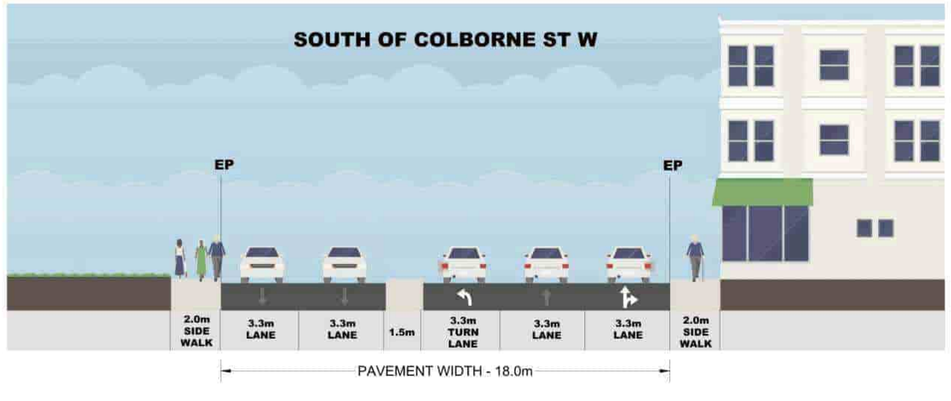
SOUTHEAST QUADRANT:
- ZONING AMENDMENT REQUIRED FOR ANY ROAD WIDENING
- TOE/RETAINING WALL REQUIRED FOR ALTERNATIVES 2 AND 3
- EXISTING FENCE IMPACTED BY ALL ALTERNATIVES TO VARYING DEGREES
- EXISTING BOLLARD AND LIGHT STANDARD POTENTIALLY IMPACTED BY ALTERNATIVE 3
- RELOCATION OF EXISTING SIDEWALK CONNECTION REQUIRED FOR ALL ALTERNATIVES

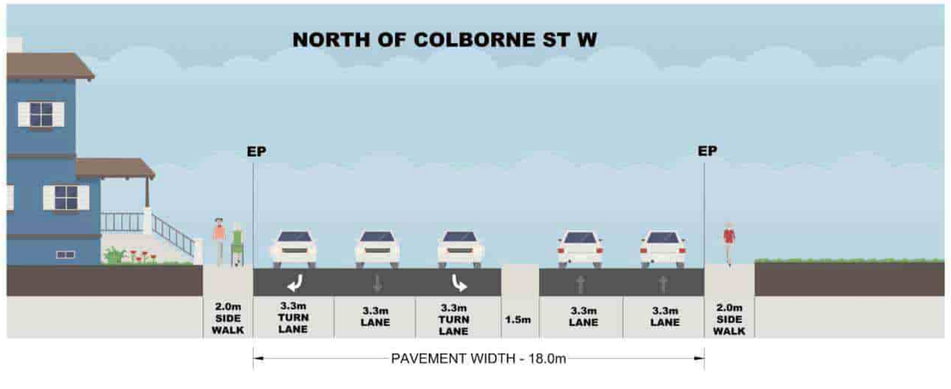
NORTHEAST QUADRANT:
- ALTERNATIVES 2 AND 3 HAVE GREATER IMPACT ON EXISTING CHURCH PARKING (NOTE: EXISTING PARKING LOCATED WITHIN MUNICIPAL ROW)

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

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

Ainley Group CONSULTING ENGINEERS PLANNERS

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.

Appendix C

Comments Received Before the PIC

Katrina Fingland

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

The information contained in this transmission is privileged and confidential and intended only for the use of the individual or entity to whom it was addressed. If you are not the individual or the intended recipient, or the agent or employee of the recipient, you are hereby notified that any distribution, copying, disclosure, or taking any action in reliance on the content of this transmission is strictly prohibited. If you have received this transmission in error, please contact me by return e-mail and delete this message and any attachments from your system. Thank You

---

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

WWW.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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Appendix D

Comments Received At and After PIC

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.

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: [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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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
Discover · Protect · Restore

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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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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]

-

Get BlueMail for Android

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.

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.

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,

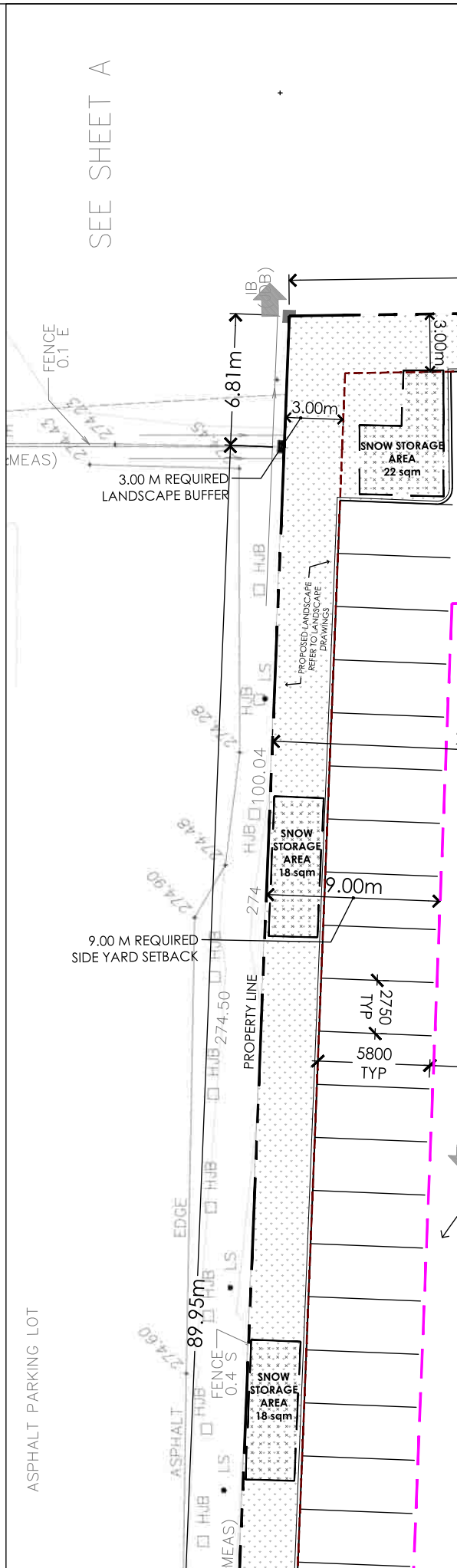
Richard Domes, B.A., C.P.T.
Principal Planner

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 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:

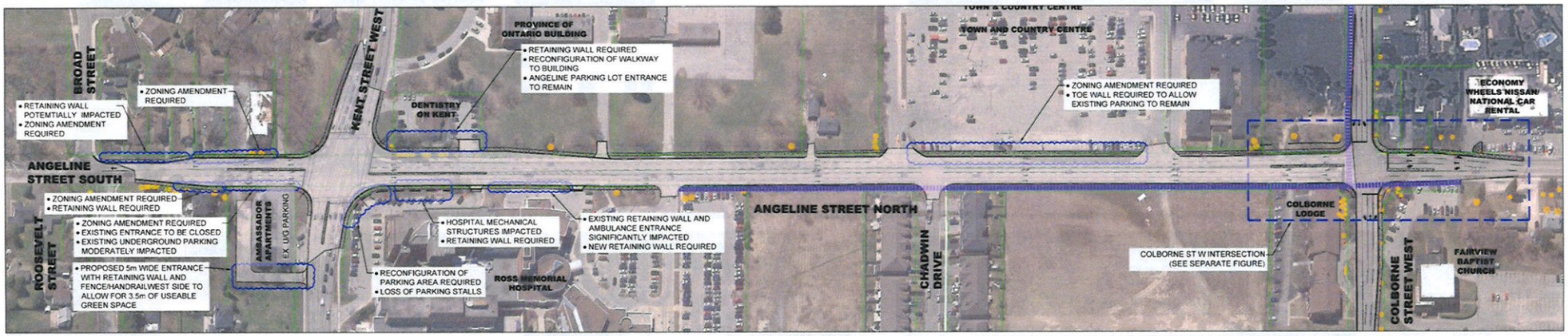
THIS SITE PLAN IS BASED UPON AND MUST BE READ IN CONJUNCTION WITH THE DRAWING SHEET B BY COE FISHER CAMERON LAND SURVEYORS DATED 12/06/2018. MATAJ ARCHITECTS ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY, OR COMPLETENESS OF THE DATA SUPPLIED AND SUCH DATA IS NOT INCLUDED UNDER SEALS OF CERTIFICATION, IF ANY.

LEGAL LAND DESCRIPTION.

671

TOPO SURVEYORS INFO

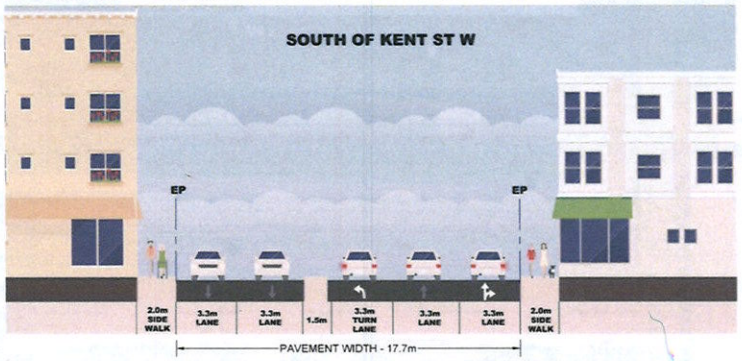
KENT STREET INTERSECTION AND MAIN CORRIDOR - PREFERRED ALTERNATIVE

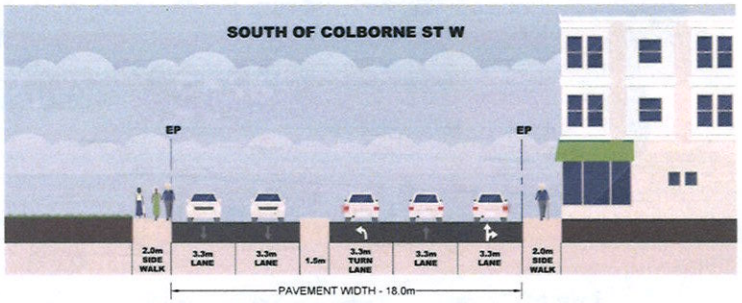


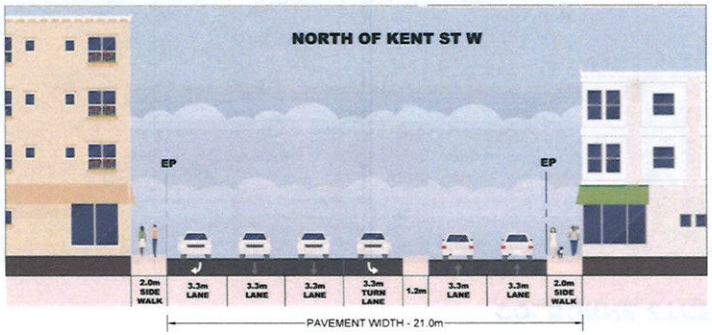
ALTERNATIVE 2B

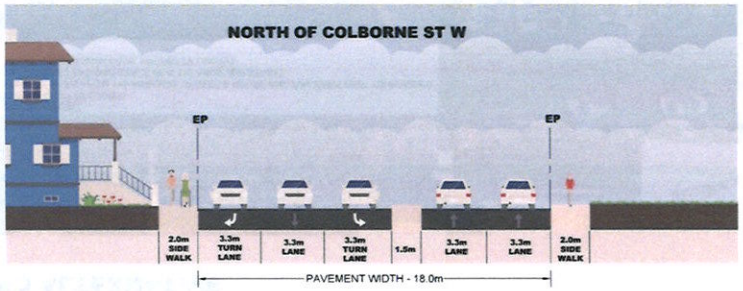
SOUTH OF COLBORNE STREET W INTERSECTION:

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).

Project File Report

for the

Angeline Street North
Municipal Class Environmental Assessment

City of Kawartha Lakes

Prepared by Ainley Group

August 2025

Prepared By:

Scott Reynolds, B.Sc. (Env), EP
Manager of Environmental Planning
Ainley Group

Alex Wilkinson, P.Eng.
Project Engineer
Ainley Group

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.

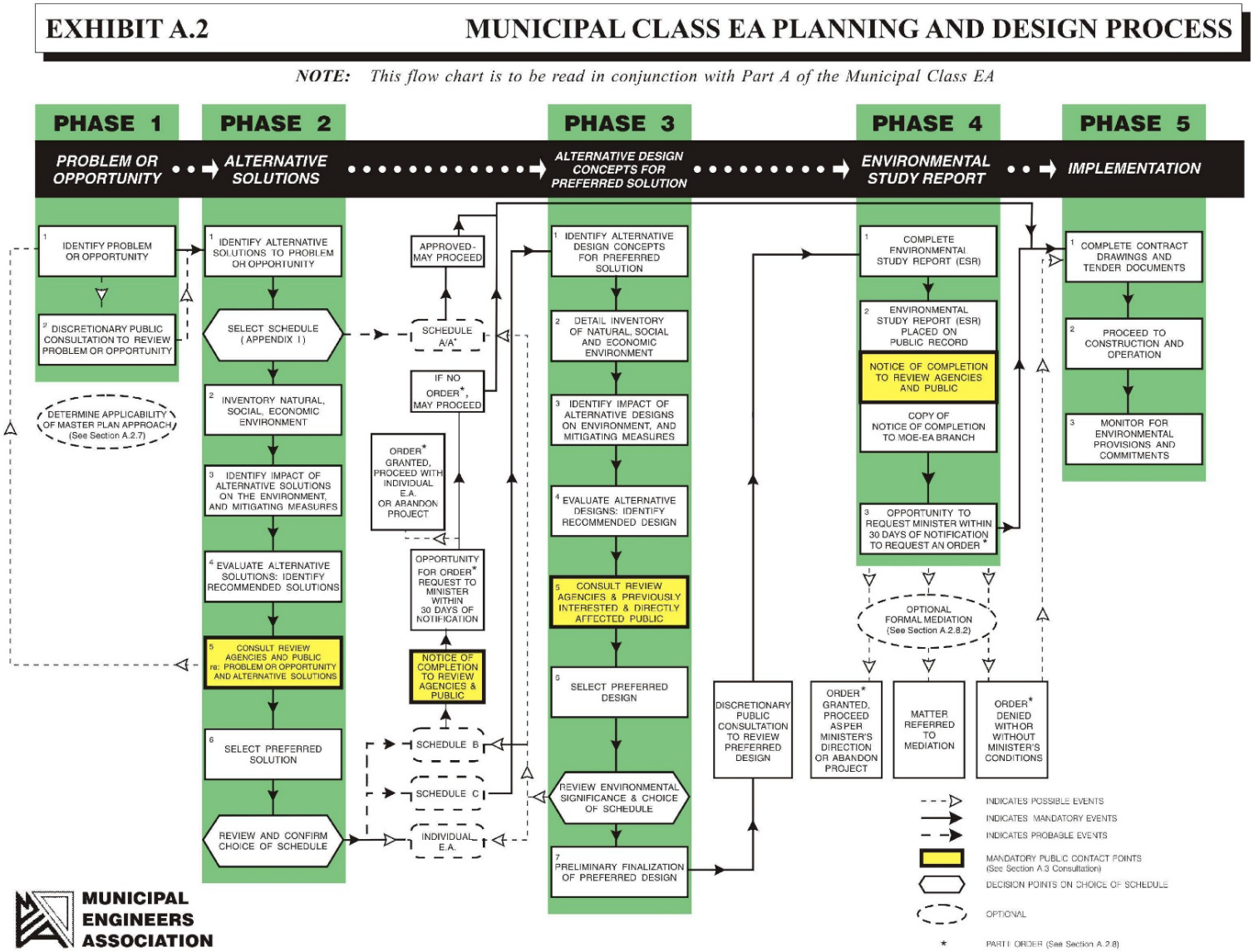


Figure 2 – MCEA Process Flow Chart (Source: Municipal Engineers Association)

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**.

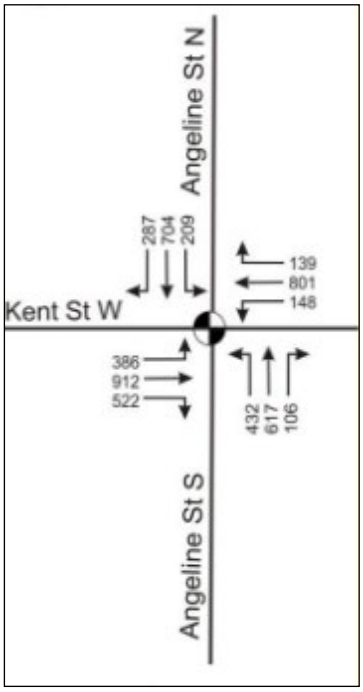


Exhibit 2 – 2031 Forecast Traffic Volumes, Kent Street/Angeline Street Intersection (HDR, 2016)

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.

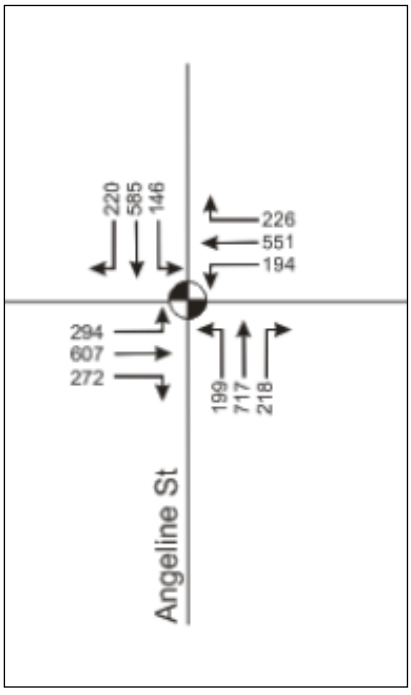


Exhibit 3 – 2031 Forecast Traffic Volumes, Colborne Street/Angeline Street Intersection (HDR, 2016)

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

5.3 Alternative Solutions for Colborne Street West Intersection

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

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

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

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

5.3.1 Westward Alignment Shift at Colborne Intersection – Alternative 1

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

5.3.2 Alignment Centered at Colborne Intersection – Alternative 2

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

5.3.3 Eastward Shift at Colborne Intersection – Alternative 3

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

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

INSERT FIGURE 7 [Alternative 1 Through 3]

Table 4: Alternative Solutions for Colborne Street West Intersection

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

5.4 Evaluation of Alternative Solutions – Summary

5.4.1 Kent Street West Intersection/Angeline Street Corridor

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

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

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

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

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

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

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

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

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

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

5.4.2 Colborne Street West Intersection

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

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

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

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

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

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

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

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

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

6.0 Refining the Preferred Alternative Solution

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

6.1 Supplemental Technical Review and Reporting

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

6.1.1 Air Quality Assessment for RMH Ground Level Intakes

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

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

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

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

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

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

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

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

6.1.2 Vibration Assessment – Ambassador Apartments Parking Garage

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

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

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

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

6.1.3 Structural Analysis Report – Ambassador Apartments Parking Garage

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

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

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

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

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

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

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

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

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

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

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

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

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

6.1.4.1 Existing Traffic Conditions 2023

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

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

6.1.4.2 Capacity Analysis: No Geometric Improvement (Do Nothing)

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

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

(list continued on following page)

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

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

6.1.4.3 Proposed Development (Intersection Modification)

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

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

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

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

Option 2: Horizon Year 2037

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

Option 2: Horizon Year 2051

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

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

6.2 Active Transportation Master Plan (ATMP)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.3 Refined Alternative Solutions for Kent Street West Intersection

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

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

Key considerations for this refinement and re-evaluation include:

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

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

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

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

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

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

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

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

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

6.3.2 Alternative 2B – Alternative 2 with Reduced Northbound Lanes

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

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

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

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

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

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

6.4 Evaluation of Refined Alternative Solutions – Summary

6.4.1 Evaluation of Refined Alternatives Kent Street West Intersection

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

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

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

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

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

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

7.0 Preferred Alternative

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

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

Angeline Street North Corridor

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

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

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

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

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

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

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

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

Kent Street West Intersection

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

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

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

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

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

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

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

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

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

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

Colborne Street West Intersection

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

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

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

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

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

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

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

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

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

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

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

Appendix A:

Active Transportation Master Plan (ATMP) Discussion Memorandum

Appendix B:

Air Quality Assessment for Ross Memorial Hospital Ground Level Intakes Report

Appendix C:

Vibration Assessment - Ambassador Apartments Parking Garage

Appendix D:

Stage 1 Archaeological Assessment Report and Stage 2 Archaeological Assessment Report

Appendix E:

Traffic Evaluation Memorandum

Appendix F:

Tree Inventory and Assessment

Appendix G:

Consultation

Appendix H:

PIC Summary Report #1

Appendix I:

PIC Summary Report #2

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

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		

	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.	

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 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 Community	The Municipal and Tourism Wayfinding Strategy is currently in the procurement process. This Strategy will incorporate parking signage.	2026-2026 Strategy 2027 Implementation (to start)
	Work with municipal partners to assess the viability for downtown parking enforcement.	City of Kawartha Lakes - Municipal Law Enforcement 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.	

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 Community	Francis Street East Parking Lot and John Street Parking Lots are identified for construction.	2026: Francis Street East 2030: John Street
	Collaborate with CKL and local stakeholders to explore future infrastructure upgrades, including EV charging stations.	City of Kawartha Lakes - Engineering 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 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 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: Long-Term Financial Plan Growth Management Strategy Transportation Master Plan Active Transportation Master Plan Transit Master Plan Other Master Servicing Plans Official Plan Public consultation to gather community input is part of the plan development process. 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 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 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

	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 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 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 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 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 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 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 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 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 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 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		

encourage engagement.	Collect marketing assets to contribute to business investment and attraction strategies.	Community 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 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 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 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

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 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 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 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 Community	Public washrooms are available at the Fenelon Falls Library, Garnet Graham Beach Park and during the navigation season at Lock 34.	

			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 Community	The Trails Master Plan Update recommends trail head amenities that support active living. 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

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 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.

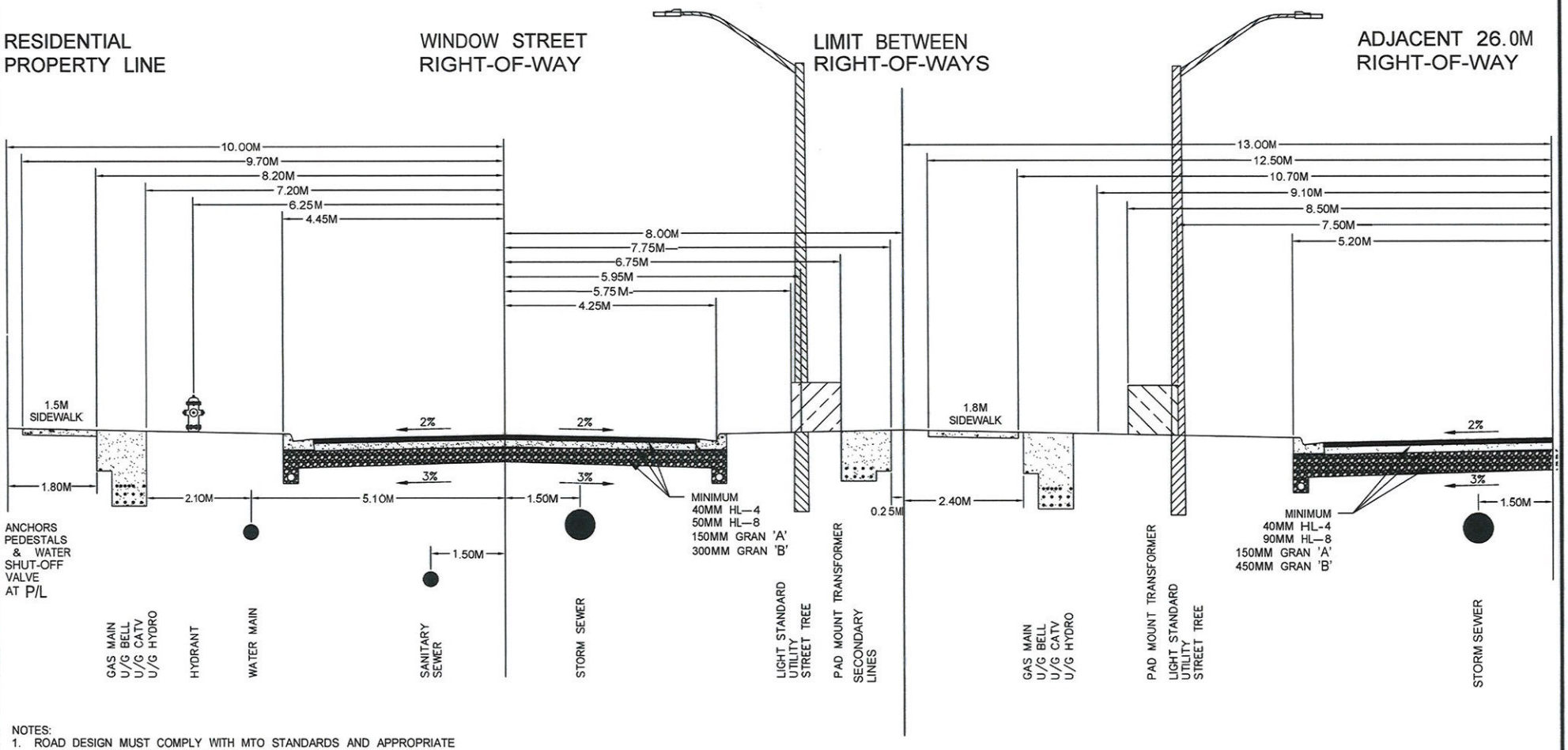
~~Drainage Corridors 4.5 to 6.0 metres~~
~~Utilities Corridors 4.5 to 6.0 metres~~
~~Pathways 3.0 to 4.5 metres~~

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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
APPROVED BY:		DATE:

Kawartha Lakes

CONTRACT NO:
SCALE: 1:75
PAGE 1 OF 1
DRAWING NO. CKL – 408

Committee of the Whole Report

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.