

FINANCE AND ADMINISTRATION COMMITTEE AGENDA

Finance and Administration Committee Meeting **Tuesday, July 10, 2018** Tom Davies Square

COUNCILLOR MIKE JAKUBO, CHAIR

Deb McIntosh, Vice-Chair

10:00 a.m. FINANCE AND ADMINISTRATION COMMITTEE MEETING COUNCIL CHAMBER

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DECLARATIONS OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF

PRESENTATIONS

 Report dated June 25, 2018 from the Director of Communications and Community Engagement regarding Revitalized Municipal Website.
 (ELECTRONIC PRESENTATION) (EOP INFORMATION ONLY)

(ELECTRONIC PRESENTATION) (FOR INFORMATION ONLY)

• Eliza Bennett, Director of Communications and Community Engagement and Marie Litalien, Manager of Communications and French Services

(In May 2016, staff began the two-year website revitalization project. After two years, and contributions from more than 110 staff across the organization, this significant overhaul has resulted in an award-winning municipal website that meets the information and customer service needs of residents with clear, consistent, easy to find and easy to understand information.)

2. 2018 Mid-Year Capital Program Status - City of Greater Sudbury (ELECTRONIC PRESENTATION) (FOR INFORMATION ONLY)

• Mark Frayne, Director of Engineering Services

(This report provides the status of capital projects from 2017 Work-in-Progress (WiP) and approved for 2018, their current stage, the scope of work to be completed, and an anticipated completion date.)

CONSENT AGENDA

(For the purpose of convenience and for expediting meetings, matters of business of repetitive or routine nature are included in the Consent Agenda, and all such matters of business contained in the Consent Agenda are voted on collectively.

A particular matter of business may be singled out from the Consent Agenda for debate or for a separate vote upon the request of any Councillor. In the case of a separate vote, the excluded matter of business is severed from the Consent Agenda, and only the remaining matters of business contained in the Consent Agenda are voted on collectively.

Each and every matter of business contained in the Consent Agenda is recorded separately in the minutes of the meeting.)

ADOPTING, APPROVING OR RECEIVING ITEMS IN THE CONSENT AGENDA

(RESOLUTION PREPARED FOR ITEM C-1)

ROUTINE MANAGEMENT REPORTS

C-1. Report dated June 22, 2018 from the General Manager of Community Development **15 - 20** regarding Healthy Community Initiative Fund Applications. (RESOLUTION PREPARED)

(This report is requesting approval(s) of eligible Healthy Community Initiative Fund application(s) in accordance with By-law 2016-18.)

REGULAR AGENDA

REFERRED & DEFERRED MATTERS

 R-1. Report dated June 27, 2018 from the General Manager of Growth and Infrastructure regarding Red Light Camera Program.
 21 - 79

 (RESOLUTION PREPARED)
 21 - 79

(This report provides the Finance and Administration Committee with an update on the Red Light Camera Project.)

MANAGERS' REPORTS

 R-2. Report dated June 27, 2018 from the General Manager of Corporate Services
 80 - 121

 regarding Downtown Parking Update.
 (FOR INFORMATION ONLY)

(This report provides an update on parking matters.)

ADDENDUM

CIVIC PETITIONS

QUESTION PERIOD AND ANNOUNCEMENTS

NOTICES OF MOTION

ADJOURNMENT



For Information Only

Revitalized Municipal Website

Presented To:	Finance and Administration Committee				
Presented:	Tuesday, Jul 10, 2018				
Report Date	Monday, Jun 25, 2018				
Туре:	Presentations				

Resolution

For Information Only

<u>Relationship to the Strategic Plan / Health Impact</u> <u>Assessment</u>

As part of the *Greater Together 2015-218 Corporate Strategic Plan*, the revitalization of the municipal website was identified as an action by Council under the priority of *Responsible*, *Fiscally Prudent Open Governance; Focus on openness, transparency and accountability in everything we do*.

Report Summary

In May 2016, staff began the two-year website revitalization project. After two years, and contributions from more than 110 staff across the organization, this significant overhaul has resulted in an award-winning municipal website that meets the information and customer service needs of residents with clear, consistent, easy to find and easy to understand information.

Financial Implications

There are no financial implications associated with this report. The total cost of the website revitalization project of approximately \$146,000 was approved by Council during the 2016, and 2017 Budget. In order to maintain the website additional resources in the form of a permanent position was approved in the 2018 budget.

Signed By

Report Prepared By

Marie Litalien Manager of Communications and French Services Digitally Signed Jun 25, 18

Manager Review Marie Litalien Manager of Communications and French Services Digitally Signed Jun 25, 18

Division Review

Eliza Bennett Director of Communications and Community Engagement Digitally Signed Jun 25, 18

Financial Implications Jim Lister Manager of Financial Planning and Budgeting *Digitally Signed Jun 27, 18*

Recommended by the Department Eliza Bennett Director of Communications and Community Engagement Digitally Signed Jun 25, 18

Recommended by the C.A.O. Ed Archer Chief Administrative Officer *Digitally Signed Jun 25, 18*

City of Greater Sudbury Website Revitalization Project

Background:

As part of the *Greater Together 2015-218 Corporate Strategic Plan*, the revitalization of the municipal website was identified as an action by Council under the priority of *Responsible*, *Fiscally Prudent Open Governance; Focus on openness, transparency and accountability in everything we do*.

A citizen-focused website is also essential in building understanding between citizens and their municipal government, as outlined in the *Connecting You, Connecting Us: City of Greater Sudbury Communications Strategic Plan*.

The City of Greater Sudbury website is the No. 1 tool for engaging with residents of our community. In a recent web survey, 44 per cent of residents stated that they prefer to interact with the City online. In 2017, the City of Greater Sudbury website received more than 1.6 million sessions, and almost 4 million pageviews. In addition, since the last website redesign, website traffic demographics have significantly changed with 58% of all users to the City's website using mobile technology. This, combined with the results of a comprehensive third party audit of the website, determined the requirement for a complete redesign, restructure and rewrite of the municipal site.

After two years, and contributions from more than 110 staff across the organization, this significant overhaul has resulted in an award-winning municipal website that meets the information and customer service needs of residents with clear, consistent, easy to find and easy to understand information.

Goals of the Website Revitalization Project

In May 2016, staff began the two-year website revitalization project. Based on the recommendations of an extensive third-party web audit, a web survey, and focus groups with residents and staff, a detailed project plan was developed with specific goals and actions to address identified needs and priorities.

To achieve the overarching goals of the plan, the project was broken down into two phases.

- Phase One: May 2016 to May 2017: Restructuring of content into a new resident-focused layout, a fresh new design, mobile optimization, and re-written content in the six top-visited areas of the website: Jobs, Transit, Tenders and Purchasing, Garbage and Recycling, Arenas, and Leisure.
- Phase Two: June 2017 to June 2018: Re-writing, condensing and restructuring of the remaining areas of the website.

The goals of the website project, as well as key action taken to achieve them are outlined below:

Goal: The municipal website meets the information and customer service needs of residents.

- The number of web pages was reduced by almost 74%, making it significantly easier for residents to find the information they are looking for. For example, areas where residents had to click through many pages of information was reorganized using tabs and accordions.
- Information was re-organized in a way that makes sense to residents. For example, the website is no longer organized by City department, but rather, by service and/or theme.

• The search functionality has been significantly improved. For example, the web search provider was changed and key words and search engine optimization tactics were implemented to improve search functionalities.

Goal: Content is easy to understand.

- Content was re-written to reflect best practice for web writing. This includes shortening paragraphs, using headings to make content easier to skim, and using bulleted lists for easy reading.
- Content was re-written to make it more accessible to all audiences. This includes using plain language and avoiding technical jargon to make information about municipal services easy to understand.

Goal: Content is relevant, timely, and accurate.

• Unnecessary and outdated content was removed and replaced with new, up-to-date, accurate content.

Goal: The website is easy to manage for staff.

- A web governance framework is in development to allow for clear work processes and outline roles and responsibilities for maintaining web content.
- Web content management training manuals are in development to assist staff across the organization responsible for updating website content.

Goal: The website is compliant with accessibility legislation.

• The new website design and rewritten web content according meets web content accessibility guidelines (WCAG 2.0 Level AA).

Goal: The website is optimized for mobile devices.

• The new, responsive web design functions on all devices, including tablets and mobile phones.

Costs of the Website Revitalization Project

	Description	Phase 1	Phase 2
Project Expense	Public website survey	\$4,579.21	
	Online advertising for public website survey	\$1,669.86	
	Third-party Web Audit, plus expenses	\$34,748.62	
	Web design	\$15,729.60	
	Translation	\$10,200.00	\$19, 800.00
	Web Content Editor	\$29,576.00	\$29,576.00
Contingency			
	Total per phase	\$96,503.29	\$49,376.00
	Total website revitalization project cost		\$145,879.29

The financial resources required to complete the website revitalization project were as follows:

There is no revenue associated with the website revitalization project.

The approved web editor FTE, which came into effect on June 1, 2018, increases the FTE staff complement by one, and represents a change to the base operating budget of \$24,732 on an ongoing basis, beginning in 2019. Based on the needs of the section, \$34,626 from other line accounts in the Communications and Community Engagement Division were reallocated to allow for this full-time resource with minimal impact on the base operating budget. The salary and benefits total for this position is \$59,358.

Communications

Promotion of the website as an information source for residents is done daily through regular public communications. The majority of public communications from the City includes a link to the information on the municipal website. As a result, the website is key to all communications activities undertaken by the City.

In an effort to continue to make the website the main, trusted source of information for residents, the City has partnered with Cambrian College through their Cambrian Innovates Voucher for E-Business (VEB) Program. Established in 2009, Cambrian Innovates is Cambrian College's research development arm. Cambrian Innovates brings together industry, funding partners and Cambrian faculty and students to provide market solutions for current business challenges. The students receive paid working experience to put on their resumes. Faculty keeps their industry-specific skills and knowledge current. Industry connects with bright upcoming workers and solves problems with fewer wasted resources. (Cambrian Innovates. (October, 2015). About Cambrian Innovates [Brochure]. Sudbury, ON.)

The Voucher for E-Business (VEB) Program connects eligible industry partners with the expertise and resources available at Ontario colleges to help their business scale up the development, adoption and implementation of online tools to drive innovation. Through the VEB program, student teams guided by college faculty engage directly with industry partners and act as consultants to industry to identify and solve their online business innovation challenges. (Voucher for E-Business, VEB. [Accessed June 21, 2018])

The City has been working with the Cambrian Innovates VEB program to produce a short promotional video about the City website, highlighting helpful online information and tools, such as the Transit Trip Planner.

Next Steps

During the 2017 budget, City Council approved a permanent full-time web editor to provide ongoing support to the website. As a result of this resource, a process of continuous improvement for the website has been adopted:

- Continuous work on content to ensure it remains simple, accurate, relevant, and easy to find and understand.
- Continuous engagement with residents through the *Over to You* portal for feedback on changes and identification of opportunities for further improvement.
- Finalization and implementation of a web governance framework and associated website policies and protocols to assist staff in maintaining website content.
- Monitoring and identification of new opportunities for online services, in line with the City Information and Technology Strategic Plan.
- Development of additional training, tools and resources for staff.
- Implementation of benchmarks to evaluate and monitor progress improvements.

Conclusion

Since the launch of the revitalized website, improvements have provided clear benefits to residents and stakeholders.

For example, enhancements to online accessibility were well-received by the Accessibility Advisory Panel, and work on the website was chosen as an example of positive online accessibility for a project by a student in Mohawk College's Accessible Media Production program. Since the launch of the first phase of the project in May 2017, the City has received two awards from the Association of Marketing and Communication Professionals: a Gold-Level AVA Digital Award in the category of Web-Based Production/ Website/ Government, and a Gold-Level Hermes Creative Award in the Government: Website Overall category.

The website revitalization project has enabled the City to improve the connection that residents have with their municipality by providing them with information that is easy to find and easy to understand. As the primary source of information for residents, and with technological change continuing to drive digital communication, the City website will require ongoing maintenance and continuous improvement to meet the quickly evolving needs of residents.

The website revitalization project has provided a solid foundation for the City to continue to strengthen its digital communications and provide quality online service to residents.

Resources Cited

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Voucher for E-Business, VEB: <u>http://www.oce-ontario.org/programs/industry-academic-collaboration/collaboration-voucher-program/VEB</u>



Request for Decision

Healthy Community Initiative Fund Applications

Presented To:	Finance and Administration Committee					
Presented:	Tuesday, Jul 10, 2018					
Report Date	Friday, Jun 22, 2018					
Туре:	Routine Management Reports					

Resolution

THAT the City of Greater Sudbury approves the Healthy Community Initiative Fund requests, as outlined in the report entitled "Healthy Community Initiative Fund Applications", from the General Manager of Community Development, presented at the Finance and Administration Committee meeting on July 10, 2018;

AND THAT any necessary by-laws be prepared.

<u>Relationship to the Strategic Plan / Health Impact</u> Assessment

This report supports Council's Strategic Plan in the area of Quality of Life and Place as it aligns with the Population Health Priorities of Building Resiliency, Investing in Families, Creating Play Opportunities, and Promoting an Age-Friendly Strategy.

The Healthy Community Initiative funds support community-based projects and initiatives that are affordable and promote inclusiveness for the benefit of citizens.

Report Summary

By-law 2016-18 requires Council's approval for all eligible Healthy Community Initiative Capital fund requests exceeding

Signed By

Report Prepared By

Lyne Côté Veilleux Co-ordinator of Community Initiatives & Quality Assurance Digitally Signed Jun 22, 18

Division Review

Barbara Dubois Manager of Community Initiatives, Performance Support and Quality Improvement *Digitally Signed Jun 22, 18*

Financial Implications Jim Lister Manager of Financial Planning and Budgeting Digitally Signed Jun 22, 18

Recommended by the Department Catherine Matheson General Manager of Community Development Digitally Signed Jun 22, 18

Recommended by the C.A.O. Ed Archer Chief Administrative Officer *Digitally Signed Jun 25, 18*

\$10,000, and Grant requests exceeding \$1,000. The General Manager of Community Development is recommending that funding requests identified in the report be approved as proposed.

Financial Implications

The Healthy Community Initiative (HCI) Fund is allocated within prescribed budgets. Approval of an HCI capital project includes approval of operating costs to be provided in the base budget in subsequent budget years for the operating department.

Background

By-law 2016-18, requires Council's approval for all Grant requests which meet Healthy Community Initiative (HCI) funding criteria and exceed \$1,000 and all Capital requests which meet HCI funding criteria and exceed \$10,000. Eligible applications for Grant requests of \$1,000 or less, and eligible Capital requests of \$10,000 or less may be approved by the General Manager of Community Development.

HCI Fund Applications and Financial Summary

Appendix A - Healthy Community Initiative Fund - Applications, lists HCI Fund requests by Ward as recommended by the General Manager of Community Development for approval by Council. All projects listed in Appendix A have been evaluated against By-law 2016-18 and its related criteria and have been verified to ensure sufficient funds are available within each Ward's funding allocation.

Appendix B – Healthy Community Initiative Fund – Application Outcomes, provides a list of HCI Fund applications that were approved or denied by the General Manager of Community Development since the last report presented at the Finance and Administration Committee meeting on June 19, 2018.

Appendix C – Healthy Community Initiative Fund Financials, includes the recommended approvals contained in this report as well as a summary of HCI Fund allocation balances up to July 10, 2018. The amounts may increase due to reimbursement of under-spent funds from completed and reconciled projects/initiatives.

Next Steps

Upon Council approval, applicants will receive written notification confirming their approved funding and the intended use of funds as well as a Final Report form. The Final Report form is to be completed by the applicant and returned post-event/project completion for reconciliation by Financial Services. Grant recipients will be provided with a cheque (where applicable) for the approved amount, whereas a capital funded project will be managed by the City of Greater Sudbury, working closely with the applicant.

Should an HCI fund request not be approved, the applicant will be notified of same.

Resources Cited

Healthy Community Initiative Fund, By-law 2016-18 https://www.greatersudbury.ca/inside-city-hall/by-laws/healthy-community-initiativefund/

Healthy Community Initiative Fund Applications for Council Approval – July 10, 2018

CAPITAL FUNDS

Ward	Recipient/Event/Project/ Location	Purpose for Funds	Amount Requested	Amount Recommended for Approval by the GM
All Wards	Fabio Belli Foundation / Artificial Turf at Terry Fox Sports Complex / Sudbury	To assist with the cost of purchasing and installing an artificial turf surface on Field #1 at the Terry Fox Sports Complex. Annual operating costs are estimated at \$5,000 /yr.	\$90,000 (\$7,500 from ea. ward)	\$0 (There are insufficient funds from some wards to support the total request. All-wards capital requests are not recommended. Approval of this request would impact other ward- specific applications received including the below request for Ward 3 .)
2	Kinsmen Neighbourhood Association / Flooring Replacement / Lively	To cover the costs of replacing the existing flooring in the Kinsmen Sports Complex. Annual operating costs are estimated at less than \$1,000 /yr.	\$15,000	\$15,000
3	Chelmsford Community Action Network / Whitson River Trail / Chelmsford	To assist with the costs of professional engineering/consultant fees for the completion of a Detailed Design for the Whitson River Trail. The trail was endorsed by Council as a Community Improvement Project and is in line with the Parks, Open Space and Leisure Master Plan.	\$72,184	\$72,184
5	Pinecrest Neighbourhood Association / Community Garden / Val Caron	To construct garden beds and install water service at Pinecrest Playground. Annual operating costs for the water service is estimated at \$1,850/yr.	\$10,000	\$10,000
9	South End Community Action Network / Type C Pedestrian Crossover / Tuscany Trail- Algonquin Rd Intersection	To cover the cost difference to upgrade the planned installation of a Type D crossover with a Type C that includes flashing lights. Adjusted annual operating costs are estimated at minimum \$200/yr.	\$23,000	\$0 (The upgraded crossover is not recommended by the Growth and Infrastructure Department. The type of crossover that is planned to be installed is based on engineering guidelines and provincial best practices.)
11	Bayridge Neighbourhood Association / Korpela Park Enhancements / Sudbury	To assist with the costs of installing a sun shelter, rehabilitating walkways and a resting point with installation of benches, and installing generational swings. Annual operating costs are estimated at less than \$1,000 /yr.	\$42,500	\$42,500

GRANTS

Ward	Recipient/Event/Project	Purpose for Funds	Amount Requested	Amount Recommended for Approval by the GM
3	Les Productions Café-musique Rayside-Balfour / Super STARS Vocal Competition for Youth and Children	To assist with the cost of sound and lighting equipment, rentals, marketing, and awards.	\$2,200	\$2,200

Healthy Community Initiative Fund Applications: Approved/Denied by the General Manager, Community Development

For the period of June 2, 2018 to June 21, 2018

Successful Applications

Capital Funds						
Ward	Group / Project	Amount Approved				
2	Copper Cliff Community Action Network / Community mural - Copper Cliff Library	\$2,500				
5	Kin Club of Valley East / Flooring replacement in Kin Park playground building	\$5,300				
8	Westmount Community Centre / Soil testing for cement pad for outdoor rink	\$5,000				
Grants						
Ward	Group / Project	Amount Approved				
All	N'Swakamok Friendship Centre / National Aboriginal Day event	\$1,000				
3	Onaping Falls Art Club / Community art workshops	\$500				
3	Onaping Falls Hamper Committee / Christmas food hampers	\$1,000				
4	Miners for Cancer / Baseball fundraiser	\$500				
5	Councilor-led initiative - Emergency Services / EMS exhibition	\$1,000				
5	McLean Park Playground Association / Family Fun Day event	\$800				
5	Sunnyside Playground Association / Fall Family Day BBQ event	\$800				
5	Pinecrest Neighbourhood Association / Neighbourhood Fall Festival event	\$1,000				
10	Laurentian Para-nordic Program / Tandem training bike & helmets	\$1,000				
10	rethink Green / Earth Festival event	\$700				
11	Canadian Cancer Society / Mudmoiselle Women's Mud Run event	\$500				
11	Holy Redeemer Church / Let's Cook Program	\$500				
12	Pregnancy Care Centre & Infant Food Bank / Volunteer & donor appreciation luncheon	\$500				

Unsuccessful Applications

Ward	Group / Project	Amount Requested	Reason(s) for Denial

Healthy Community Initiative (HCI) Fund Financials for the Period Ending July 10, 2018

Schedul	e 1	.1 – Capi	tal I	Funds								
Capital	te	ncommit- ed Funds January 2018	to R	ncommit- ed Funds from econciled Projects 2018	C	pproved by Community evelopment GM 2018	pproved / Council 2018	fo	Proposed r Approval y Council	Ur te	d Balance of ncommit- ed Funds After solution*	Pending HCI Funding Requests
Ward 1	\$	67,213	\$	-	\$	-	\$ 49,500	\$	-	\$	17,713	\$ -
Ward 2	\$	109,697	\$	-	\$	12,500	\$ 60,000	\$	15,000	\$	22,197	\$ -
Ward 3	\$	97,184	\$	-	\$	-	\$ 25,000	\$	72,184	\$	-	\$ -
Ward 4	\$	37,055	\$	-	\$	1,000	\$ 25,000	\$	-	\$	11,055	\$ 10,000
Ward 5	\$	31,415	\$	-	\$	12,350	\$ -	\$	10,000	\$	9,065	\$ 5,000
Ward 6	\$	39,334	\$	-	\$	-	\$ 10,000	\$	-	\$	29,334	\$ 20,000
Ward 7	\$	67,401	\$	-	\$	-	\$ 25,000	\$	-	\$	42,401	\$ 29,500
Ward 8	\$	35,190	\$	-	\$	5,000	\$ -	\$	-	\$	30,190	\$ -
Ward 9	\$	84,819	\$	-	\$	13,000	\$ 50,000	\$	(0)	\$	21,819	\$ -
Ward 10	\$	33,839	\$	21	\$	2,000	\$ -	\$	-	\$	31,860	\$ -
Ward 11	\$	121,599	\$	-	\$	-	\$ 45,000	\$	42,500	\$	34,099	\$ -
Ward 12	\$	47,067	\$	-	\$	2,000	\$ -	\$	-	\$	45,067	\$ 38,650

Schedule 1.2 – Grants

Grant	Uncommit- ted Funds January 2018		rant ted Funds January		Uncommit- ted F ted Funds fro January Recor 2018 Proj		Uncommit- ted Fund ted Funds from January Reconcile		ted Funds from January Reconciled 2018 Projects		Incommit- ted Funds Approved by A ted Funds from Community b January Reconciled Development 2018 Projects GM 2018		Approved by Council 2018	Proposed for Approval by Council		Uı te	d Balance of ncommit- ed Funds After solution*	Pending HCl Funding Requests
Ward 1	\$	12,250	\$	-	\$ 86	\$	1,500	\$	-	\$	10,664	\$ -						
Ward 2	\$	12,250	\$	-	\$ 1,854	\$	7,250	\$	-	\$	3,146	\$ -						
Ward 3	\$	12,250	\$	-	\$ 2,086	\$	6,925	\$	2,200	\$	1,039	\$ 1,000						
Ward 4	\$	12,250	\$	-	\$ 1,586	\$	7,600	\$	-	\$	3,064	\$ 1,000						
Ward 5	\$	12,250	\$	-	\$ 6,150	\$	6,100	\$	-	\$	-	\$ -						
Ward 6	\$	12,250	\$	-	\$ 1,386	\$	1,000	\$	-	\$	9,864	\$ -						
Ward 7	\$	12,250	\$	-	\$ 1,086	\$	2,512	\$	-	\$	8,652	\$ 1,000						
Ward 8	\$	12,250	\$	-	\$ 86	\$	-	\$	-	\$	12,164	\$ -						
Ward 9	\$	12,250	\$	-	\$ 1,086	\$	7,350	\$	-	\$	3,814	\$ -						
Ward 10	\$	12,250	\$	-	\$ 2,786	\$	2,625	\$	-	\$	6,839	\$ -						
Ward 11	\$	12,250	\$	-	\$ 1,086	\$	1,500	\$	-	\$	9,664	\$ 8,000						
Ward 12	\$	12,250	\$	-	\$ 1,586	\$	7,050	\$	-	\$	3,614	\$ -						

* The amounts may increase due to reimbursement of under-spent funds from completed and reconciled projects/initiatives.



Request for Decision

Red Light Camera Program

Presented To:	Finance and Administration Committee						
Presented:	Tuesday, Jul 10, 2018						
Report Date	Wednesday, Jun 27, 2018						
Туре:	Referred & Deferred Matters						

Resolution

THAT the City of Greater Sudbury approves the implementation of a Red Light Camera (RLC) Program as outlined in the report entitled "Red Light Program", from the General Manager of Growth and Infrastructure, presented at the Finance and Administration Committee meeting on July 10, 2018;

AND THAT staff be directed to request inclusion in the Ontario RLC consortium of municipalities so that the City can benefit from the joint operating costs and administration of the program;

AND THAT staff be authorized to enter into agreements with the City of Toronto and the Ministry of the Attorney General and Ministry of Transportation to allow the RLC project to come into effect;

AND THAT city staff be authorized to undertake all administrative acts that are necessary in connection with this project;

AND THAT additional field work is performed by Aecom to bring the number of recommended sites for an RLC from three to six;

AND THAT staff report back to the Finance and Administration Committee as part of the 2019 budget process with an updated business case and a status report on the RLC project and anticipated timeline for implementation.

Relationship to the Strategic Plan / Health Impact Assessment

This report recommends the use of red light cameras (RLCs) at six City intersections with the goal of providing safer City roads

Signed By

Report Prepared By

Joe Rocca Traffic and Asset Management Supervisor Digitally Signed Jun 27, 18

Manager Review

Joe Rocca Traffic and Asset Management Supervisor Digitally Signed Jun 27, 18

Division Review

Stephen Holmes Director of Infrastructure Capital Planning Digitally Signed Jun 27, 18

Financial Implications Jim Lister Manager of Financial Planning and Budgeting *Digitally Signed Jun 27, 18*

Recommended by the Department Tony Cecutti General Manager of Growth and Infrastructure Digitally Signed Jun 27, 18

Recommended by the C.A.O. Ed Archer Chief Administrative Officer Digitally Signed Jun 27, 18

as the effectiveness of RLC's can be measured by reductions in crash frequency and crash severity. This

advances the City's strategic priority of improving the health and well being of City residents.

Report Summary

Red light running has been identified as the 6th highest target area causing injury or fatal collision and it was indentified for targeted safety programs in the City's Road Safety Assessment. RLCs have been proven effective in other Ontario municipalities at reducing the number of red light running and thereby the number of associated collisions.

Staff is proposing to implement 6 red light cameras, three of which have been identified as part of an AECOM study of city intersections, with three others to be identified through additional field work.

Financial Implications

It is anticipated for Greater Sudbury that six RLC's will produce a net positive financial benefit which can be used to implement safety measures to improve road safety but more importantly, will also create positive societal benefits.

Additional field work is required to identify three additional intersections that would benefit from an RLC that will be funded from existing Roads capital account for consultants.

Staff will report back to Council as part of the 2019 budget process with an updated business case and a status report on the anticipated timeline for RLC implementation.

Background

The Traffic and Asset Management section recently completed a city wide Road Safety Assessment (RSA). The overall objective of the RSA is the development of a coordinated road safety strategy plan that provides direction for future road safety projects and programs with a primary goal of reducing the number and severity of motor vehicle collisions.

As part of the RSA, motor vehicle collisions data was analyzed based on injury and fatal collision occurrence in order to identify potential causes and solutions with respect to road safety strategies. In the analysis, it was identified that red-light running was a contributor to causing serious collisions and it was further identified for targeted safety programs.

Intersection safety is achieved through a combination of engineering, education and enforcement. A Red Light Camera program (RLC) is one of the countermeasures utilized to improve intersection safety by decreasing the incidence of red light running at intersections.

Collisions resulting from red-light running tend to be more severe than other intersection collisions because they usually involve at least one vehicle travelling very quickly. In the most serious red-light running collisions, the vehicles hit each other at right angles. The resulting side-impact collisions cause severe injuries which sometimes lead to death.

RLCs were first introduced in Ontario in 2000 and eight municipalities operate over 190 RLC sites. These would include Toronto, London, Ottawa, Hamilton and the Regions of Peel, Waterloo, York and Halton.

The following summarizes what a RLC program is, how it could be implemented in Greater Sudbury, and outlines the next steps if a RLC program is to be implemented.

Analysis

RLCs are triggered when a vehicle enters an intersection on a red light. Two images of the vehicle are taken and processed. If the images clearly show a red light violation then an infraction notice is mailed to the registered owner of the vehicle. Similar to parking tickets, RLC violations are the responsibility of the vehicle owner, and there are no demerit points involved.

Red-light cameras photograph a vehicle's rear license plate only; not its driver or occupants. The RLC programs in Ontario have consulted the Province's Information and Privacy Commissioner to ensure the cameras do not violate driver privacy.

The effectiveness of red light cameras can be measured in terms of reductions in crash frequency, crash severity, and frequency of red light running violations.

RLCs can reduce the frequency of angle collisions, usually the most severe type of collision, by 25%. However, RLCs can increase the number of rear-end collisions by an

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estimated 15%. Typically angle collisions are more severe then rear end collisions, therefore there is an overall net safety improvement and a positive overall safety cost benefit. Public awareness of RLCs also reduces aggressive driver behaviour.

A red light camera before-and-after study released in 2011 found that in 14 U.S. cities with red light cameras, fatalities due to red light running declined by 35%.

Ontario municipalities that have installed RLCs have seen the numbers of red-light running infractions decrease and the number of rear end collisions decrease over time as motorists become accustomed to the RLC's and that these benefits have extended to other intersections that do not have RLCs.

In general, the presence of automated enforcement on a 24/7 basis provides a strong deterrent. For RLCs in particular, public acceptance in municipalities has been high because the act of running a red light is recognized as one which is reckless and can easily have severe consequences.

The financial penalty in the Province of Ontario is the same for a red light running violation issued by a RLC system or by a police officer. Red light camera evidence is also well accepted in Ontario Courts and to date there has been no successful challenge of a red light running violation based on evidence from a red light camera system. The current fine for a red light running violation is \$325. Of this \$325, the municipality retains \$265 while \$60 is sent to the Province through the victim surcharge fine. If the fine goes unpaid, the license plate cannot be renewed. The owner's driver's license is not suspended and no jail term can be imposed for defaulting on the payment of the fine.

Potential RLC Locations Within CGS

Similar to other municipalities in Ontario that have red light programs, CGS commissioned a study to assess the need for implementing a red light program and to identify sites which would benefit the most from the deployment of the RLCs. The study was performed by AECOM and their report is under separate cover. The goal was to identify intersections where an RLC was the best engineering solution to minimize right angle collisions. This strategy is in line with the City's goal to facilitate a safe and efficient road network.

It is recommended that six RLCs be introduces within CGS in those intersections that will have the largest impact on minimizing collisions as well of modifying driver behaviour on red light running.

Of the City's 124 signalized intersections, AECOM identified seven intersections as possible candidates to install a RLC to minimize right angle collisions. After a field review of those intersections, it was determined that four intersections would benefit from other measures, i.e. improved signage, branch removal therefore RLCs were not considered as the best choice. For the remaining three intersections, a RLC is being recommended as the best solution to minimize/improve collision rates. These intersections are:

- Paris Street at Cedar Street
- Regent Street at Algonquin Road
- Municipal Road 80 at Dominion Drive

It is further recommended that field work continue on other intersections within the CGS where collision rates are greater than expected and identify an additional three intersections where a RLC is recommended as the best traffic solution to reduce collisions. Once selected, the recommended six locations will be brought forward to Council for approval.

Red Light Camera Program Implementation

Implementation of a RLC program involves many steps and various approval processes which are outlined below:

- 1. Receive initial approval for the RLC program from City Council.
- 2. Request membership with the existing Ontario RLC group of municipalities so that Greater Sudbury can benefit from the joint operating costs and administration of the program.
- 3. Report back to Council as part of 2019 budget with an updated business case and status of the project.
- 4. Develop an internal team to implement the program that would be led by the Traffic and Asset Management section and include staff from Finance, Police, Communications, Legal and Provincial Court Administration.
- 5. Adoption by City Council of the RLC locations and apply to have the Highway Traffic Act regulations amended to include these locations. All RLC sites in Ontario must be listed in the Highway Traffic Act.
- 6. Enter into an agreement with the City of Toronto for the processing of the RLC infractions, after it obtains permission from their Council. Toronto currently processes all RLC infractions in Ontario.
- 7. Enter into a RLC contract with the current vendor (Traffipax) for RLC leasings, installation, and maintenance and obtain confirmation from the camera vendor on site suitability.
- 8. Obtain the approval of the Ministry of the Attorney General to join the RLC program.
- 9. Enter into an agreement with Ministry of Transportation to obtain license plate and ownership information and sharing of data from the RLC program.
- 10. Development of a red-light running educational campaign to be implemented concurrently with the RLC program.

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Based on data gathered from other municipalities, it is anticipated that the above steps would take 24 months to complete the various approvals.

Financial Implications

As stated, the implementation of an RLC program will involve entering into a contract with the current vendor for leasing and installing RLCs in Ontario. Based on the experience of other municipalities, the estimated costs, both fixed and variable will be approximately \$60,000 per year per camera site. The following is a description of the cost components of a RLC program and the estimated costs based on 6 RLC sites.

Cost Component	Description	Estimated Annual Cost
RLC Contract	The RLC vendor is responsible for the purchase, installation and maintenance of the RLC's. The RLC vendor is responsible for the secure delivery of the digital images from the camera to the City of Toronto processing centre.	\$25,000/site = \$150,000
RLC Processing	Done by the City of Toronto. Toronto's Provincial Offences Officers review each RLC image and make the determination if a red light violation occurred. If a violation occurred, the processing centre mails the violation notice with two images to the registered owner of the vehicle.	Cost is variable based on number of violations. Estimated \$130,000
Vehicle License Information	The vehicle's registered owner's name and address are required which is obtained from the Ontario Ministry of Transportation.	Cost is variable based on number of violations. Estimated \$5,000
Provincial Court Administration	These costs are incurred for processing of the violation payments and the dispute resolution process. Based on the experience of other Ontario municipalities, the number of RLC violation trials is low.	Cost is variable based on number of violations. Estimated \$75,000
Additional City Resources	An additional staff person will be required in the Roads division to manage the program including reports to the Province, evaluating the performance of the program, implementing the education component and developing other intersection safety initiatives.	\$100,000
Education and Awareness	This program will include education and awareness measures to modify driver's behavior.	\$40,000
Estimated Net Annual Cost		\$500,000

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A successful conviction of a RLC violation results in a fine of \$325, of which \$60 is designated as the victim surcharge, therefore the city would receive \$265. The analysis below estimates conservatively that if there is one violation per day at each of the 6 sites, the estimated gross revenue would be \$580,000 per year or \$80,000 in net revenue. If there are two violations per day per camera site, estimated net revenue to the municipality would be \$450,000. The analysis is summarized in the following chart.

	<u>1 conviction/site/day</u>	<u>2 convictions/site/day</u>	
Revenue	\$580,000	\$1,160,000	
Expenses	<u>(\$500,000)</u>	<u>(\$710,000)</u>	
Net Revenue	\$80,000	\$450,000	

It is recommended that if a RLC program is implemented that any surplus from the RLC program be committed to implement safety measures to improve road safety or to rehabilitate roads with a correlation with road safety (i.e pothole repairs).

Over time, it is anticipated that the number of right angle collisions at these intersections will decrease which has an associated social cost; however, it is also anticipated that the fine revenue will also decrease as there is improved compliance with red lights.

Societal Benefits

It is worth noting that the above business case simply projects the expected fine revenue against the operational costs of the program. A second method to measure the benefits of an RLC program is the societal benefits from expected collision reduction. Societal cost savings result from a reduction in fatalities and injuries, reduced property damage, a reduced burden on the health care system and on emergency services. There would also be a reduction in pain and trauma which cannot be measured.

Summary

Red light running has been identified as the 6th highest target area in Ontario for causing injury or fatal collision and it was indentified for targeted safety programs in the City's Road Safety Assessment. RLCs have been proven effective in other Ontario municipalities at reducing the number of red light running and thereby the number of associated collisions.

Staff is proposing to implement six red light cameras, three of which have been identified as part of an AECOM study of city intersections, with three others to be identified through additional field work.

It is anticipated for Greater Sudbury that six RLCs will produce a net positive financial benefit but more importantly, will provide positive societal benefits.

Throughout the balance of 2018, staff is proposing that the City request inclusion in the Ontario RLC consortium of municipalities so that the City can benefit from the joint operating costs and administration of the program. In addition, staff is proposing that authority be granted to begin the process to enter into required agreements with the City of Toronto Processing Centre, the Ministries of Transportation and Attorney General and the current red light camera vendor for leasing, installation and maintenance and to obtain confirmation from the vendor on site suitability.

Staff will report back to Council as part of the 2019 budget process with an updated business case and a status report on the anticipated timeline for RLC implementation.

Red Light Camera Program – Supplemental Report

Background:

The report entitled "Red Light Camera Program" was presented at the June 19, 2018 Finance and Administration Committee meeting. At the meeting, the committee asked staff to seek out additional information and report back at the next committee meeting. This report provides the additional information that was requested.

Emergency Services

There were several questions raised at the committee meeting regarding the potential of emergency vehicles receiving red light camera tickets for driving through a red light. The Ontario Highway Traffic Act ("HTA") does not provide an exception to emergency vehicles approaching a red light at a traffic signal and it requires that all emergency vehicles come to a complete stop prior to entering the intersection. Specifically, Section 144 of the HTA states:

(18) Every driver approaching a traffic control signal showing a circular red indication and facing the indication shall stop his or her vehicle and shall not proceed until a green indication is shown.

(20) Despite subsection (18), a driver of an emergency vehicle, after stopping the vehicle, may proceed without a green indication being shown if it is safe to do so.

City of Greater Sudbury Emergency Services staff is required to obey the HTA and come to a complete stop at a red light prior to proceeding through an intersection. This legislated requirement reduces the risk of collision while on route to an emergency call.

It should be noted, the probability of an emergency vehicle being required to stop at a traffic signal unnecessarily is reduced by the way traffic signals are programmed within the City. By default, traffic signals remain green on the main street if no vehicles or pedestrians waiting to cross the main street are detected and red light camera systems are typically deployed on a main street approach.

The committee also asked how many tickets are being issued to emergency services vehicles throughout the province. Staff was unable to find any municipal reports providing this statistic; however, there were several news articles which provided some information. A summary of the articles is provided below:

<u>Toronto</u>

An October 2015 CTV news article states that over an 18 month period (January 2014 to July 2015) there were 61 instances where Toronto police vehicles were captured going through a red light when they were not on an emergency call. The article does not state the total number of instances where a police vehicle was captured going through a red light and captured by a red light camera system. In 2014, the City of Toronto issued 45,394 red light camera tickets. If the 61 instances over an 18 month period are factored to consider a 12 month period instead, it would be expected that 41 tickets were issued to City of Toronto police vehicles during 2014. This represents 0.09% of all tickets issued.

City of Hamilton/Halton Region

A December 2015 news article in The Hamilton Spectator states that during 2015, 57 red light camera tickets (41 in the City of Hamilton, 16 in the Region of Halton) were issued to emergency services vehicles. A May 2012 news article in The Hamilton Spectator stated that in 2011, 49 red light camera tickets were issued to City of Hamilton emergency services vehicles. A May 2014 CBC News Article indicates that the City of Hamilton issued 15,569 red light camera tickets in 2013. Staff was unable to find any statistics on the total number of tickets issued in the Region of Halton.

If the number of tickets issued to City of Hamilton emergency vehicles is averaged per year and it is assumed the total number of tickets remained consistent, the 45 red light camera tickets issued per year to emergency services vehicles would represent 0.3% of the total annual red light camera tickets in the City of Hamilton.

If this percentage were applied to the assumptions made in the Red Light Camera Program report (1 conviction/site/day = 2,190 total convictions per year), it would be expected that 7 tickets per year would be issued to emergency services vehicles.

<u>Ottawa</u>

A May 2009 news article in the Ottawa Citizen states that more than 60 red light camera tickets were issued to emergency services vehicles in the past year. A June 2016 new article in the Ottawa Sun states that 17,658 red light camera tickets were issued in 2015. If the number of tickets issued to emergency services vehicles remained consistent from 2009 to 2015, it would represent 0.4% of the total annual red light camera tickets in the City of Ottawa.

If this percentage were applied to the assumptions made in the Red Light Camera Program report (1 conviction/site/day = 2,190 total convictions per year), it would be expected that 9 tickets per year would be issued to emergency services vehicles.

Staff was unable to find emergency vehicle statistics for the remaining jurisdictions with red light camera systems.

During the review of these articles, it was noted that many of the jurisdictions had internal policies for how red light camera tickets issued to municipally owned vehicles would be reviewed. If the red light camera program were adopted in the City of Greater Sudbury, similar internal policies would need to be developed as well as training materials on the potential consequences of running red lights.

Collision Statistics

It was asked at the committee meeting how the City of Greater Sudbury compares to other municipalities in terms of the number and severity of angle collisions. The Province of Ontario issues the Ontario Road Safety Annual Report. This annual report amalgamates collision data from across the province and provides collision statistics and trends. However, this report does not provide information on the types of collisions (ex. angle or rear end collisions). In order to compile the statistics, staff reviewed published statistics of Ontario municipalities. The table below summarizes the average annual number of angle collisions at all locations throughout each municipality as well as the percentage of the overall collisions that angle type collisions represent.

		Annual Average		
		Total	Angle	
Municipality	Year Range	Collisions	Collisions	Percentage
Greater Sudbury	2012-2016	2,465	320	13%
Ottawa	2014-2016	14,648	2,031	14%
Region of Waterloo	2012-2016	6,136	552	9%
Region of Peel	2010-2012	6,324	485	8%
York	2013-2015	N/A	N/A	12%

While the City of Greater Sudbury on an annual basis has less total angle collisions, the percentage of angle collisions is second highest when compared to the other four municipalities.

The committee also asked what impact the red light camera program has had on collision rates.

The statistics show that following the installation of red light cameras the reductions of right angle collisions are as follows:

City of Toronto – 60% reduction City of Ottawa – 50% reduction York Region – 70% reduction Region of Waterloo – 27% reduction, 60% reduction in all turning collisions, 23% increase in rear end collisions

The City of Greater Sudbury had 40 angle type collisions between 2012 and 2016 at the three signalized intersections which have been recommended to have a red light camera system installed. Of these 40 collisions, 10 resulted in injury and the remaining 30 resulted in property only damage. Using an average 60% reduction in the right angle collisions based on the experiences of other municipalities after installing red light cameras, it would be expected that the City would have experienced 6 fewer injury collisions and 12 fewer property only damage collisions during the same 5 year period at these three intersections.

Funeral Processions

Concerns were raised by the committee about the impact the red light camera program may have on funeral processions. Following the committee meeting, staff held discussions with Gerry Lougheed Jr. of Lougheed Funeral Homes and Dave Laplante of Co-Operative Funeral Homes. Both Mr. Lougheed and Mr. Laplante are supportive of the red light camera program and the positive benefits it will provide to the community. In terms of the operational impact it may have on the funeral homes, they each stated that while it has been the community practice to allow funeral processions to travel through red lights, it is their current practice to advise families to obey all of the rules of the road while in a funeral procession and to not drive through red lights.

Staff also had discussions with the City of Hamilton. In Hamilton, funeral processions are ticketed through the red light camera program, however it is their practice to suspend the red light camera ticket if the person can provide proof that they were part of a funeral procession (ex. provide an obituary or any other evidence that they have attended the funeral). It must be noted that the practice in Hamilton is to ticket all owners of vehicles crossing on a red light, which means that all people (include those who receive tickets as part of a funeral procession) appear in Provincial Offences Court to address their matters albeit by providing evidence in order to suspend their tickets.

Exception is made for people from out-of-town, who reach out to the prosecutors ahead of the proceeding with their evidence of attending the funeral and the prosecutors address these matters in absentia by seeking suspensions.

Should the red light camera program be implemented in the City of Greater Sudbury, each of the funeral homes has volunteered to help the City verify whether or not the ticket issued is related to a funeral procession. The details of this process would be finalized with the funeral homes as the red light camera program is developed.

Red Light Camera Ticket Rate

The committee also asked what impact traffic volumes have on the frequency of red light camera tickets issued. The rate in which red light camera tickets are issued at signalized intersections is difficult to calculate. Due to environmental issues such as traffic volumes, perceived wait times, and geometric considerations, compliance at each signalized intersection can vary greatly. A 2015 report by the City of Toronto detailed the number of red light camera tickets issued at over 75 intersections. Staff reviewed the total traffic volumes over the 8 peak hours of the day at these intersections and found they ranged from 7,506 to 39,450 vehicles. However, in 2014 these same intersections issued between 8 and 1,944 red light camera tickets. Staff found that the number of tickets issued doesn't always correlate to the intersections with the higher traffic volumes. For example, in the City of Toronto, Albion Road at Silverstone Drive had 1,448 red light camera tickets issued in 2014 with a peak 8 hour traffic volume of 12,828 vehicles. Meanwhile, Sheppard Avenue at Wilson Heights Boulevard had 127 red light camera tickets issued in 2014 yet it has a peak 8 hour traffic volume of 32,661 vehicles.

The three proposed intersections in Sudbury have a peak 8 hour volume between 14,000 and 17,000 vehicles. While these traffic volumes are similar to many of the intersections in the City of Toronto, it is hard to determine whether the rate of tickets issued will fall on the high or low side of what Toronto is experiencing. The primary focus of red light camera installations is to increase intersection safety by reducing the number of vehicles which fail to stop at red lights. To this point, 'Table 4' of AECOM's report (Attachment 1) lists the 55 intersections within the City of Greater Sudbury where a red light camera installation would provide the greatest potential for safety change which is based on collision history, severity of the collisions and traffic volumes.

Miscellaneous Questions

The committee also had a serious of questions which did not fall into a specific category. These questions and responses are presented below.

Would it be possible to provide the AECOM report to the committee?

The AECOM report is provided as Attachment 1 to this report.

How will it be possible to see a police officer controlling an intersection with a red light camera? What does a red light camera ticket look like?

A sample red light camera offence notice is provided in Attachment 2.

What percentage of vehicles caught on a red light camera system have unreadable license plates?

Staff was unable to find a statistic which stated what percentage of vehicles caught on a red light camera system had an unreadable license plate.

Will a red light camera ticket impact the vehicle owner's insurance rates?

The research staff completed suggests that a red light camera ticket should not result in increased insurance rates since no demerit points are issued. However, it is recommended that individuals contact their own insurance provider to verify if a red light camera ticket will impact their rates.

References:

Toronto police vehicles caught going through red lights while not on emergency calls, CTV News Toronto, Accessed online, October 26, 2015: <u>https://toronto.ctvnews.ca/toronto-police-vehicles-caught-going-through-red-lights-while-not-on-emergency-calls-1.2628528</u>

Red Light Cameras – Status Update and Phase 3 Contract Award (Request for Proposal No. 9148-15-5000 - 2017 to 2021), City of Toronto, Access online, August 31, 2015: https://www.toronto.ca/legdocs/mmis/2015/pw/bgrd/backgroundfile-83498.pdf

Emergency vehicles and red light camera tickets a contentious issue, The Hamilton Spectator, Accessed online, December 17, 2015: <u>https://www.thespec.com/news-story/6199770-emergency-vehicles-and-red-light-camera-tickets-a-contentious-issue/</u>

Sometimes we all pay when a city vehicle runs a red light, The Hamilton Spectator, Accessed online, May 10, 2012: <u>https://www.thespec.com/news-story/2115094-sometimes-we-all-pay-when-a-city-vehicle-runs-a-red-light/</u>

Number of Hamilton drivers ticketed for running red lights doubles, CBC News, Accessed online, May 21, 2014:

https://www.cbc.ca/news/canada/hamilton/headlines/number-of-hamilton-driversticketed-for-running-red-lights-doubles-1.2649514

Emergency services see red over traffic tickets, Ottawa Citizen, Accessed online, May 25, 2009: <u>https://www.pressreader.com/canada/ottawa-</u>citizen/20090525/281530811983770

4,900 caught red-handed but no ticket, Ottawa Sun, Accessed online, June 14, 2016: http://ottawasun.com/2016/06/14/4900-caught-red-handed-but-noticket/wcm/6fb42e5a-c2e1-4185-befa-01f40e98227b

City of Ottawa 2016 Tabular Transportation Collision Data, Accessed online: <u>http://data.ottawa.ca/dataset/collisiondata2016</u>

City of Ottawa 2015 Tabular Transportation Collision Data, Accessed online: <u>http://data.ottawa.ca/dataset/collisiondata2015</u>

City of Ottawa 2014 Tabular Transportation Collision Data, Accessed online: <u>http://data.ottawa.ca/dataset/collisiondata2014</u>

Region of Waterloo Annual Collision Report 2016, Accessed online: <u>https://www.regionofwaterloo.ca/en/living-here/resources/Roads-and-Traffic/Collision-Report-2016.pdf</u>

Region of Peel Traffic and Road Safety Performance Report 2014, Accessed online: <u>https://www.peelregion.ca/council/agendas/2015/2015-01-22-rc-agenda.pdf</u>

Region of York 2016 Annual Traffic Safety Report, Accessed online: https://www.york.ca/wps/wcm/connect/yorkpublic/18f6fe47-02ea-4e3b-9fde-445e2bb9e6b4/2016TrafficSafetyReport.pdf?MOD=AJPERES&CACHEID=18f6fe47-02ea-4e3b-9fde-445e2bb9e6b4

Red Light Cameras Statistics, City of Toronto, Website, Accessed Online: <u>https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/payement-markings/red-light-cameras/</u>

City of Ottawa, "City increases the number of intersections with red light cameras", May 22, 2018, Accessed Online: <u>https://ottawa.ca/en/news/city-increases-number-intersections-red-light-cameras</u>

Red Light Cameras, York Region, Accessed Online: http://www.york.ca/wps/portal/yorkhome/transportation/yr/traffic/redlightcameras/!ut /p/a1/jZDBbsIwDIafaLXJgOaadbC0DFptB0luKHRJGqltUIhWiadfmHbdmG-Wvt_bJAgQI7q01kVnR9Vfvl8liyI5LzDVb1nBbIsGYVySmumkUCDgnAX4rhvXz1jwUkblutBXIWsXtwo_EgYIDGuBZE0B-9s11s1aCDusAe5PdEQuZLPiuwQI5TLNd5s3imflYkvwNsyA_wx01J2vb-

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Red Light Cameras, Region of Waterloo, Accessed Online: https://www.regionofwaterloo.ca/en/living-here/red-light-cameras.aspx

City of Greater Sudbury

Needs and Justification for Red Light Camera Program

Contract ISD15-10

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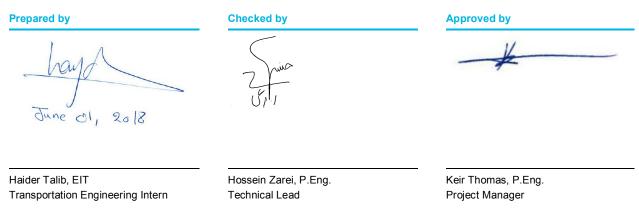
City of Greater Sudbury 200 Brady Street P.O. Box 5000, Stn. A Sudbury, ON P3A 5P3 **Attachment 1**

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RED LIGHT CAMERA

Quality information



Revision History

Revision	Revision date	Details	Name	Position
00	04/30/2018	Draft for Client Review	Keir Thomas, P.Eng.	Project Manager
01	05/24/2018	Client Comments Addressed	Haider Talib, EIT.	Transportation Engineering Intern
02	06/01/2018	Client Comments Addressed	Haider Talib, EIT.	Transportation Engineering Intern

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1. Introduction

1.1 Background

Traffic signals and other traffic control devices are generally installed in order to reduce the number of "conflicts" at intersections. Reducing conflicts, between two or more vehicles and between vehicles and pedestrians, can improve safety and operation of the intersection by separating and controlling the movements of competing traffic and pedestrian movements. However, some motorists intentionally choose to disobey traffic signals and, in doing so, increase the risk of collisions at intersections. Of particular concern at signalized intersections is red-light violation, or "running the red-light", which increases the potential for right-angle collisions. Right-angle collisions in particular can result in more severe damage to vehicles involved, and are more likely to result in injuries to vehicle occupants in comparison to other types of collision impacts, such as rear-end collisions.

There is currently no consistent approach to resolve red-light running issues. There have been safety programs created that include a wider range of engineering, educational, and enforcement measures that are either used individually or in combination in an attempt to reduce or stop red-light running occurrences. From a general engineering perspective, coordinated signal timing plans and improved visibility of traffic signal displays are the two common red-light running treatments in North America. Over the past three decades, many jurisdictions in North America, including several municipalities in Ontario, have also deployed Red-Light Cameras (RLCs) to automate enforcement as a means of reducing the number of red-light running incidents.

An RLC program was initiated in Ontario as a pilot project in November 2000. The six Ontario municipalities who first started using RLCs were City of Toronto, City of Ottawa, City of Hamilton, as well as the Regional Municipalities of Waterloo, Halton, and Peel. A study undertaken in 2003 by one of the AECOM's legacy companies (i.e., Synectics Transportation Consultants) showed the benefits of the RLC program¹ and subsequently, the program received permanent provincial endorsement in 2004. The Regional Municipality of York and City of London have since also joined the RLC program.

At RLC-equipped intersections, an RLC is installed upstream of the intersection, most often on one approach, facing towards the intersection. The RLC takes photographs of the rear of the red-light running vehicles before and after a vehicle crosses the stop bar while the red signal indication is displayed, from which the license plate can then be read and a ticket issued.

Previous studies have shown that on average RLCs reduce right-angle collisions at signalized intersections but they have also been reported to result in an increase of rear-end collisions, at least in the short term. Although frequency of rear-end collisions are typically higher than right-angle collisions at signalized intersections, right-angle collisions tend to be more severe; i.e., more likely to result in injuries to vehicle occupants in comparison to rear-end collisions. Hence, assessment of needs and justification as well as selection of appropriate intersections for RLC installations are two primary, yet key decisions to success of the RLC program; i.e., that the installation of RLCs would lead to an overall reduction in the severity of collisions.

¹ Synectics Transportation Consultants, Evaluation of Red Light Camera Enforcement Pilot Project, Final Technical Report, December 2003.

1.2 Study Objectives

In line with the City of Greater Sudbury's goal to provide safe, efficient, and environmentally-sustainable transportation services, the City has initiated a study and retained AECOM to determine the needs and justification to start a City-wide RLC program and to identify the intersections which would benefit the most from installation of RLCs.

1.3 Study Area

City of Greater Sudbury is the largest city in Ontario by land area, and the largest city in Northern Ontario by population of about 161,000 residents as per the Canada 2016 Census.² The population reside in an urban core and many smaller communities that are scattered around the urban core such as Valley East, Nickel Centre, etc. Figure 1 shows the geographical distribution of all signalized intersections in the city of Greater Sudbury.

² www.greatersudbury.ca

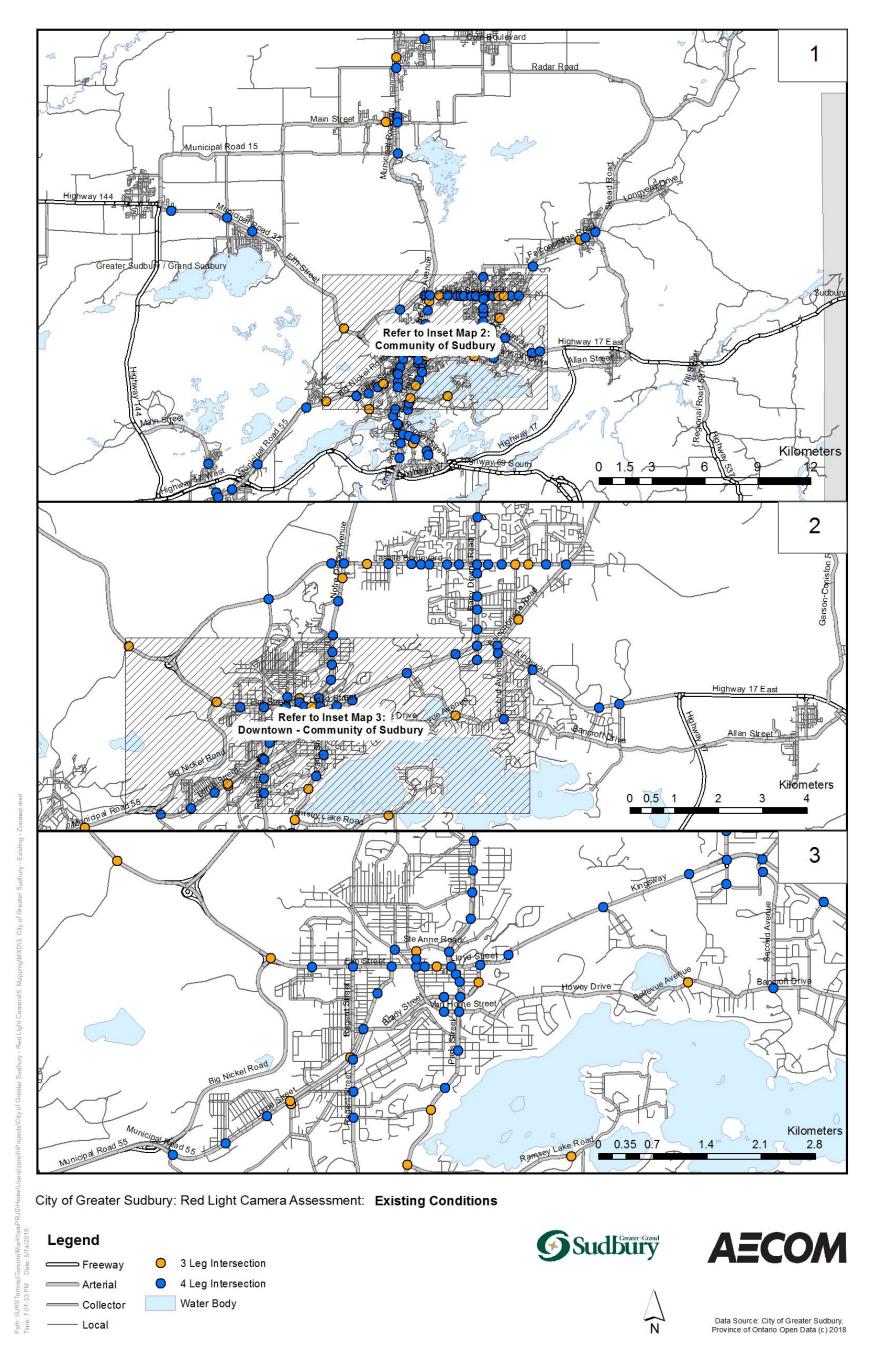


Figure 1: Signalized Intersections in the Greater Sudbury Area

2. Literature Review on Safety Benefits of RLCs

Since the 1970s, numerous jurisdictions in Europe, Australia, and North America have been using RLCs with the aim of reducing red-light violations and the resulting collisions. A number of studies have been conducted by researchers to evaluate safety benefits of RLCs (1 - 9). The majority of the past studies' findings appear to support a conclusion that RLCs reduce right-angle collisions and could increase rearend collisions whereas there is no evidence that RLC installation affects other collision impact types³. Hence, to assess the needs and justification for installation of RLCs in the City of Greater Sudbury and to identify intersections that would benefit the most from the RLC installations, the effect of RLCs on right-angle and rear-end collision frequencies were estimated.

Accurately quantifying the safety effects of an RLC program has generally been a challenging task. This has been evidenced by relatively considerable variations in study findings on magnitude of the safety benefits of the RLC programs. However, for the purpose of the City of Greater Sudbury's Study and based on findings of the most reliable multi-jurisdictional safety evaluation of RLCs⁴, it is assumed that RLCs reduce right-angle collisions at signalized intersections by 25% and initially increase rear-end collisions by 15%.

In addition, the previous studies have shown that the safety benefits of RLCs usually spill-over from the RLC-equipped intersections (i.e., "treated" intersections) to the adjacent signalized intersections that do not have RLCs (i.e., "untreated" intersections). In other words, RLCs not only result in a fewer number of red-light running / violations at the treated intersections but they also modify driving behaviour at the untreated intersections because of the jurisdiction-wide publicity of an RLC program and the general public's lack of knowledge of where RLCs are installed. However, the literature review showed that the spill-over effect is typically a longer-term result of the RLC program and its order of magnitude has not been thoroughly examined / precisely quantified in the literature. Therefore, the spill-over effects was not directly accounted for in assessing the needs and justification for installation of RLCs in the City of Greater Sudbury.

Furthermore, the available literature shows that failure to account for the "regression-to-the-mean" (RTM) phenomenon could result in overestimation of RLCs safety benefits. RTM occurs where intersections are selected for RLC installations based on their high number or rate of right-angle collisions and low number of rear-end collisions which would have reduced and increased, respectively, whether or not an intervention was made.⁵ Hence, for the purpose of the City of Greater Sudbury's Study and as further explained in <u>Section 4</u>, the Empirical Bayes (EB)⁶ approach was adopted to control for the RTM phenomenon and to estimate the expected number of right-angle and rear-end collisions.

³ American Association of State Highway and Transportation Officials (AASHTO), Highway Safety Manual, 2010

⁴ Persaud, B., Council, F. M., Lyon, C., Eccles, K., and Griffith, M., "A Multi-Jurisdictional Safety Evaluation of Red Light Cameras.", Transportation Research Record 1922, (2005) pp. 29-37

⁵ Solomon H., Izadpanah, P., Brady, M, and Á. Hadayeghi, So You're Considering a Red Light Camera Program? Lessons and Insights from over a Decade of Camera Operation in South and Central Ontario, paper prepared for presentation at the Road Safety Policy Development – Past, Present, Future session of the 2014 Conference of the Transportation Association of Canada, Montreal, Quebec, Source: http://conf.tac-atc.ca/english/annualconference/tac2014/s-6/solomon.pdf

⁶ The Empirical Bayes (EB) methodology adopted in this report is an industry standard, it is referred in the 2010 Highway Safety Manual.

3. Data Collection, Verification, and Processing

3.1 Data Collection

The City of Greater Sudbury provided the AECOM project team with the historical data on the motor vehicle collisions that were reported to occur at the City's signalized intersections over a period of 5 years from January 1, 2012 to December 31, 2016. The City also provided the available annual average daily traffic (AADT) volumes for both major and minor intersecting roadways at the signalized intersections over the same period of time. Each of these two datasets is discussed in the following sub-sections with more details.

The additional data provided by the City include traffic signal installation year, description of modifications (if any) made to intersection geometry and traffic control devices at the signalized intersections within the study period, among others.

3.1.1 Traffic Volume Data

For each intersection, the traffic volume database contains a unique intersection ID (i.e., a six-digit number called GEOID), description of intersecting roadways, number of legs, AADT volumes on all approaches, entering AADT volumes from both major and minor intersecting roadways, and year in which AADT volumes were collected. Note that for each intersection, the City provided AADT volumes only for one year out of five years between 2012 and 2016; i.e., there is only one set of AADT volumes per intersection. The database also contains information about the implementation year and type of geometric improvements (if any) made to the City's signalized intersections over the five-year study period.

3.1.2 Collision Data

The City also provided the motor vehicle collision data for the five-year study period. The database included all of the collisions that were coded as either "at intersection" or "intersection-related". The collision data were made available as an Excel file. For each collision record, the collision database contains a unique collision ID, date and time of occurrence (including year, month, day, and time), GEOID and description of the intersection at which or in its vicinity the collision has occurred, classification or severity (i.e., fatal injury, non-fatal injury, property damage only, non-reportable, and other / unknown), initial impact type (e.g., angle, rear-end, sideswipe, turning movement, single motor vehicle, etc.), environment condition (i.e., weather condition), light condition (e.g., daylight, dark, dawn, etc.), driver condition (e.g., driving properly, following too close, disobeyed traffic control, etc.), road surface condition (e.g., dry, wet, slush, etc.), driver action(s), initial direction(s) of travel, direction of travel in which at-fault driver was travelling (if known), and the traffic signal condition (e.g., functioning, obscured, etc.).

3.1.3 Other Data

As discussed further in <u>Section 4.3</u>, the City also provided the AECOM project team with the signal timing plans and design drawings of the City's candidate intersections that were identified for the RLC installations.

3.2 Consistency and Completeness Checks and Modifications of Data

In general, accuracy of analysis findings is highly dependent on extent and quality of data inputs. Based on a preliminary assessment, the available data (i.e., total number of intersections and collisions as well as number of their available data fields) was found sufficient to complete a statistically valid collision assessment to achieve the study objectives. However, as a matter of due diligence and to confirm and enhance (where needed) quality of the traffic volume and collision data, the City's and AECOM project teams conducted a set of consistency checks and subsequent modifications.

With respect to the collision data and in consultation with the City staff, all of the self-reported collisions were excluded from the database. This was done due to low level of confidence in validity of the "self-reported" collision records. It is worth mentioning that only rear end and right angle collisions data are used in the study since RLCs impact is limited to these two types of collisions. The study team also identified some missing data with respect to the collision classification, initial impact type, and vehicle direction of travel fields. There were also some inconsistencies between the reported initial impact type and the direction of travel of vehicles. For example, for some of the records reported as angle collisions, the reported directions of travel for the two vehicles involved were not perpendicular. Similarly, there were records of rear-end collisions for which it was reported that vehicles were traveling in opposite directions of travel. Subsequently, and with verifications of the identified data fields against the related motor vehicle collision reports (MVCRs) by the City staff, the identified data inconsistencies were corrected and the identified missing information were populated. A portion of the missing information on collision classification and / or initial impact type that cannot be confidently determined was categorized as "other".

With respect to the traffic volume data, the study team focused on identifying the intersections for which the AADT volume field was blank and those with more than one GEOID (i.e., duplicate GEOIDs) data as shown in Table 1. Subsequently, the City staff provided the AADT volumes and verified the correct GEOIDs. In addition, the following two intersections were also excluded from the database because their traffic signals were installed in 2017 because the collision data provided corresponded to the period before installation of the signals:

- Second Avenue and Scarlett Road; and
- Second Avenue and Kenwood Street.

Following the above-noted data modifications, the collision database was linked to the traffic volume database using the GEOID field to form a master database. Finally, the master database was divided into two datasets; one for the three-legged intersections and one for the four-legged intersections.

Intersection	Type of Issue		
Brady Street and Lloyd Street	Duplicate GEOID		
Municipal Road 55 and Magill Street	Duplicate GEOID		
Lorne Street and Rowat Street	Duplicate GEOID		
Regent Street and Walford Road	Duplicate GEOID		
Falconbridge Road and Penman Avenue	Missing AADT Volumes		
Caswell Drive and Regent Street	Missing AADT Volumes		

Table 1: List of the Intersections with Missing AADT or Duplicate GEOIDs

3.3 Overview of the City's Collision Data

As stated in <u>Section 2</u> of the Report, based on the most reliable past research studies, RLCs on average reduce right-angle collisions by 25% and increase rear-end collisions by 15% and there is no evidence that RLC installation affects other collision impact types. Hence, for the purpose of this study, right-angle and rear-end collisions were considered as target collisions.

Excluding the two noted intersections on Second Avenue that were signalized in 2017, there are 94 fourlegged and 20 three-legged signalized intersections within the City boundaries. There were 464 rightangle and 1622 rear-end collisions reported to occur at these signalized intersections over the five-year study period. Figure 2 shows frequencies and proportion of injury and property-damage-only (PDO) collisions for the right-angle collisions. Figure 3 shows the same information for the rear-end collisions. Intuitively and consistent with the past studies, right-angle collisions are shown to result in more severe collisions than rear-end collisions. It is essential to note that there is no record of fatal right-angle and rear-end collisions at the City's signalized intersections over the five-year study period.

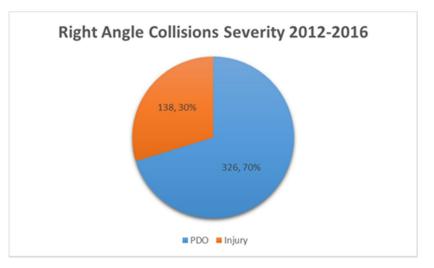
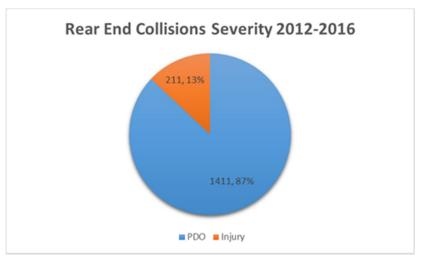


Figure 2: Frequency and Proportion of Right-Angle Collisions by Severity





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4. Study Methodology and Findings

This Section is intended to present the methodology adopted to achieve the study objectives stated in <u>Section 1.2.</u> The study was broken down into the following four tasks:

- Develop safety performance functions (SPFs) separately for the three-legged and four-legged signalized intersections;
- Identify candidate signalized intersections for installation of RLCs;
- Undertake field investigations and engineering assessment of the candidate signalized intersections; and
- Identify signalized intersections that would benefit the most from installation of RLCs.

4.1 Develop Safety Performance Functions for the Signalized Intersections

As stated in Section 2 and for the purpose of this study, the EB method was adopted as a superior method to estimate the expected frequencies of target collisions (i.e., right-angle and rear-end collisions) at all of the City's signalized intersections in the status quo (i.e., without RLCs). The EB method aims to smooth out typical random fluctuations in any specific intersection's collision history and estimate the expected collision frequency $E\{m\}$ for both right-angle and rear-end collisions at the intersection. For either of the two target collisions, the expected collision frequency is calculated as a weighted average of the historical (observed) collision frequency (x) and predicted collision frequency E(Y) which is in turn obtained based on historical collision frequencies of numerous other intersections with similar characteristics in terms of entering AADT volumes, number of legs, traffic control devices, etc. The following formula mathematically expresses the EB method.

 $E\{m\} = w * E(Y) + (1 - w) * x$

To predict the collision frequencies E(Y) of the target collisions and to calculate the noted weight (*w*) in the above-noted formula, safety performance functions (SPFs), also known as collision prediction models, are needed. Hence, as part of this study and using the most recent five-year historical collision data and the related entering AADT volumes at three-legged and four-legged signalized intersections, SPFs were developed to predict the number of right-angle and rear-end collisions at those signalized intersections. As illustrated in Figure 4, separate SPFs were developed for four-legged and three-legged intersections.

For each of the two intersection categories, SPFs were developed separately for right-angle and rear-end collisions.

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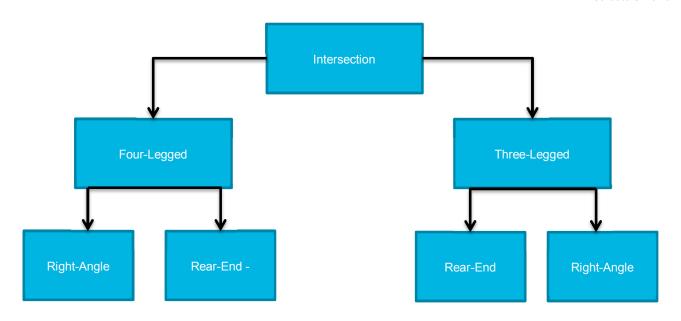


Figure 4: Intersection-Collision Impact Type Categories for SPF Development

<u>Table 2</u> and <u>Table 3</u> present SPFs to predict number of right-angle and rear-end collisions for both signalized four-legged and three-legged intersections respectively.

Table 2: SPFs for Signalized Four-Legged Intersections

Collision Impact Type	Equation	Intercept (<i>a</i>)	β ₁	k
Angle		-12.72	1.29	0.74
Rear-End	$E(Y) = \alpha * (MajorAADT + MinorAADT)^{\beta_1}$	-21.33	2.23	0.61

Table 3: SPFs for Signalized Three-Legged Intersections

Collision Impact Type	Equation	Intercept (α)	β_1	β 2	k	<i>C</i> ₁	<i>C</i> ₂
Angle	$E(Y) = \alpha * (MajorAADT)^{\beta_1} * (Minor AADT)^{\beta_2}$	-12.13	1.11	0.26	0.33	0.10	1.40
Rear-End		-12.13	1.11	0.26	0.33	0.53	1.91

Where, α , β_1 , β_2 are the model parameters.

 C_1 , $\overline{C_2}$ are the calibration factors that were calculated based on the AASHTO Highway Safety Manual (HSM) guidelines and subsequently, used in development of SPFs for the City's three-legged signalized intersections.

k is the over-dispersion parameter used in calculating the weight (w).

4.2 Identify Candidate Intersections for RLCs

4.2.1 Potential for Safety Change as a Result of RLC Installations

In order to determine if, at what locations, and to what extent the RLC installations would result in net potential safety benefits to the City of Greater Sudbury, the AECOM project team estimated potential for safety change (PSC) at all signalized intersections. The PSC is defined as the difference between the expected number of the target collisions (i.e., right-angle and rear-end collisions) before and after RLC installations at that intersection and it is described in terms of equivalent PDO (EPDO) collisions. The EPDO is used as unit of measurement because it allows for assigning a greater weight to right-angle collisions due to their more severe nature (thus, greater societal costs) than rear-end collisions in calculation of the PSC for each intersection.

The first step in estimating the PSC for an intersection is to evaluate the expected number of target collisions with no RLC in place. As described in <u>Sub-section 4.1</u>, the expected number of target collisions at the intersection in the absence of RLCs is estimated using the EB method.

The second step is to project the expected number of target collisions at the intersection if an RLC is installed. The expected number of target collisions with an RLC is estimated by multiplying the applicable collision modification factors (CMFs) to the expected number of collisions before the RLC installation. As stated in <u>Section 2</u>, the CMFs for the target collisions are:

- 0.75 for right-angle collisions; this represents 25% reduction in right-angle collisions following RLC installation, and
- 1.15 for rear-end collisions; this represents a 15% increase in rear-end collisions.

Finally, the PSC for an intersection is calculated by subtracting the expected number of collisions if an RLC was in place and the expected number of collisions with no RLC in place at the intersection. A negative PSC represents a potential for safety improvement and a positive PSC represents a potential for safety deterioration.

<u>Table 4</u> presents the PSC values for each signalized intersections, ranked in descending order of predicted benefit. For example, the intersection of Paris Street and Cedar Street, if equipped with an RLC, is expected to experience a reduction of approximately four fewer EPDO collisions per year. As shown in <u>Table 4</u>, a total of fifty five signalized intersections were identified as those with negative PSC values. In other words, it was determined that fifty five intersections would gain safety benefits from installation of RLCs. This finding satisfies the first objective of this study that there is a justification for installation of RLCs from a road safety standpoint. It is essential to note that out of the original 114 signalized intersections, 20 of the intersections had no record of right-angle collisions within the five-year study period and therefore, were excluded from further analysis. This reduces the total number of signalized intersections that were carried forward for further analysis to 94.

Rank	GEO ID	Intersection	PSC index	Intersection type
1	145100	Paris @ Cedar	-4.3420	4-Legged
2	145121	Paris @ Van Horne	-2.0237	4-Legged
3	144278	Lorne @ Douglas	-1.9754	4-Legged
4	144144	Regent @ Beatty	-1.8621	4-Legged
5	145358	Notre Dame @ Cambrian Heights	-1.6133	4-Legged
6	144866	Regent @ Algonquin	-1.5837	4-Legged
7	144062	Municipal road 80 @ Dominion	-1.5570	4-Legged
8	145783	Lasalle @ Montrose	-1.0664	4-Legged
9	145054	Notre Dame @ Elm	-1.0616	4-Legged
10	145259	Notre Dame @ Kathleen	-1.0285	4-Legged
11	144606	Paris @ Walford	-0.9564	4-Legged
12	144738	Elm @ Elgin	-0.9512	4-Legged
13	145220	Municipal road 80 @ Elmview	-0.9046	4-Legged
14	146232	Barry Downe @ Hawthorne	-0.8453	4-Legged
15	144424	Lorne @ Walnut	-0.8104	4-Legged
16	146404	Bancroft @ Second	-0.8086	4-Legged
17	145140	Paris @ Larch	-0.7906	4-Legged
18	143506	Lorne @ Gutcher	-0.7243	4-Legged
19	144286	Long Lake @ St Charles Lake	-0.7242	4-Legged
20	145242	Lasalle @ Crescent Park	-0.6831	4-Legged
21	144171	Regent @ York	-0.6501	4-Legged
22	143280	Lorne @ Kelly Lake	-0.6477	4-Legged
23	146734	Lasalle @ Gary	-0.6414	4-Legged
24	142896	Municipal road 55 @ Magill	-0.5113	4-Legged
25	146233	Barry Downe @ Marcus	-0.4792	4-Legged
26	143636	Main Street @ Marie Avenue	-0.4685	4-Legged
27	147382	Falconbridge @ Church	-0.4627	4-Legged
28	144155	Regent @ Riverside	-0.4602	4-Legged
29	146077	Lasalle @ Roy	-0.3996	4-Legged
30	145040	Notre Dame @ St Anne	-0.3801	4-Legged
31	144641	Paris @ Centennial	-0.3694	4-Legged
32	146228	Barry Downe @ Gemmell	-0.3612	4-Legged
33	145833	Lasalle Blvd. @ Lasalle Court Mall	-0.3602	4-Legged
34	146287	Lasalle Blvd. @ Superstore	-0.3131	4-Legged
35	144121	Regent @ Telstar	-0.3037	4-Legged
36	147073	Falconbridge @ Maley	-0.3018	4-Legged

City of Greater Sudbury Needs and Justification for Red Light Camera Program Contract ISD15-10

Rank	GEO ID	Intersection	PSC index	Intersection type
37	146222	Barry Downe @ NSSM	-0.2848	4-Legged
38	147113	Kingsway @ Moonlight	-0.2645	4-Legged
39	142724	Municipal road 55 @ Hillcrest	-0.2593	4-Legged
40	144258	Long Lake @ Countryside	-0.2451	4-Legged
41	143695	Elm Street @ Ethelbert Street	-0.2227	4-Legged
42	143887	Regent @ Bouchard	-0.2150	4-Legged
43	143384	Kelly Lake @ Copper	-0.1970	4-Legged
44	144575	Frood @ College	-0.1966	4-Legged
45	146243	Barry Downe @ Lillian	-0.1957	4-Legged
46	145493	Kingsway @ Cochrane	-0.1775	4-Legged
47	143999	Regent @ Martindale	-0.1636	4-Legged
48	144807	Elm @ Durham	-0.1432	4-Legged
49	142394	Municipal Road 35 @ Elizabeth	-0.1424	4-Legged
50	145143	Paris @ Brady	-0.1355	4-Legged
51	144734	Elgin @ Beech	-0.1156	4-Legged
52	146618	Lasalle @ Lansing	-0.0989	4-Legged
53	144141	Municipal Road 80 @ Valleyview	-0.0362	4-Legged
54	142874	MR 35 @ Marier Street	-0.0343	4-Legged
55	147296	Falconbridge @ Margaret	-0.0072	4-Legged
56	146229	Barry Downe @ Westmount	0.0248	4-Legged
57	146378	Lasalle @ Paquette	0.0356	4-Legged
58	146649	Kingsway @ Third	0.0486	4-Legged
59	144557	Elm @ Lorne	0.0563	4-Legged
60	144639	Regent @ Old Burwash	0.0674	4-Legged
61	145884	Lasalle @ Arthur	0.0947	4-Legged
62	145327	Brady @ Lloyd	0.0957	4-Legged
63	145267	Notre Dame @ King	0.1515	4-Legged
64	147070	Kingsway @ Levesque	0.1602	3-Legged
65	147254	Falconbridge Road @ Penman Avenue	0.1937	3-Legged
66	144193	Regent @ Caswell	0.2081	3-Legged
67	146055	Bancroft @ Bellevue	0.2156	3-Legged
68	144922	Elm @ Lisgar	0.2181	3-Legged
69	142633	Municipal Road 55 @ Black Lake	0.2250	4-Legged
70	144873	Paris @ York	0.2330	3-Legged
71	143574	Lorne @ Martindale	0.2523	4-Legged
72	144107	Lorne @ Regent	0.3095	3-Legged
73	144052	MR 80 @ Jeanne D'Arc Street	0.3193	3-Legged
74	145278	Notre Dame @ Wilma	0.3198	4-Legged

Needs and Justification for Red Light Camera Program Contract ISD15-10

Rank	GEO ID	Intersection	PSC index	Intersection type
75	144269	Lasalle @ Frood	0.3306	4-Legged
76	143517	Elm @ Big Nickel	0.3577	3-Legged
77	145675	Ramsey Lake @ LU	0.4294	3-Legged
78	143240	Elm @ Clarabel	0.4563	3-Legged
79	143181	Municipal Road 55 @ Balsam	0.4624	3-Legged
80	146555	Falconbridge @ Auger	0.5039	4-Legged
81	146525	Lasalle @ Auger	0.6528	3-Legged
82	145598	Lasalle @ somers	0.7086	3-Legged
83	144123	MR 80 @ Main Street	0.8095	4-Legged
84	146916	Lasalle @ Falconbridge	0.8373	4-Legged
85	145995	Lasalle @ Attlee	0.8646	4-Legged
86	145239	Notre Dame @ Leslie	1.0085	4-Legged
87	145674	Lasalle @ Rideau	1.0804	4-Legged
88	144415	Regent @ Long Lake	1.1688	4-Legged
89	145759	Kingsway @ Bancroft ⁷	1.1833	4-Legged
90	146221	Lasalle @ Barry Downe	1.2735	4-Legged
91	146239	Kingsway @ Barry Downe	1.2983	4-Legged
92	145417	Lasalle @ Notre Dame	1.6878	4-Legged
93	144673	Paris @ Ramsey Lake	2.1314	3-Legged
94	146342	Kingsway @ Falconbridge	2.5646	4-Legged

4.2.2 Additional Candidate Intersections

Available data were limited in that AADT data were only available for one year at each intersection, as compared with five years of collision data at each intersection. This raised the possibility that intersections existed which could benefit from RLC installation but were excluded from the original top six lists because of the data limitations. Accordingly, AECOM undertook a review of the collision data to identify intersections with high frequency of right-angle collisions that may have been excluded from the top six list, and determine whether there is reason to believe that they might also benefit from RLC installation.

<u>Table 5</u> shows the eight signalized intersections with the highest number of right-angle collisions over the study period and ranked in a decreasing order. It also shows the estimated PSC values for these intersections and their ranks from <u>Table 4</u>.

⁷ Traffic volumes and collision data were received after the submission of the draft report and therefore, were not included in the development of the SPF models for the city's intersections

Table 5: Top Eight Intersections based on Total Number of Right-Angle Collisionsbetween 2012 and 2016

GEOID	Rank	Rank in Table 4	Intersection Description	PSC Value	Total Number of Right-Angle Collisions (2012 - 2016)
145100	1	1	Paris Street and Cedar Street	-4.34	21
144144	2	4	Regent Street and Beatty Street	-1.86	20
144738	3	12	Elm Street and Elgin Street	-0.95	16
146221	4	90	LaSalle Boulevard and Barry Downe Road	1.27	16
145121	5	2	Paris Street and Van Horne Street	-2.02	15
145143	6	50	Paris Street and Brady Street	-0.14	13
144415	7	88	Regent Street and Long Lake Road	1.17	13
144062	8	7	Municipal Road 80 and Dominion Road	-1.56	10

Intersections in tables 4 and 5 were combined. After deleting duplicate entries and locations with positive PSC values, a total of nine candidate sites remained.

Of the remaining nine locations, it was noted that three were in close proximity to one another, namely Paris @ Cedar, Paris @ Brady, and Paris @ Van Horne. Since it is expected that the RLC spill-over effect will benefit intersections near those where an RLC is installed, it was agreed to eliminate two of the three sites from the short-list. Paris @ Cedar was carried forward because it had the greatest potential safety change of all sites in the City.

After the list was modified as per above, a total of seven sites remained. Since all seven sites showed a potential safety improvement from RLC installation and there was no significant reason to select any site over the others, the City issued a change order to increase the number of sites carried forward to office and field investigations from six to seven. The final seven locations are:

- Paris Street and Cedar Street
- Lorne Street and Douglas Street
- Regent Street and Beatty Street
- o Notre Dame Avenue and Cambrian Heights Drive
- Regent Street and Algonquin Road
- o Elm Street and Elgin Street
- Municipal Road 80 and Dominion Road

4.3 Field Investigations and Engineering Assessment

The objective of RLC installations is to reduce collisions by reducing the number of intentional red-light running incidents. It should be noted, however, that conditions may be present which contribute to unintentional red light running and could, if addressed, provide the intended safety improvement more quickly, efficiently or cost-effectively than installing RLCs. Accordingly, the AECOM project team conducted a set of engineering assessments and field investigations to identify potential factors contributing to unintentional red light running incidents, and other factors which may impact the safety of each of the top seven intersections.

4.3.1 Engineering Assessment

Prior to the field investigation stage, the AECOM project team reviewed the signal timing plans of the seven candidate intersections to confirm adequacy of amber and all-red clearance intervals. Timing plans were compared with the timing guidelines outlined in the Ontario Traffic Manual (OTM) Book 12⁸.

The duration of an amber interval is set to provide adequate advance time to an approaching motorist about the forthcoming change from amber to red. In addition, the all-red clearance interval is intended to allow a motorist who has entered the intersection (driven past the stop line) to have enough time to clear the intersection before the start of green interval for the next traffic signal phase. Based on the office review, the duration of clearance intervals were found to be acceptable, with the exception that at some intersections, the current all-red clearance intervals are slightly shorter than the minimum recommended values in the OTM Book 12. However, the slightly shorter all-red clearance intervals are not expected to be a contributing factor behind the observed right-angle and rear-end collisions at the seven candidate intersections; thus, all of the seven candidate intersections were carried forward for the field investigations.

In preparation for the field investigations and based on the available collision data, the AECOM Project team developed a scoring methodology to rank the legs of each intersection in terms of the reported number of collisions for which the at-fault driver was driving on. The at-fault drivers and the intersection leg on which the at-fault driver was travelling were identified based on the available collision data in the direction of travel and driver action columns. For each right-angle or rear-end collision record, the at-fault driver is identified as the one who was reported as "Disobeyed Traffic Control", "Failed to Yield Right of Way", "Following Too Closely", "Improper Turn", "Lost Control", etc. It was also taken into account that a right-angle collision is typically more severe than a rear-end collision, and therefore are weighted heavier in the scoring process. In addition, for right-angle collision records that both drivers were reported as "Driving Properly", both approaches on which the two involved drivers were travelling on was scored equally. Table 5 shows a summary of the scoring process for the seven candidate intersections. For each candidate intersection, the leg with the highest score (highlighted in gray in Table 6) is identified as the critical leg of the intersection.

Intersection Description	Approaches			
	NB	SB	WB	EB
Paris Street and Cedar Street	27	1	32	6
Regent Street and Beatty Street	17	7	6	19
Lorne Street and Douglas Street	-12	1	10	3
Elm Street and Elgin Street	10	17	-3	22
Municipal Road 80 and Dominion Road	-3	5	8	6
Regent Street and Algonquin Road	-9	-18	10	1
Notre Dame Avenue and Cambrian Heights Drive	-16	-3	6	-1

Table 6: Scoring Results for Ranking Intersections Legs

The ranking of the intersection legs was intended to inform the AECOM project team on how to prioritize (if needed) field investigation activities and where to focus the most. The exercise of identifying the critical legs was not intended to choose the intersection leg at which RLC is recommended for installation. The rationale is that in Ontario, the RED LIGHT CAMERA signs (see Figure 5) are posted on all approaches to an intersection which is equipped with RLC; thus, no matter on which leg of the intersection the RLC is installed, the posted RED LIGHT CAMERA signs on all approaches to the intersection are anticipated to change driver behavior on equally on all the approaches.

⁸ Ontario Traffic Manual (OTM) Book 12, page 44 - 46



Figure 5: Red Light Camera Sign

4.3.2 Field Investigations

Subsequent to the completion of the office reviews, the seven candidate intersections were visited by two members of the AECOM project team over three days between Tuesday, April 10 and Thursday, April 12, 2018 when road surface was dry and for the most part there was no precipitation.

The primary focus of the field investigations was to identify any potential issue that could lead to rightangle collisions and to confirm adequacy of the available sight distances to primary and auxiliary traffic signal heads and warning signs (e.g., Traffic Signal Ahead warning sign, etc.) on all approaches to the seven candidate intersections. The field crew also assessed the status of pavement markings, possibility of sun glare, sign clutter, potential driver distraction (e.g., digital advertisement sign, etc.), lane continuity, etc.

4.4 Selection of Red Light Camera Sites

<u>Table 7</u> provides a summary of the field investigations of the seven candidate intersections and the recommendations on where to install RLCs.

Among the seven candidate intersections, the following three were recommended for RLC installations:

• Paris Street and Cedar Street;

- Municipal Road 80 and Dominion Road; and
- Regent Street and Algonquin Road.

<u>Figure 6</u> shows the geographical distribution of the seven candidate intersections and the three recommended intersections for the RLC installations.

For the other four intersections, a number of potential engineering solutions should be considered for implementation and assessed for effectiveness prior to revisiting them for RLC installations. The noted potential treatments in <u>Table 7</u> are by no means considered comprehensive and no particular detailed assessment of their potential effectiveness has been undertaken. The potential treatments were included for consideration by the City only. Further assessment by the City should also be taken to assess the condition of pavement markings. It is essential to note that the three recommended intersections should be further reviewed / visited by the RLC vendor to ensure that feasibility of RLC installation at the recommended intersections. For example, presence of metal objects or detection loops could cause interference with RLC systems.

Intersection	Potential Issues	Potential Treatments	Recommended for RLC	
Paris Street and Cedar Street	Intersections are within close proximity for all of the three approaches, thus, potential confusion to drivers on which signal to look at.	Installation of programmable signal heads / signal timing improvements.	Yes	
Lorne Street and Douglas Street	Potential mixed messages maybe given to EB and WB drivers by the rail crossing flashing red light and traffic signal head.		No	
	Potential signal timing / phasing issue. It was observed that protected phase is given to the NBL movement when there are no vehicles in the NBL lane.	Improvement to signal timing / phasing.		
	EB and WB secondary traffic signal heads are slightly angled. NB traffic could see the signal indications intended for EB traffic and similarly, SB traffic could see signal display intended for WB traffic; thus, it creates potential confusion to NB and SB drivers.	Adjustment / re-alignment of the signal heads.		
	Insufficient Stopping Sight Distance for EB traffic.	Installation of traffic signal ahead warning sign.		
Notre Dame	Vegetation foliage on the southwest corner blocks EB primary signal head.			
Avenue and Cambrian Heights Drive	WB signal heads are visible to drivers on the service road and this could encourage vehicles on the service road to do unsafe back-to-back maneuvers; vehicles potentially accelerate as they approach and make a careless turn to enter the intersection but as drivers make the turning maneuver, they may not realize the signal indication has changed from green to amber, and possibly red.	Install programmable signal heads for WB traffic.	No	

Table 7: Summary of Field Investigation Findings and Recommendations

Intersection	Potential Issues	Potential Treatments	Recommended for RLC
	Potential signal visibility issue for EB traffic during the amber interval. The yellow McDonald's sign could interfere with drivers' perception of signal indications.	Potential relocation of the McDonald's sign.	
	Potential distraction because of the digital advertisement signs in the north west and north east corners.	Review the locations and the specification of the digital advertising signs using the TAC's " <i>Digital</i> and Projected Advertising Displays: Regulatory and Road Safety Assessment Guidelines (2015)".	
	Duration of all-red interval for EB may not be adequate as eastbound through drivers slow down as they enter the intersection in preparation of upcoming turning maneuvers into the service road.	Re-visit and make adjustments (if necessary) to the signal timing plan.	
	Intersections are within close proximity in the EB and NB directions, thus, causing potential confusion to drivers on which traffic signal to look at.	Installation of programmable signal heads.	
Elm Street and Elgin Street	Located close to an at-grade rail-road crossing. Potential mixed messages maybe given to WB drivers by the rail crossing flashing red light and green display on traffic signal head	Interconnect traffic signals with the rail crossing warning system.	No
	The nearside traffic signal head could block NB primary signal head		
	Potential signal timing / phasing issue. Protected phase is given to NBL and SBL movements when there are no vehicles in the NBL and SBL lanes.	Improvement to signal timing / phasing.	
Municipal Road 80 and Dominion Drive	Vegetation foliage at the northeast corner blocks WB primary signal head.	Trimming the foliage at the northeast corner.	
	Street name sign mounted on the nearside traffic pole cantilever blocks WB secondary signal head.	Relocation of the street name sign.	Yes
Regent Street and Algonquin Road			Yes
Regent	EB curb lane drop require last minute lane changes within a short distance to the intersection.		
Street and Beatty Street	Potential sight line issue for NBR and WBR.	Installation of no right turn on red sign.	No
	Potential signal timing / phasing issue. Protected phases are given to WBL and NBL movements even when there is no demand.	Improvement to signal timing / phasing.	

5. Conclusions and Recommendations

The summary of findings and recommendations of this study are as follows:

- There is a need and justification for installation of RLCs in the City of Greater Sudbury as there are a total of 55 signalized intersections that potentially benefit from RLC installations.
- The three recommended intersections for RLC installations were identified as those that would benefit the most from installation of RLCs. The three recommended intersections are:
 - Paris Street and Cedar Street;
 - Municipal Road 80 and Dominion Road; and
 - Regent Street and Algonquin Road.
- The three recommended intersections for RLC installations should be further reviewed / visited by the RLC vendor to ensure that feasibility of RLC installation at the recommended intersections.
- At four of the candidate intersections that were not recommended for RLC installations, a number of potential engineering solutions should be considered for implementation and assessed for effectiveness, prior to reconsidering RLC installation.
- The overall safety effectiveness of an RLC program could be increased by increasing the number of installation sites. In such a case, office and field reviews similar to those completed in this study should be undertaken for additional candidate sites.

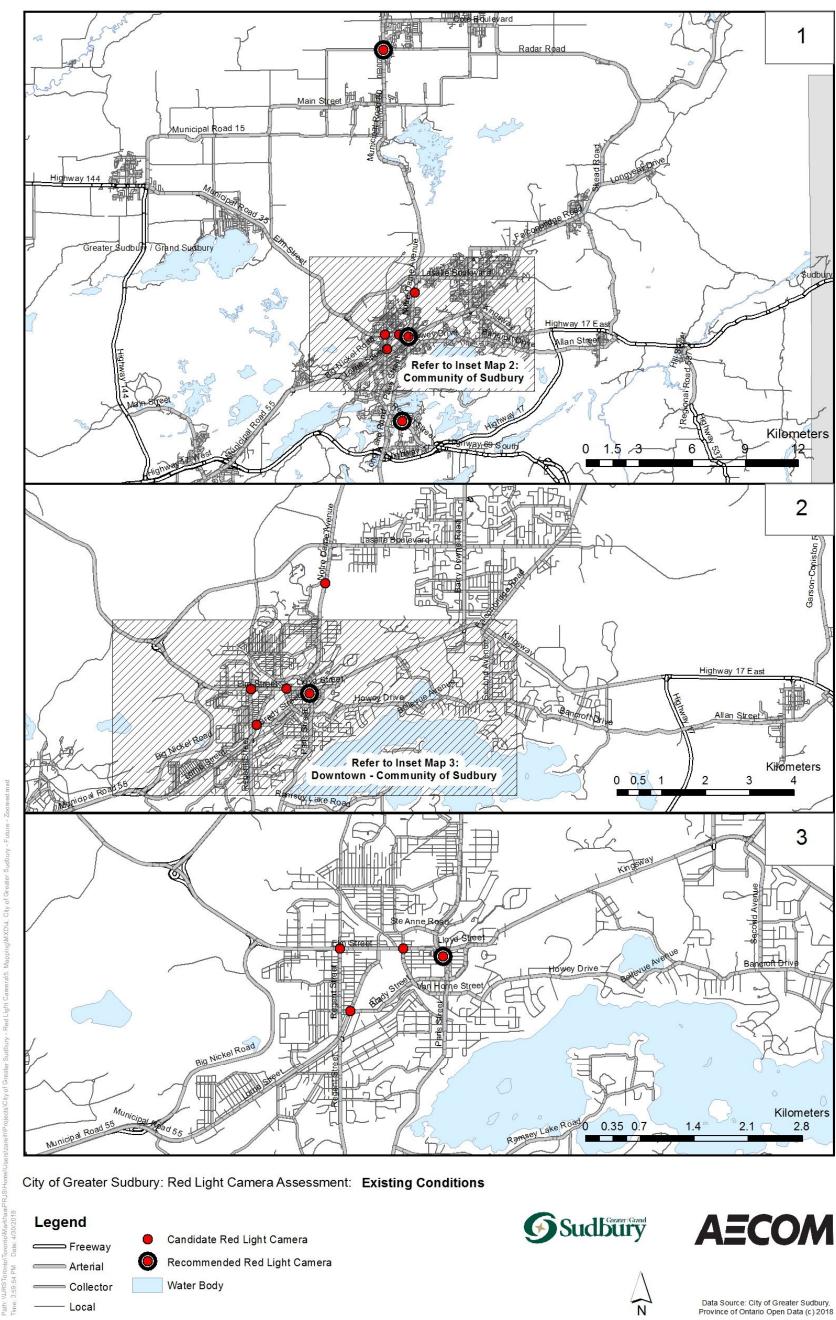


Figure 6: Candidate and Recommended Intersections for RLC Installations

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6. References

- Persaud, B., Council, F., Lyon, C., Eccles, K. and M. Griffith (2005). Multi-Jurisdictional Safety Evaluation of Red-Light Cameras. Transportation Research Record: Journal of the Transportation Research Board, No. 1922, Transportation Research Board of the National Academies, Washington, D.C., 2005, pp. 29-37.
- 2. Council, F.M., Persaud, B., Eccles, K., Lyon, C., Griffith, M.S. (2005). Safety Evaluation of Redlight Cameras. FHWA-HRT-05-048, Federal Highway Administration.
- McGee, H.W., Eccles, K.A., 2003. Impact of Red-Light Camera Enforcement on Crash Experience. In: NCHRP Synthesis 310. National Research Council, Transportation Research Board, Washington, DC.
- 4. Sayed, T., de Leur, P. (2006). Photo Enforcement Traffic Safety Study. Edmonton Police Commission.
- Sayed, T., de Leur, P. (2007). Evaluation of Edmonton's Intersections Safety Camera Programs. Transportation Research Record: Journal of the Transportation Research Board, No. 2009, Transportation Research Board of the National Academies, Washington, D.C., 2007, pp. 37-45. DOI: 10.3141/2009-06.
- Council, F.M., Persaud, B., Lyon, C., Eccles, K., Griffith, M., Zaloshnja, E., Miller, T. (2005). Implementing Red-Light Camera Programs: Guidance from Economic Analysis of Safety Benefits. Transportation Research Record: Journal of the Transportation Research Board, No. 1922, Transportation Research Board of the National Academies, Washington, D.C., 2005, pp. 38-43.
- Garber, N.J.; Miller, J.S.; Eslambolchi, S.; Khandelwal, R.; Mattingly, K.M.; Sprinkle, K.M.; and Waceldorf, P.L. (2005). An Evaluation of Red-Light Camera (Photo-Red) Enforcement Programs in Virginia: a Report in Response to a Request by Virginia's Secretary of Transportation. Charlottesville, VA: Virginia Transportation Research Council.
- 8. Retting, R.A., Kyrychenko, S.Y. (2002). Reduction in Injury Crashes Associated with Red-Light Camera Enforcement in Oxnard, California. American Journal of Public Health 92, 1822-1825.
- 9. Washington, S. P., and Shin, K. (2005). "The Impact of Red-Light Cameras (Automated Enforcement) on Safety in Arizona." FHWA-AZ-05-550.
- Solomon H., Izadpanah, P., Brady, M, and A. Hadayeghi, So You're Considering a Red Light Camera Program? Lessons and Insights from over a Decade of Camera Operation in South and Central Ontario, paper prepared for presentation at the Road Safety Policy Development - Past, Present, Future session of the 2014 Conference of the Transportation Association of Canada, Montreal, Quebec, Source: http://conf.tac-atc.ca/english/annualconference/tac2014/s-6/solomon.pdf.

Appendix A : Methodology to Develop Safety Performance Functions

Safety Performance Function for 4-Legged Intersections

For the purpose of this study, the negative binomial generalized linear model package in R statistical software was used as a tool in the development of the SPFs. For each of the dependent variables (i.e., frequency of collision impact types), SPFs with different model forms were calibrated. The candidate SPF model forms considered in this study were those that most often had appeared in the literature for signalized intersections with similar traffic volumes and number of approaches. These SPF model forms were evaluated using various criteria.

The first criterion was the presence of a counter-intuitive sign for variable coefficients (' β_1 ' and ' β_2 '), which immediately resulted in the rejection of the model. The second criterion was the statistical significance of the coefficients. Only models for which all coefficients were statistically significant at a 95% confidence level were accepted. The third criterion was the over-dispersion parameter ('k'), which was used as an overall goodness-of-fit measure. A lower value of the over-dispersion parameter ('k') represents a better fit of the model. Finally, the fourth criterion was the mean Pearson's Chi-Square (X)² statistical measure. This measure is calculated using the following equations, where d_f represents the degrees of freedom of the model:

$$X^{2} = \sum_{i=1}^{n} \sum_{t=1}^{T} \frac{[Y_{it} - E(Y)]^{2}}{Var(Y)}$$

Where, Y_{it} is the observed collision frequency for intersection i in year t,

E(Y) is the expected value of collision frequency corresponding to Y_{it} obtained from the SPF model,

Var(*Y*) is the variance of collision frequency,*n* is the number of intersections, andT is the study period.

The variance of negative binomial distribution is given by the following equation:

$$Var(Y) = \mu + k\mu^2$$

Where: *y* is the random variable that represents the collision frequency at a given location at a specific period of time

 μ is the Predicted collision frequency

k is the dispersion parameter

A value of X^2_{mean} closer to 1 indicates a better goodness-of-fit of the model.

The third and fourth criteria were jointly used to assess the overall goodness-of-fit of the model. In this assignment, if the first two criteria for goodness-of-fit were satisfied (i.e., the signs for the model coefficients were all intuitive and coefficients were statistically significant) then the SPF model form with the smallest over-dispersion parameter ('k') and X^{2}_{mean} statistics closer to 1 was selected. The database contained 114 intersections; among them 94 were 4-legged intersections. The selected SPF model form for 4-legged intersections in this study was as follows:

 $E(Y) = \alpha * (MajorAADT + MinorAADT)^{\beta_1}$

Where, MajorAADT is the entering AADT from the major road, MinorAADT is the entering AADT from the minor road, α, β_1 are the model parameters

Safety Performance Function for 3-Legged Intersections

As mentioned above, the database contained 114 intersections, among them, 20 were 3-legged intersections. Statically significant models could not be found, as such, a statically significant predictive model was borrowed from the Highway Safety Manual (HCM) and calibrated for application in the city of Greater Sudbury. In this procedure, the calibration factor (*C*) is the total number of collisions observed in a sample from one jurisdiction divided by the sum of the predicted number of collisions using the model from another jurisdiction. The calibration factor is calculated as follows:

Calibration factor (C) =
$$\frac{\sum_{i=1}^{n} Y_i}{\sum_{i=1}^{n} \hat{Y}_i}$$

Where: Y_i is the observed number of collisions for year i

 \hat{Y}_i is the predicted number of collisions for year i using the HCM model

The SPF model form for 3-legged intersections in this study was as follows:

 $E(Y) = \alpha * (MajorAADT)^{\beta_1} * (Minor AADT)^{\beta_2}$

Where, *MajorAADT* is the entering AADT from the major road,

MinorAADT is the entering AADT from the minor road, and α , β_1 , β_2 are the model parameters.

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RED LIGHT CAMERA SYSTEM OFFENCE NOTICE AVIS D'INFRACTION - SYSTÈME PHOTOGRAPHIQUE RELIÉ AUX FEUX ROUG

Form \$ Provincial Offenses Act, O. Rep 108/11 Formaliairy 5, Loi not les infractions proides, Rigl. de l'Ont. 108/11 ONTAR', OURT OF JUSTICE COUR DE JUSTICE DE L'ONTARIO

0460-997-13--00 OFFENCE NO. / Nº D'AVIS D'INFRACTION

1000

Attachment 2

You/Vour (Name/Nom): (Address/Adresse):

being the owner of a motor vehicle displaying étant le propriétaire d'un véhicule automobile muni de la

Ontario number plate plaase d'immatriculation de l'Ontario

are charged with the offence of failing to stop at a red light étes accusé(e) de l'infraction d'omettre de s'arrêser à un feu rouge

on the 13 day of June, 2013 at 9:10 AM jour de at the intersection of Carling Ave. and Island Park Dr. à l'intersection de (location / endroit) City of Ottawa in the

dans lefta

(municipality / municipalité)

as shown in the digitized images set forth in this notice, contrary to subsection 144(18.1) and pursuant to section 207 of the Highway Traffic Act. comme il est indiqué dans les images numérisées présentées dans cet avis, contrairement au paragraphe 144(18.1) et à l'article 207 du Code de la route.

The photographs taken by the red light carners system show the vehicle approaching the intersection, at which time the signal had displayed red for Les photographies prises par le système photographique relié aux feux rouges

montrent le véhicule qui s'approche de l'intersection, au moment où le feu était rouge depuix

000.5 seconds and that vehicle proceeded through the intersection when secondes et que le véhicule a franchi l'intersection alors que

001.4 seconds. the light had been red for le feu était rouge depuis secondes.

I believe and certify that the above offence has been committed. Je crois et atteite que l'infraction susmentionnée a été commise.

PLEASE NOTE: Section 207 of the Highway Traffic Art provides that you, at the

PERCENT VOTE: Section 2016 in the Improved Proper Art prevate man year, and the sometri, an United for this affector even if you must not the diverse at the time, under a binked encaptions. Notifier densets proton new a detert's 'Scores' asogenation will even the year over covering the diverse. The provincial of dimension officer has consided that the red light canters system used in the detection of this offence in a proceeding order at the time, that the projective dimension of the detection of this offence in a proceeding order at the time, that the projective dimension of water eccored by that system and the taffic signals were in proper working order at the time of the offence. Certified photographs with the

indexed in evidence at your trial. You must apply to the justice at trial if you with to outpil the attendance of the Provincial Offeners Offers who issued the certificant of

distance or who contribut the photographs to be tendered at your stial

Signature of Officer issuing this notice: Signature de l'agent qui délivre le présent avis:

Issuing Officer Number: 15 Numéro de l'agent qui délivre le présent avis:

Date of Deemed Service: June 28, 2013 Date de signification présumée:



VEURLEE PRENDRE NOTE : L'untrile 207 du Code de la route prévent que vous même, à titre de propriétaire, ître responsable de cette infraction même et unes ne conducises pas le véhicule à ce moment ble de cette infraction ndres al nu restraintes, Una déclaration одите, для гозрожи из réserve в гласярії en à l'interreption du preter d'insperional dans viere dansier en d'a sequencies en erre preter de norme & l'agress du informations provinciales a annuel que la syntime photographique celle aux regers qui a serve da défecter com réplactions est as syntime preserie, addid dons aux sons de désignée. De Proger qui a serie a advectar como appazitante est un zintense prezent, antize dans une gone decapare, 2 presentente esta de fonce-tamenante da con consentente da que la resolución estar de fonce-tamenante da consentente da que las problem entre del consequencia que las presententes entre del consequencia que las presententes entre del consentente entre del consequencia de las que las replantes conseñeras estantes entre del consententes en presentes entre del consequencia entre del consequencia del consequencia, ven advectore en plante conseñeras estentes atexas entre presentantes ente del consequencia ente del consequencia del consequencia, ven advectore en plante atexas ententes presentantes ententes ententes ententes estentes estentestentes estentes estentestentes estentes estentestentes

Important - If you do not exercise one of the following options within 15 days of receiving this notice, you will be deemed not to wish to dispute the charge and a justice may enter a conviction against you. Upon conviction additional costs will be added to the total psyshle. If the fine goes into default, an administrative for will be added and the information may be provided to a communer reporting agency. Stops will be taken to enforce your defaulted fine, including refusal to issue a validation of your vehicle permit or refusal to issue a vehicle permit until the total psyshle and all additional costs d fires have been paid.

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□ I intend to challenge the evidence of the Provincial Offences Officer. I request that the officer attend the trial. □ J'al l'astention de contenter la prever de l'agent des infractions provinciales. Je demande que l'agent actione au procès. Note: If you fail to notify the court office of address changes, you may not receive important notices, « g, your Notice of Trial. You may be convicted in your absence if you do not attend the trial. Remarque: Si yous ometres de prévenir le greffe du tribunal de tout changement d'adresse, pourries ne pas receiveir d'importants avis (par ex., votre avis de prochs). St vout n'autitite; par au procès, sous pourrie; être déclaréle) (oupable en soure absence. Changes to your address (il applicable): / Changement d'adresse (le cas échéant); Representative's name and address: / Nom et adresse du représentant;

OPTION 2 - Plea of Guilty - Submissions as to Penalty OPTION 2 - Plaidayer de culpabilisi - observations as sajet de la peixe

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Provincial Offences Office, 100 Constellation Crescent, Ottawa ON, K2G 6J8 bureaux des infractions provinciales, 100 Croissant Constellation, Ottawa, ON K2G 638 Monday to Friday 9 a.m -12:00 p.m, Tuesday, Wednesday, Friday 1:30p.m. - 3:00 p.m. Landi a Vendredi de 9:00h a 12:00h, Mardi. Mecredi et Vendredi de 13:30 h a 15:00h



Red Light Camera Program

0



Joe Rocca, P.Eng. Traffic & Asset Management Supervisor City of Greater Sudbury Keir Thomas, MASc., P.Eng. Manager, Civil Engineering AECOM

66 of 123



Red Light Camera Program

- Introduced in Ontario in 2000
- Objective is to reduce serious injuries
- Collisions from red light running tend to be more severe given speed involved
 - Enforcement countermeasure designed to improve intersection safety
- Utilizes technology to supplement police presence

RLC Consortium

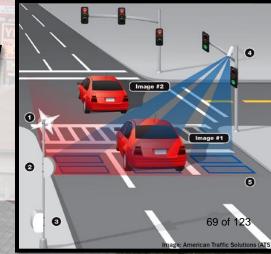
- Toronto
- London
- Ottawa
- Hamilton
- Regions of Peel, Halton, Waterloo & York

Suddu



How RLCs work

- Images are taken of licence plate entering intersection on a red light signal
- Images sent and processed in Toronto
- Infraction notice sent to registered owner of vehicle
 - No demerit points
- \$325 fine



RLC Effectiveness

- Severe collisions reduced by 25%
- Rear end collisions increase 15%
- Driver behavior improves for all nearby intersections (spill over effect)
- In US study fatalities declined 35%

Sudbury

Study Methodology

- Potential Safety Change (PSC) estimated based on collision history and traffic volumes from single year
- Results adjusted based on collision severity
- List cross referenced with highest total collision intersections during 5-year study period
- Consideration given to "spill-over effect"

Sudbury

Short List – RLC Candidate Intersections

~~~	Rank	Intersection	PSC index	Total Right-Angle Collisions (2012-2016)
9-9-9-9 9-9-9-9	1	Paris @ Cedar	-4.3420	21
	2	Lorne @ Douglas	-1.9754	9
	3	Regent @ Beatty	-1.8621	20
	4	Notre Dame @ Cambrian Heights	-1.6133	5
	5	Regent @ Algonquin	-1.5837	9
	6	Municipal Road 80 @ Dominion	-1.5570	10
	7	Elm @ Elgin	-0.9512	16

## **Engineering Assessment**



- Signal timing plans
  - amber and all-red intervals
  - **Review of as-built drawings** 
    - Intersection Geometry
    - Lane Widths
- Determination of 'critical leg'

## **Field Investigations**



- Review of site-specific conditions that may impact collision rates
  - Sight lines
  - Distractions
  - Signage
  - Driver Behaviour/Traffic Flow

## **RLC Recommendations**



- Paris Street at Cedar Street
  - Regent Street at Algonquin Road/Loach's Road
  - Municipal Road 80 at Dominion Drive
  - 3 others to be identified based on field review



## **Business Case**

- Cost is \$60,000 per intersection per year
  - Lease/Maintenance of Cameras
  - Infraction Processing (Toronto)
  - Vehicle Licence Information
  - Provincial Court Administration
  - Pavement markings and asphalt
  - Staff resources
  - Public Education



### **Business Case**

- Net positive revenue to CGS based on estimated number of convictions
- Eight municipalities in consortium have revenues that exceed expenses
- Expected societal benefits from reduced collisions
- Revenue should decrease over time



## **Next Steps**

- Finalize RLC sites (3 more recommended)
- Apply to become part of Ontario RLC consortium
  - Agreements with Toronto Processing Centre, Ministry of Transportation
- Agreement with current vendor (Traffipax) for RLC leasing, installation and maintenance
- About 24 months to complete



#### Joe Rocca, P.Eng. Traffic & Asset Management Supervisor City of Greater Sudbury

Questions?

Keir Thomas, MASc., P.Eng.Manager, Civil EngineeringAECOM



#### For Information Only

#### **Downtown Parking Update**

Presented To:	Finance and Administration Committee
Presented:	Tuesday, Jul 10, 2018
Report Date	Wednesday, Jun 27, 2018
Туре:	Managers' Reports

#### Resolution

For Information Only

#### <u>Relationship to the Strategic Plan / Health Impact</u> <u>Assessment</u>

This report deals with operational issues.

#### **Report Summary**

This report will provide an update on parking initiatives in the downtown core.

#### **Financial Implications**

There are adequate funds available from the current year and prior year capital budgets to fund the signage \$45,000, the lighting improvements \$50,000 and to plan for the procurement of pay by plate technology. If additional funds are required for the total estimated cost of \$250,000 for pay by plate implementation they will be funded from the 2019 capital budget.

#### Signed By

**Report Prepared By** Shawn Turner Director of Assets and Fleet Services *Digitally Signed Jun 27, 18* 

**Division Review** Shawn Turner Director of Assets and Fleet Services *Digitally Signed Jun 27, 18* 

**Financial Implications** Jim Lister Manager of Financial Planning and Budgeting *Digitally Signed Jun 27, 18* 

Recommended by the Department Kevin Fowke General Manager of Corporate Services Digitally Signed Jun 27, 18

Recommended by the C.A.O. Ed Archer Chief Administrative Officer Digitally Signed Jun 27, 18

#### Background

A report on downtown parking was presented to Council on December 12th, 2017. The purpose for this report was to address concerns that projects in the downtown, in particular, Place des Art and the Elgin Greenway will result in the loss of approximately 140 parking spaces. In response to this report Council requested that staff return to the Finance Committee in mid 2018 to provide a further update on parking concerns and initiatives in the downtown core. This report will provide more detail on the initiatives that members of Council had identified at the above mentioned meeting as they relate to on-street parking, overall parking capacity and staff's current work plan.

#### **On-Street Parking**

The City has 438 single space meters in the downtown core. The on-street meters are intended to service short stay hourly customers. The cost of hourly parking is \$1.30 per hour, 2-hour maximum with the exception of Elm Street at \$2.00 per hour with a 1-hour maximum. Concerns have been expressed by downtown business owners that the time allotted maximums are being exceeded and some on-street parking is being used for all day parking. All day parking is more suited to a monthly pass in an off-street lot and on-street parking left available for short stay customers. Downtown business owners support this viewpoint and routinely express concern with the upcoming losses of parking lot space and the scarcity of available on-street parking for their customers.

In order to more accurately gauge the utilization level of on-street parking, staff performed a utilization survey. The survey was performed over the course of a four week period from late April to late May 2018. Parking was surveyed 3 times daily at 9am, 2pm and 5pm. Aggregated results from the survey indicate a higher utilization in the downtown core and less utilization on the perimeter. The streets most utilized for parking were Durham (76%), Lisgar (74%), Cedar (69%) and Larch (61%). Some of the less utilized streets for parking were Applegrove (15%), Elm West (19%), and Elm East (25%).

#### **Parking Capacity**

Major initiatives being undertaken or considered for the downtown core of Sudbury in the near future will have a direct impact on the supply of parking in the downtown core. The proposed Place des Arts and Phase 1 of the Elgin Greenway will cause reductions of 59 and 90 spaces respectively. Additionally, the consideration of a new Art Gallery/Library and / or proposed Synergy Centre will require parking solutions which will impact supply but are independent of the initiatives described in this report. Any large project in the downtown would require a further review of parking demand and how that demand would best be addressed in terms of future supply.

Staff has further investigated the potential projects as outlined in the December 12th report to Council on parking options. Per Council's direction, staff reviewed/revisited increasing parking supply via the Pedestrian Overpass – Energy Court Expansion, Louis Street/Vincent Street (unopened road allowance) and the Dufferin Street Road allowance. Additionally, staff have met with and received information from parking services providers on a range of possible managed parking solutions for City owned downtown parking lots and on-street spaces. The integration of the recommendations in this report and a more holistic approach to managing parking supply, demand, pricing and subsidy considerations will form a part of our 2019 work plan.

#### Pedestrian Overpass – Energy Court Expansion

As a result of the supply loss due to Place des Arts, Elgin Greenway and the proposed Art Gallery/ Library and / or proposed Synergy Centre, the Pedestrian Overpass – Energy Court Expansion was put forth as it was an opportunity to add supply to the downtown parking utilizing existing City-owned lands. Figure 1 shows the existing energy court lot outlined in red and the potential expansion area outlined in blue. The existing Energy Court parking lot is comprised of 218 spaces that are approximately 70% utilized. Expansion into the adjacent City owned lands could add approximately 180 spaces. Utilization of this lot is hampered by the perception of the distance needed to walk to the Elm Street railway crossing in order to traverse the railway tracks. The City has an easement agreement with the abutting land owner that allows pedestrians to traverse the property in order to access Elm Street. This easement agreement would not extend to an expansion of the Energy Court parking lot.

#### Figure 1



There has been private sector interest in partnering with the City in order to build a pedestrian bridge that would link the Energy Court parking lot directly to Elgin Street. This would provide a more direct route to the downtown core, thus increasing the marketability of the lot. In exploring the option of a pedestrian bridge, the downtown B.I.A. and Canadian Pacific Railway agreed to partner with the City to employ a local engineering firm to develop a Conceptual Design report in order to provide Council with a point of reference in terms of scope and cost. Appendix "A" to this report is the Conceptual Design Report for a pedestrian link from Energy Court parking lot to Elgin Street at Larch Street parking lot.

The conceptual design contemplates a covered bridge that is approximately 37 metres in length and 3 metres wide. The concept bridge is covered and is compliant with the Accessibility for Ontarians with Disabilities Act (A.O.D.A.) as well as the standards for railway clearance published by Transport Canada. Access to the bridge from Energy Court is provided by a ramp and stairs. The ramp is approximately 140 metres long and 3 metres wide due to the height of the bridge and in order to comply with A.O.D.A. requirements. Access to the bridge via Elgin Street at Larch Street is provided by stairs and an elevator. The concept bridge is constructed from galvanized steel and ramps and stairs are concrete. Other attributes considered include electrical service to provide lighting design consistent with Crime Prevention through Environmental Design (C.P.T.E.D.) as well as closed circuit television cameras on the bridge and in the vestibules for security.

The Engineer's opinion of probable costs for the project is approximately \$7.1 million which includes engineering and construction of approximately \$6.2 million.

The overall cost of a pedestrian bridge and expansion of Energy Court would entail a number of other costs that were not included in the above estimate. Other costs of the project would include land acquisition and parking lot development costs.

- Land Acquisition: As can be seen in Figure 1 above and in Appendix A, land would be required along the west side of the railway tracks in order to construct a pedestrian overpass.
- Lot Development Costs: Costs to expand the Energy Court parking lot with an asphalt surface and pay machines would be approximately \$750,000.

In considering the above estimates, the total cost for such a project would be approximately \$8 million. This scale of project would represent a cost of approximately \$45,000 per space based on a 180 space lot expansion. At this price and assuming 100% capacity, at the current monthly rate structure it would take 91.5 years to pay off the investment. Alternatively, the cost per space of a parking structure according to the Canadian Parking Association is approximately \$30,000 – \$35,000. A parking structure could be built in a more favourable location and along with attributes such as covered parking could garner a much higher rate structure than Energy Court and in turn a lower payback period.

In consideration of the opinion of probable cost and the location relative to existing parking demand as well as future demand that may be driven from an Art Gallery/Library or Synergy Centre, it is not recommended that the City proceed with the Pedestrian Link to Energy Court parking lot. It is possible that the Downtown Business Improvement Area Board and Canadian Pacific will continue to pursue this project and may approach Council for a contribution towards the total cost.

#### Louis Street/Vincent Street (unopened road allowance)

This lot is located on Louis Street/Vincent Street (unopened road allowance) at the bridge that traverses Junction Creek. This property is designated parkland and is part of the linear park known as the Junction Creek Waterway Park. The intention is for this lot to be utilized by patrons of the park as well as City crews in order to maintain the park. It is not intended to be for all day parking. As with the linear park, this lot is not maintained during the winter months. Using this parkland for all day parking may present some environmental concerns such as salt, oils, and silt runoff due to its proximity to Junction Creek. It is recommended that the area remain parkland and enforcement be increased in this area.

#### Dufferin Street Road Allowance

The City owns a parcel of property described as the Dufferin Street road allowance, at the east end of Pine Street that could be opened up, and used to create an additional 40 spaces. It is currently a gravel

lot and the intention would be to keep it in this condition. The location of the lot is slightly outside of the downtown core; however it is certainly within walking distance, would not present any traffic issues and would increase parking capacity for long term stays.

The cost to open this lot would be approximately \$40,000 which would be required to grade, provide drainage, fencing, signage and for a pay machine. This is a viable option, and would be relatively quick to implement, however it is not in the high demand downtown core. Due to the ease of implementation, it is recommended that the Dufferin Street Road Allowance lot remain as an option for parking lot development as demand for parking expands beyond the current downtown core.

#### **Current Workplan**

The current work plan for capital improvements to parking consists of implementing pay by plate technology, new signage, and lighting improvements at select parking lots.

#### Pay by Plate Technology

As per City Council Resolution #CC2017-377, staff is exploring the implementation of pay by plate technology for on-street parking in the downtown core. Pay by plate technology enables customers to purchase parking time by using their license plate number. Pay by plate offers some distinct advantages over the current coin operated meters or pay by space that include affecting demand for long term stays, efficiency of enforcement, flexibility of payment and efficiency of operation.

A pay by plate system offers the ability to affect demand for on-street parking by limiting parking to a maximum time frame based on a license plate. Once a license plate exceeds the allotted time frame, there is no further ability to extend the parking privilege in that particular area. Downtown business owners have expressed concerns regarding the practice of patrons feeding the meters and staying in excess of the 2 hour parking maximum, particularly along Cedar, Larch, Durham and Lisgar streets. However, enforcement of this 2 hour parking maximum is quite onerous and difficult to apply consistently given the City's current parking meter arrangement. Pay-by-plate systems manage enforcement by comparing which license plates are parked with the ones that have activated parking sessions. As there is no requirement for enforcement officer on foot to check each meter, pay-by-plate systems can achieve higher compliance rates with less enforcement personnel.

The flexibility of payment methods that is offered via pay by plate technology will also be an advantage for users. Through online payment capability and fixed machines throughout downtown, pay by plate would provide a user with the ability to pay by coin, credit card or online using a smart phone. The current meters only accept coin and in an increasingly electronic age, this method of payment is diminishing rapidly. Additionally, if more time is required patrons are able to buy additional time online

via a smart phone or at the nearest pay station. This level of convenience eliminates the need to walk back to the vehicle to buy additional time providing customers with increased level of satisfaction.

Lastly, operational efficiencies can also be achieved using pay by plate technology. Pay stations do not need to be placed in such close proximity to parking spaces to accommodate customers walking back to their vehicles. As a result, fewer pay stations than meters need to be deployed, as they can be conveniently spaced along key pedestrian routes. For parking operations, this results in reduced coin collection and maintenance costs. Additionally, the availability of real time data regarding parking trends such as utilization can be used to more specifically tailor parking services to meet the needs of the public.

#### Implementation of Pay by Plate

The implementation of pay by plate for on street parking is being implemented in two phases. The first phase will be the implementation of a smart phone pay by plate application which will provide users with an additional method of payment. The second phase will be to replace existing meters with pay by plate machines.

#### Phase One

Phase one will be implemented in 2018. It will entail the procurement of a pay by plate application that considers synchronization with enforcement software, ease of use, financial cost and reputation. Looking to neighboring municipalities of North Bay and Timmins that currently utilize a pay by plate application, staff will prepare and release an expression of interest in order to begin a relationship with a vendor that supports current enforcement software. With options in the software that allow for businesses to validate customer parking, and potential controls to manage the two (2) hour limits for parking through a tiered pricing structure, staff believe this system will better support parking in the downtown core. The onboarding of this app will allow residents to be educated on this different technology slowly while working toward the removal of meters and install of pay by plate machines.

#### Phase Two

Phase two will require the replacement of existing meters in the downtown core with strategically placed pay by plate machines. These machines will accept various forms of payment such as cash, credit, debit and will require the user to identify the plate of the vehicle. The planning for this phase is being worked on in 2018 with procurement expected in early 2019 and implementation during the summer of 2019. Staff have retrieved information from various vendors and are currently developing the specifications for the pay by plate machines. The estimated cost is approximately \$250,000. Approximately \$200,000 will be funded from previous years capital budgets and the staff will budget the

remaining via the 2019 Capital Budget process. A significant ancillary benefit of pay by plate technology and machines is the removal of traditional sidewalk parking meters in the downtown allowing for much more economical enhancements to winter sidewalk maintenance.

#### Signage

City staff has designed a standardized sign that articulates the presence of a municipal parking lot as well as including wayfinding to other municipal parking lots. The signs are constructed of aluminum and are approximately 12 feet high and 3 feet wide. The design is attached as Appendix "B". It is expected that the signs will be manufactured and installed by the fall of 2018. The signs have been quoted at approximately \$45,000 for 10 signs and will be funded from prior years Council approved capital budgets.

#### Lighting Improvements

Several City owned parking lots have been identified as requiring increased illumination in order to prevent crime and to promote safety. City staff has identified areas of improvement in 3 lots (Shaughnessy Street East, Shaughnessy Street West and Sudbury Arena Annex) and have designed lighting solutions to help address the safety issues. Staff is currently requesting quotations with work expected to commence during the summer and be completed by the fall of 2018. The cost is estimated to be approximately \$50,000 and will be funded from prior years Council approved capital budgets.

#### Parking and Transportation Demand Management Initiatives

As Council is aware, staff are exploring a number of transportation demand management initiatives aimed at encouraging more sustainable travel options in the long term that over time, would ease demand for parking. Strategies like Transit Pass Programs, Emergency Ride Home, Bikeshare and Carshare Programs, Ridematching, Bicycle Parking and related End of Trip Facilities are all potentially programmable in the downtown.

Council received a report at its June 26th, 2018 meeting entitled Affordable Transit Fare Structure which contained a number of fare structure and subsidy recommendations. An Employer pass is one option available within our Transit fare structure and with the number of City employees working in the downtown, Council requested that staff review the potential for a City staff program to demonstrate leadership in this area and create a program that could ease demand on downtown parking. This report indicated that the employer pass program was unsuccessful to date and that marketing efforts could be undertaken to promote a discounted Adult monthly pass. Staff will explore this option and make recommendations in the form of a business case for the 2019 budget deliberations.

#### Conclusion

- Due to the location and high cost of development relative to other large parking developments it is not recommended that the City proceed with the Pedestrian Overpass Energy Court Expansion
- It is recommended that the Louis Street/Vincent Street (unopened road allowance) remain parkland and that enforcement be increased to ensure it is not being used as an all day parking lot.
- It is recommended that the Dufferin Road allowance lot not be developed at this time, but remain as an option for parking lot development as demand for parking expands beyond the downtown core.

Staff will continue to work towards completing the parking lot lighting, signage and phase 1 of the pay by plate projects for 2018 and employer pass program. Phase 2 of the pay by plate project will be planned in 2018 and procured and completed for 2019. Further, staff will include work on a more holistic approach to managing parking supply, demand, pricing and subsidy considerations in our 2019 work plan.

#### **Conceptual Design Report**

## Pedestrian Link from Energy Court Parking Lot to Elgin at Larch Parking Lot



Value through service and commitment

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#### 1.0 Introduction

J.L. Richards & Associates Limited (JLR) was retained by the City of Greater Sudbury (CGS) to prepare a conceptual design complete with an Opinion of Probable Construction Cost (OPCC) for the proposed pedestrian bridge between the Energy Court Parking Lot and the Elgin at Larch Parking Lot over the Canadian Pacific Railway (CPR) tracks in downtown Sudbury.

#### 2.0 Conceptual Design Assumptions

The following is an outline of the general assumptions made in the preparation of this conceptual design and Class C OPCC.

#### 2.1 General Bridge Layout, Dimensions, and Materials

Conceptual drawings are attached in Appendix A. These drawings show the layout and dimensions used in the preparation of this OPCC.

A galvanized steel structure was selected for the bridge given steel's superior stiffness and fatigue resistance. Given the span of the bridge, deflection and vibration will be two major comfort considerations in detailed design. A steel structure will have increased mass and stiffness which will result in increased user comfort, at a lower cost than an aluminum bridge. Aluminum would have better corrosion resistance; however, galvanized steel also has a proven performance. Painted steel could also be considered and would come with lower capital cost, but increased maintenance cost.

#### 2.2 Bridge Access and Accessibility Requirements

Due to the height of the bridge and the relatively flat terrain surrounding the bridge location, the length of ramp required to meet Accessibility for Ontarians with Disabilities Act (AODA) requirements is approximately 140 m. Through discussions with the CGS, it was determined that the accessibility requirements would be met by providing an AODA-compliant ramp on the west side of the bridge and an elevator on the east side of the bridge. Both options have approximately the same order-of-magnitude cost, with the elevator being marginally more cost-effective.

#### <u>Ramp</u>

Due to the distance to the utilities to service an elevator on the west side of the bridge and the distance between the bridge and the parking lot, it was determined that the ramp option would be preferable. To avoid the need to construct a walkway that would essentially run alongside the ramp, it was determined that stairs should not be provided and that all pedestrian traffic would flow on the ramp. It was assumed that the ramp would be 3 m wide to be able to accommodate all pedestrian traffic.

#### <u>Elevator</u>

On the east side of the bridge, due to the limited space available and the upcoming Elgin Greenway project, it was determined that the passenger elevator option was preferable to maintain existing parking spaces. A small vestibule would be provided at each elevator level to prevent snow accumulation against the elevator doors and water migration into the elevator core. Electrical panels and mechanical components for the elevators would be located in locked closets within the vestibules and these vestibules would be monitored with CCTV cameras to prevent vandalism.

The elevator sumps would be tied in to the sanitary sewer system at a maximum distance of 25 m from the elevator sump and a sump pump would be provided for the elevator sump.

#### <u>Stairs</u>

A staircase will be provided on the east side of the bridge. The staircase will be 3 m wide.

#### 2.3 Geotechnical Considerations and Proposed Foundations

JLR reviewed the geotechnical report for the McKeown School of Architecture, which is located less than 100 m from the location of the proposed bridge. The geotechnical report, which was provided by the CGS, recommended the use of micropiles.

Through discussions with EBS Geostructural, it was determined that the bridge abutments could likely be supported on three micropiles at each end of the bridge. A combined bridge and elevator raft foundation (13 m x 11 m x 0.6 m) supported by grouted micropiles has been included in the costing for the foundations.

The suspended concrete stairs on the east side of the bridge would be supported on a central pier and insulated shallow spread footing. This will require confirmation from the Geotechnical Engineer based on subsurface soil conditions.

The ramp will be supported on one pier at each landing, which will be supported on 2 micropiles.

#### 2.4 Excavation, Dewatering, and Backfill

Due to the proximity of the CN Railway Corridor, an engineered shoring system would likely be required to support the proposed excavations and allowances are provided within the cost estimate.

The contaminated soil at the site is classified as "non-hazardous". The contaminated soil would be transported to the Falconbridge smelter site for capping. This would be confirmed during the Environmental Site Assessment (ESA).

Due to groundwater conditions in Downtown Sudbury, it is assumed that dewatering will be required during the foundation work. At this time, we have assumed a moderate dewatering program (less than 45L/s) to be required over a (4) month period with water treatment of the groundwater required.

Excavations would be backfilled with Granular 'B' Type II material.

#### 2.5 Railway Clearance

The railway clearance used in the preparation of this OPCC was 7.01 m (23 feet) in accordance with *Standards Respecting Railway Clearance* published by Transport Canada in 1992.

#### 2.6 Topography

No site-specific surveys were prepared during the preparation of this conceptual design. The design was based on the CGS aerial survey.

Approximate property boundaries were assumed based on the Government of Ontario's Make a Topographic Map application and plan of surveys provided by the CGS.

#### 2.7 Snow Removal

The CGS has indicated that they would prefer for the bridge to be covered to eliminate any snow removal requirements. However, the snow on the stairs and ramp would need to be cleared by CGS Operations. The cost for snow removal was not included in this OPCC.

#### 2.8 Landscaping and Approaches

The landscaping on the east side of the bridge would be included as part of the Elgin Greenway and would not form part of the scope of this project. The landscaping on the west side would consist of low shrubs and flower beds.

The approach work on the west side of the bridge is assumed to be encapsulated within the parking lot and has not been included in this opinion of probable cost.

#### 2.9 Lighting

Lighting design would be based on meeting the requirements of Crime Prevention through Environmental Design (CPTED) and less on aesthetic lighting requirements.

#### 2.10 Electrical Service

It was assumed that electrical service for the bridge lighting and elevators would be fed from a nearby electrical source ( $\pm$ 75 m) with sufficient available power. Closed circuit television (CCTV) cameras would be installed on the bridge and in the vestibules.

#### 2.11 Consultant Fees

The consultant fees (10% of Construction Value) include engineering fees for detailed design, tendering, and contract administration. An allowance of \$60,000 was included for the geotechnical investigation.

#### 2.12 Coordination with the Canadian Pacific Railway and Monitoring Programs

Any additional requirements from CPR such as coordination and monitoring programs for work around the railway tracks are excluded from this OPCC.

#### 2.13 Land Acquisition

No allowance has been made for potential land acquisition.

#### 2.14 Expected Services Life of Bridge Components

The expected service life of the bridge, elevator, and concrete elements is 75 years.

#### 2.15 Maintenance

In order to determine an approximate maintenance cost for the bridge, it was assumed that a minor rehabilitation project would be undertaken every 10 years, with a capital cost of approximately 5% of the initial project cost (approximately \$267,000). At the 40th year, it was assumed that a major rehabilitation would be undertaken, with a capital cost of approximately 25% of the initial project cost (approximately \$1,500,000).

The present value of the future capital costs was determined following the method outlined in the MTO Financial Analysis Manual, dated 1993. The MTO Financial Analysis Manual recommends multiplying costs by a discount rate of 6% in order to account for the fact that expenditures occur over different time periods.

#### 2.16 Winter Operating Cost

An allowance of \$25,000 per year was carried for winter operations. This allowance includes deicing and sanding operations. Operation costs have been discounted similarly to the maintenance costs as outlined above.

#### 3.0 Class C Opinion of Probable Construction Cost

The Class C Opinion of Probable Construction Cost (OPCC) is attached in Appendix B.

#### 4.0 Conceptual Design Options

#### 4.1 Ramp at Both Ends

The approximate cost for a ramp, including the foundations and guardrails/handrails, is \$1,227,000. A similar cost should be expected for a ramp at the east end of the bridge if the CGS elects to eliminate the elevator.

Due to the height of the bridge required for minimum clearance over the railway tracks and AODA requirements, the required length of the ramp is approximately 140 m. It should be noted that there is limited space available between the railway tracks and Elgin Street.

#### 4.2 Elevators at Both Ends

The cost for the east elevator and stairs, including the elevator shaft, roof, vestibules, mechanical components, and stairs, is approximately \$571,150. However, at the west end of the bridge, the distance between the location of the proposed bridge abutment and the sanitary sewer system, where the elevator sump must be tied in, is significantly greater than on the east side. Therefore, a stronger sump pump and a greater length of piping (including excavation and backfill work) will be required for the west elevator.

In addition, the distance between the elevator and the electrical service is significantly longer on the west side of the bridge. This challenge could be resolved by running electrical service on the bridge and feeding the elevator from the service on the east side of the bridge.

If the ramp is eliminated from the west side of the bridge, a walkway will need to be constructed between the parking lot and the bridge.

Additional construction budget would have to be allocated to resolve these issues.

#### 4.3 Uncovered Bridge

The CGS has directed JLR to prepare the OPCC based on a covered bridge. The cost for a covered bridge is included in the OPCC. If the CGS elects to remove the bridge coverings and construct an uncovered bridge, the costs would need to be revisited as there are potential structural efficiencies achieved with a covered bridge which may result in higher structural costs associated with the lower architectural costs of an uncovered bridge.

An uncovered bridge would require snow removal in the winter or would need to be heat traced over the full length. The CGS would need to coordinate internally to determine how to remove the snow in the winter. Due to the large turning radius required for municipal tractors and the handrail requirements for the ramp, it would not be possible to plow the bridge with a municipal tractor. Heat tracing would not be economical and could result in significant build-up of ice on the bridge and ice falling onto the rail tracks below.

An uncovered bridge would also require the installation of anti-suicide barriers.

#### 5.0 Legislative Requirements to be Addressed during Design

#### 5.1 Accessibility for Ontarians with Disabilities Act (AODA)

The pedestrian bridge and approaches are required to meet the requirements of the AODA. The requirements for ramps on exterior paths of travel include a maximum 1:15 slope, landings at the top and bottom of the ramp and at intervals a maximum of 9 m apart, and the provision of handrails on both sides of the ramps and intermediate handrails where the ramp is wider than 2,200 mm.

#### 5.2 Municipal Class Environmental Assessment (MCEA)

Municipal projects undertaken by Ontario municipalities, such as the proposed pedestrian bridge, must follow the MCEA process. Appendix 1 of the 2015 Municipal Class Environmental

#### Conceptual Design Report Pedestrian Link from Energy Court Parking Lot to Elgin at Larch Parking Lot

Assessments (EAs), prepared by the Municipal Engineers Association (MEA), outlines which MCEA Schedule must be followed depending on the type of project and its construction cost. The proposed pedestrian bridge falls in the category of "construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use" with a construction cost greater than \$2.4M and therefore would require a Schedule C MCEA.

Schedule C Class EAs require the completion of all five phases of the Class EA planning process, including associated public consultation requirements:

- Phase 1: Identify the problem (deficiency) or opportunity.
- Phase 2: Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution taking into account public and review agency input.
- Phase 3: Examine alternative methods of implementing the preferred solution.
- Phase 4: Document, in an Environmental Study Report, a summary of the rationale and the planning, design and consultation process of the project.
- Phase 5: Complete contract drawings and documents and proceed to construction and operation.

#### 6.0 Additional Data Required

The following outlines the additional data that will need to be collected prior to commencing detailed design.

#### 6.1 Underground Utility Locates

The location of underground utilities will need to be determined. The presence of underground utilities may affect the layout of the bridge and the ramp foundations.

The CGS has noted that there is a hydro duct bank of fibre-optic cable running along the west side of the rail tracks. The location of this duct bank must be determined to ensure that there is no interference between the duct bank and the bridge foundations.

#### 6.2 Topographic Survey

A topographic survey with legal property boundaries will be required.

#### 6.3 Geotechnical Investigation

A detailed Geotechnical Investigation would be required that outlines the following: existing soil conditions, proposed foundation system options, dewatering recommendations, excavation and backfill recommendations, frost protection, etc.

#### 6.4 Phase 1 and 2 Environmental Site Assessment (ESA)

It is expected that due to the location of the site and the known presence of contaminants in the area, a Phase 1 and 2 Environmental Site Assessment (ESA) would be required to outline the requirements for management of soil and groundwater on the site.

#### 7.0 Estimated Detailed Design and Construction Schedule

The following consists of an estimated schedule for the detailed design and construction of the pedestrian bridge.

- Municipal Class Environmental Assessment (6-10 months)
- Site Investigations (completed in parallel with the MCEA)
  - Underground Utility Locates
  - Topographic Survey
  - Geotechnical Investigation
  - Phase I and II Environmental Site Assessment
- Detailed Design (4-6 months)
- Construction (6-10 months)

#### 8.0 Conclusion

The Class C OPCC for the proposed pedestrian bridge between the Energy Court Parking Lot and the Elgin at Larch Parking Lot, based on the assumptions listed in Section 2.0 above, is \$7,144,128. Prior to proceeding with detailed design, the MCEA process must be followed. In addition, underground utility locates, a topographic survey, a geotechnical investigation, and a Phase 1 and 2 Environmental Site Assessment will need to be performed.

This report has been prepared for the exclusive use of the City of Greater Sudbury, for the stated purpose, for the named facility. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report was prepared for the sole benefit and use of the City of Greater Sudbury and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

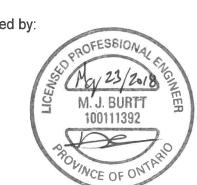
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#### Conceptual Design Report Pedestrian Link from Energy Court Parking Lot to Elgin at Larch Parking Lot

#### J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Reviewed by:



Matthew Burtt, P.Eng. Associate Manager, Ottawa Structural Department

& a Glenny

Émilie-Anne Fleury, EIT Structural Engineering Intern

98 of 123

#### Appendix A

**Conceptual Drawings** 

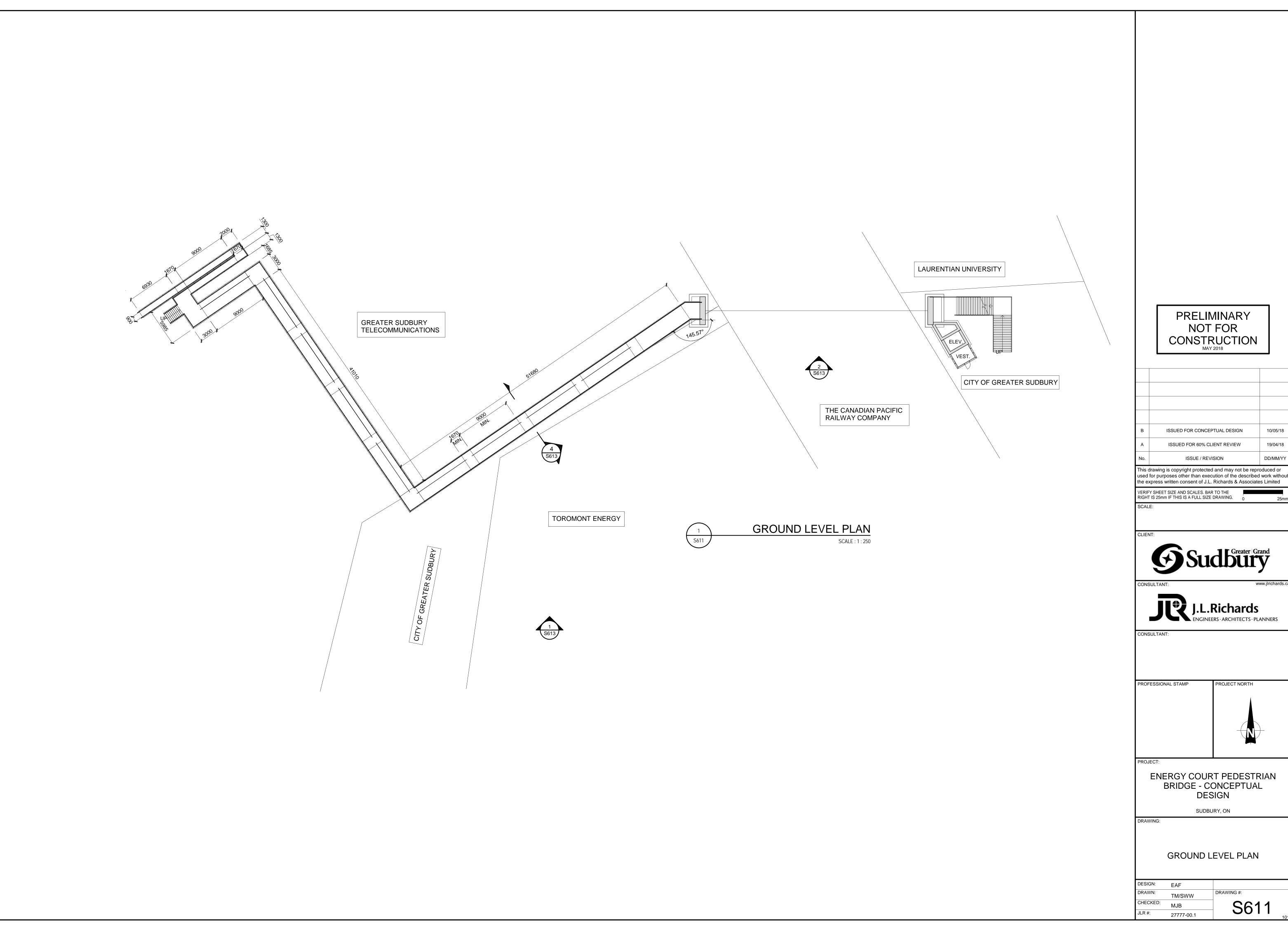


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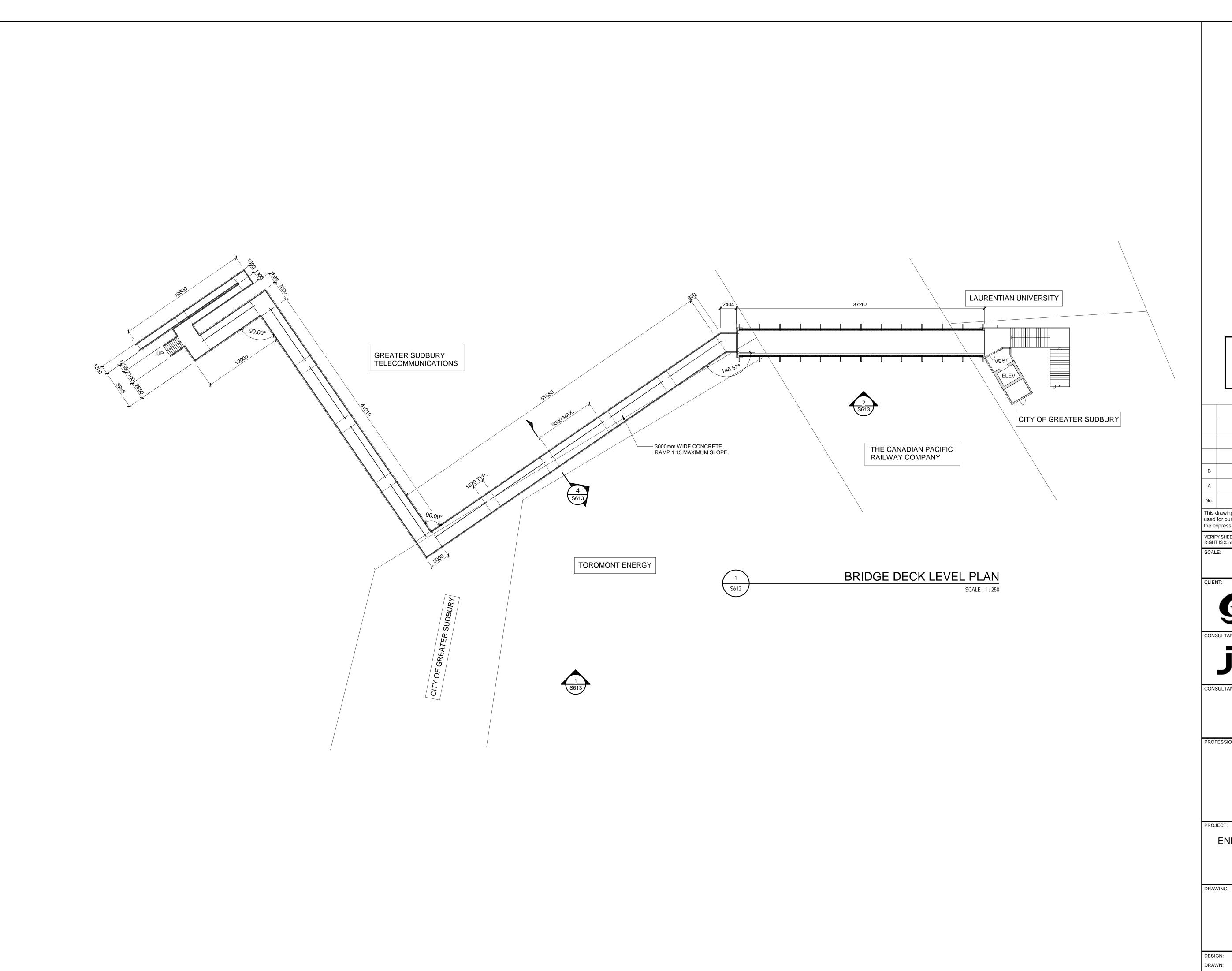
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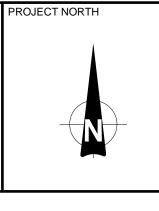
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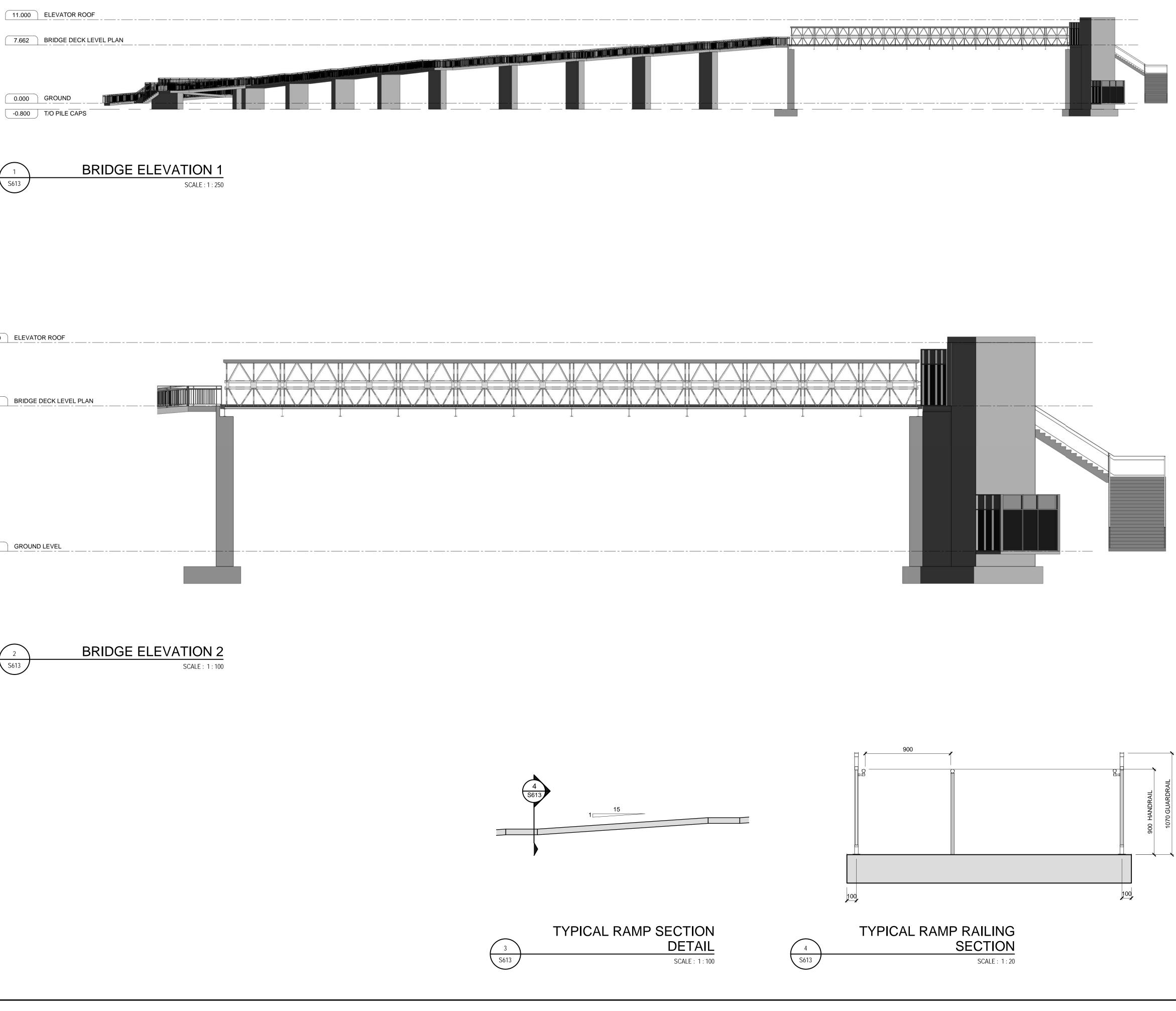
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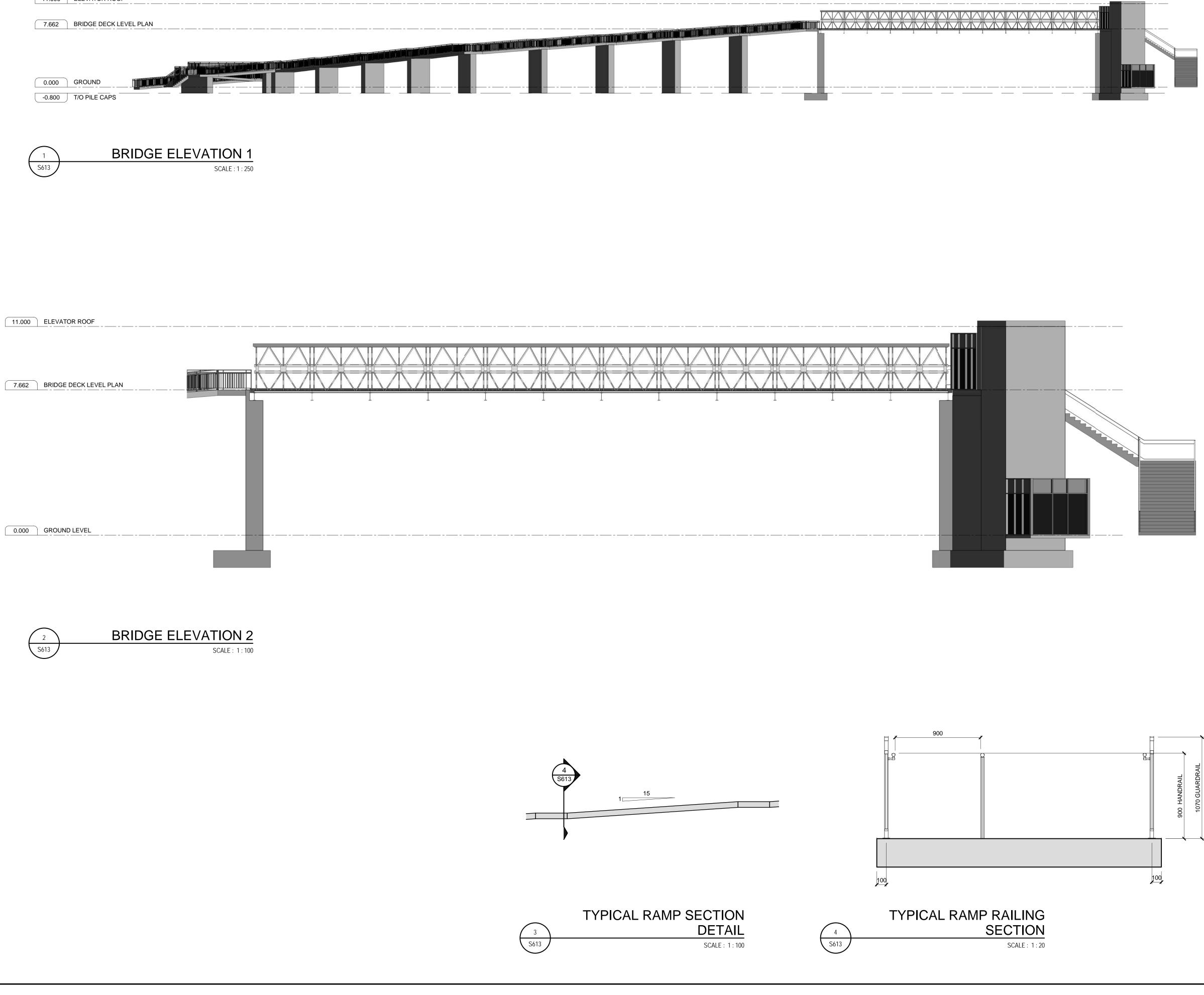
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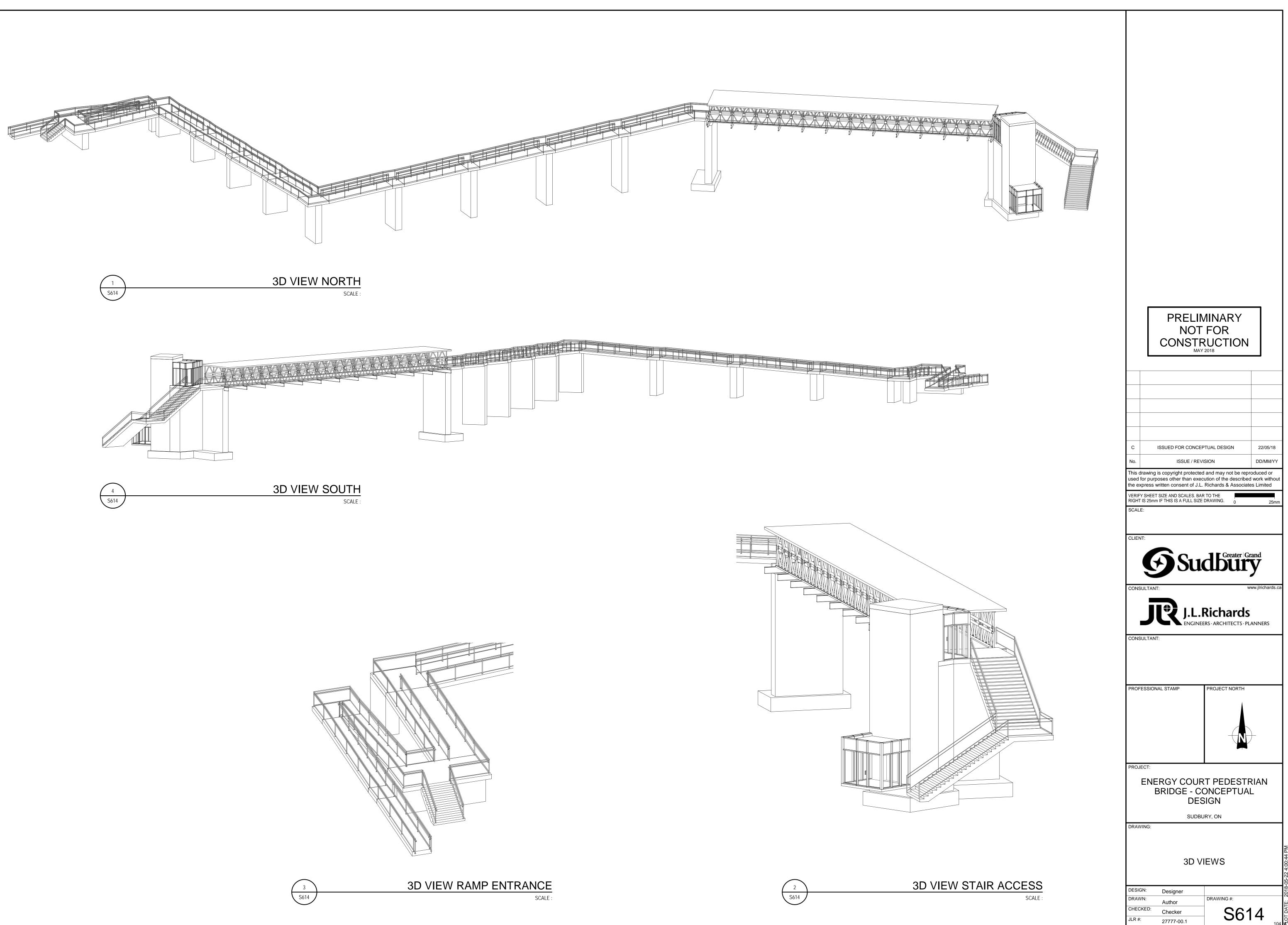
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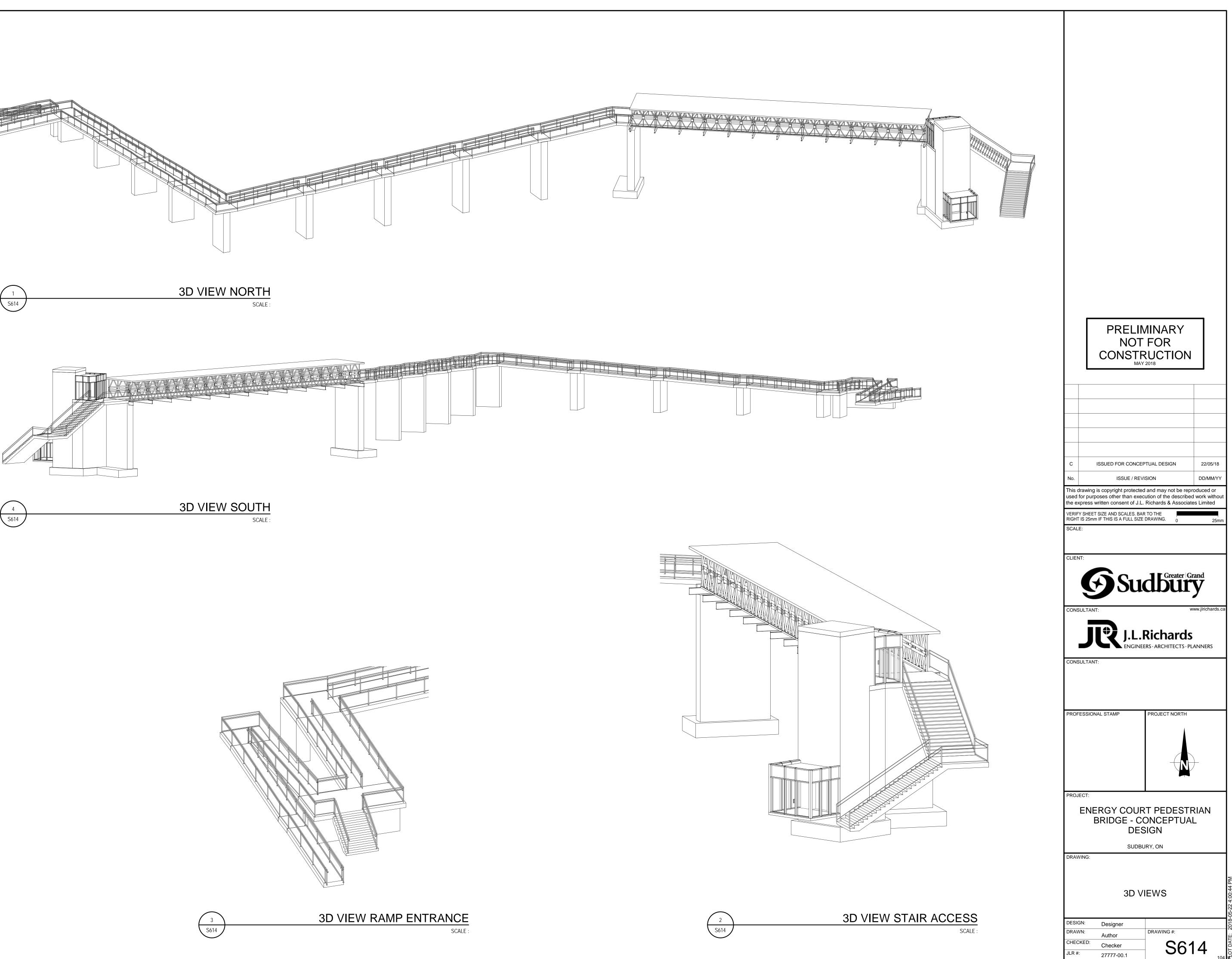
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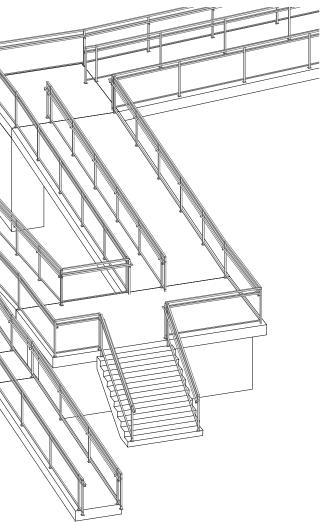
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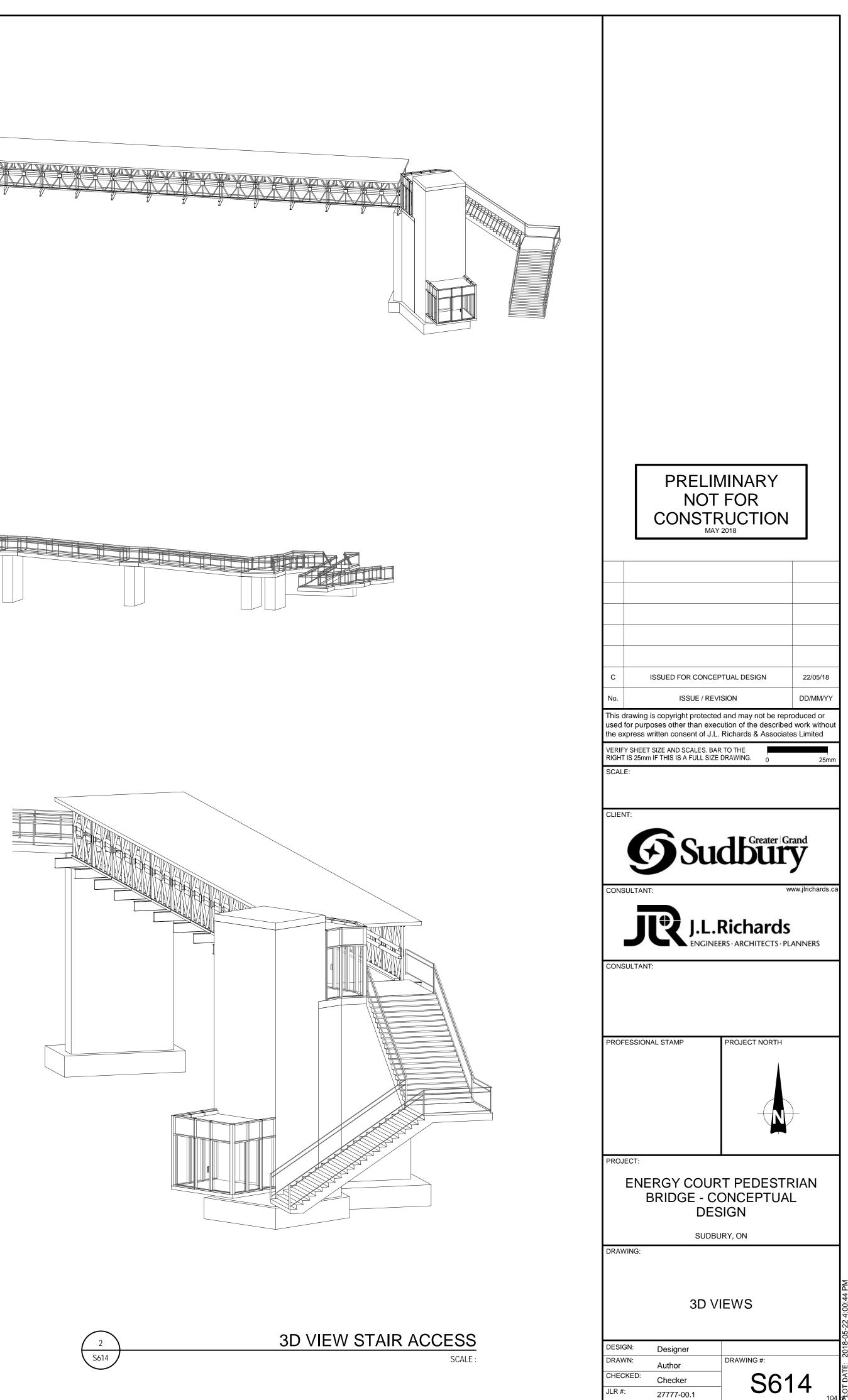


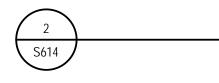












#### **Appendix B**

Class C Opinion of Probable Cost



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guelph@jlrichards.ca

#### Timmins

201-150 Algonquin Blvd. East Timmins ON Canada P4N 1A7 Tel: 705 360-1899 timmins@jlrichards.ca



## Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est



# Municipal Parking Stationnement Municipal



- 1 Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est
- 2 Shaughnessy Street West Lot Terrain de la rue Shaughnessy Ouest
- 3 Shaughnessy B Street Lot Terrain de la rue Shaughnessy B
- 4 Sudbury Arena Annex Lot Terrain de l'annexe de l'Aréna de Sudbury
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- 10 Larch Street Lot Terrain Larch
- 11 Elgin @ Larch Street Lot Terrain Elgin au coin de la rue Larch
- 12 Energy Court Lot Terrain de la cour Energy
- 13 Beech Street Lot Terrain Beech
- 7 Centre for Life / YMCA Lot
   Centre pour la vie
   (YMCA/Centre des aînés ParkSide)
- 14 Tom Davies Square underground parking Place Tom Davies Stationnement souterrain



#### Shaughnessy Street West Lot Terrain de la rue Shaughnessy Ouest





- 1 Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est
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### Shaughnessy B Street Lot Terrain de la rue Shaughnessy B





- 1 Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est
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### Sudbury Arena Annex Lot Terrain de l'annexe de l'Aréna de Sudbury





- 1 Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est
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#### Sudbury Arena Lot Terrain de l'Aréna de Sudbury





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### CPR Lot / Elgin Street Lot Terrain de la rue Elgin/CP Rail





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- 14 Tom Davies Square underground parking Place Tom Davies Stationnement souterrain



#### Centre for Life / YMCA Lot Centre pour la vie (YMCA)



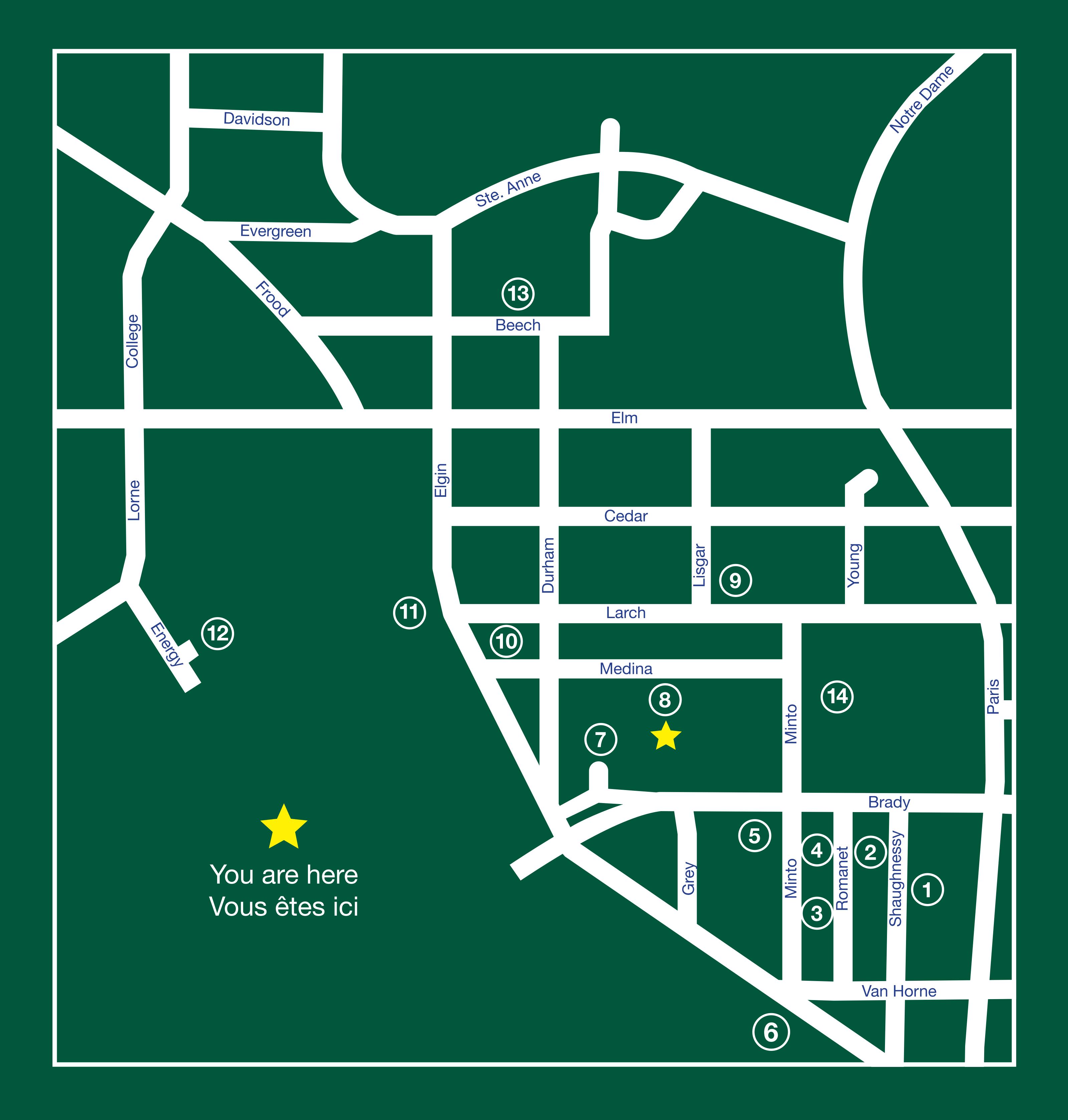


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#### Medina Lane Lot Terrain de la ruelle Médina





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#### Larch @ Lisgar Street Lot Terrain Lisgar





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### Larch Street Lot Terrain Larch





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### Elgin @ Larch Street Lot Terrain Elgin au coin de la rue Larch





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- 14 Tom Davies Square underground parking Place Tom Davies Stationnement souterrain



### Energy Court Lot Terrain de la cour Energy





- 1 Shaughnessy Street East / Theatre Lot Terrain de la rue Shaughnessy Est
- 2 Shaughnessy Street West Lot Terrain de la rue Shaughnessy Ouest
- 3 Shaughnessy B Street Lot Terrain de la rue Shaughnessy B
- 4 Sudbury Arena Annex Lot Terrain de l'annexe de l'Aréna de Sudbury
- 5 Sudbury Arena Lot Terrain de l'Aréna de Sudbury
- 6 CPR Lot / Elgin Street Lot Terrain de la rue Elgin/CP Rail
- 8 Medina Lane Lot Terrain de la ruelle Médina
- 9 Larch @ Lisgar Street Lot Terrain Lisgar
- 10 Larch Street Lot Terrain Larch
- 11 Elgin @ Larch Street Lot Terrain Elgin au coin de la rue Larch
- 12 Energy Court Lot Terrain de la cour Energy
- 13 Beech Street Lot Terrain Beech
- 7 Centre for Life / YMCA Lot
   Centre pour la vie
   (YMCA/Centre des aînés ParkSide)
- 14 Tom Davies Square underground parking Place Tom Davies Stationnement souterrain



#### Beech Street Lot Terrain Beech





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### Tom Davies Square Place Tom Davies





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#### City of Greater Sudbury Charter

WHEREAS Municipalities are governed by the Ontario Municipal Act, 2001;

**AND WHEREAS** the City of Greater Sudbury has established Vision, Mission and Values that give direction to staff and City Councillors;

**AND WHEREAS** City Council and its associated boards are guided by a Code of Ethics, as outlined in Appendix B of the City of Greater Sudbury's Procedure Bylaw, most recently updated in 2011;

**AND WHEREAS** the City of Greater Sudbury official motto is "Come, Let Us Build Together," and was chosen to celebrate our city's diversity and inspire collective effort and inclusion;

**THEREFORE BE IT RESOLVED THAT** Council for the City of Greater Sudbury approves, adopts and signs the following City of Greater Sudbury Charter to complement these guiding principles:

**As Members of Council, we hereby acknowledge** the privilege to be elected to the City of Greater Sudbury Council for the 2014-2018 term of office. During this time, we pledge to always represent the citizens and to work together always in the interest of the City of Greater Sudbury.

#### Accordingly, we commit to:

- Perform our roles, as defined in the Ontario Municipal Act (2001), the City's bylaws and City policies;
- Act with transparency, openness, accountability and dedication to our citizens, consistent with the City's Vision, Mission and Values and the City official motto;
- Follow the Code of Ethical Conduct for Members of Council, and all City policies that apply to Members of Council;
- Act today in the interest of tomorrow, by being responsible stewards of the City, including its finances, assets, services, public places, and the natural environment;
- Manage the resources in our trust efficiently, prudently, responsibly and to the best of our ability;
- Build a climate of trust, openness and transparency that sets a standard for all the City's goals and objectives;
- Always act with respect for all Council and for all persons who come before us;
- Ensure citizen engagement is encouraged and promoted;
- Advocate for economic development, encouraging innovation, productivity and job creation;
- Inspire cultural growth by promoting sports, film, the arts, music, theatre and architectural excellence;
- Respect our historical and natural heritage by protecting and preserving important buildings, landmarks, landscapes, lakes and water bodies;
- Promote unity through diversity as a characteristic of Greater Sudbury citizenship;
- Become civic and regional leaders by encouraging the sharing of ideas, knowledge and experience;
- Work towards achieving the best possible quality of life and standard of living for all Greater Sudbury residents;



ATTENDU QUE les municipalités sont régies par la Loi de 2001 sur les municipalités (Ontario);

**ATTENDU QUE** la Ville du Grand Sudbury a élaboré une vision, une mission et des valeurs qui guident le personnel et les conseillers municipaux;

**ATTENDU QUE** le Conseil municipal et ses conseils sont guidés par un code d'éthique, comme l'indique l'annexe B du Règlement de procédure de la Ville du Grand Sudbury dont la dernière version date de 2011;

**ATTENDU QUE** la devise officielle de la Ville du Grand Sudbury, « Ensemble, bâtissons notre avenir », a été choisie afin de célébrer la diversité de notre municipalité ainsi que d'inspirer un effort collectif et l'inclusion;

**QU'IL SOIT RÉSOLU QUE** le Conseil de la Ville du Grand Sudbury approuve et adopte la charte suivante de la Ville du Grand Sudbury, qui sert de complément à ces principes directeurs, et qu'il y appose sa signature:

À titre de membres du Conseil, nous reconnaissons par la présente le privilège d'être élus au Conseil du Grand Sudbury pour le mandat de 2014-2018. Durant cette période, nous promettons de toujours représenter les citoyens et de travailler ensemble, sans cesse dans l'intérêt de la Ville du Grand Sudbury.

#### Par conséquent, nous nous engageons à :

- assumer nos rôles tels qu'ils sont définis dans la Loi de 2001 sur les municipalités, les règlements et les politiques de la Ville;
- faire preuve de transparence, d'ouverture, de responsabilité et de dévouement envers les citoyens, conformément à la vision, à la mission et aux valeurs ainsi qu'à la devise officielle de la municipalité;
- suivre le Code d'éthique des membres du Conseil et toutes les politiques de la municipalité qui s'appliquent à eux;
- agir aujourd'hui pour demain en étant des intendants responsables de la municipalité, y compris de ses finances, biens, services, endroits publics et du milieu naturel;
- gérer les ressources qui nous sont confiées de façon efficiente, prudente, responsable et de notre mieux;
- créer un climat de confiance, d'ouverture et de transparence qui établit une norme pour tous les objectifs de la municipalité;
- agir sans cesse en respectant tous les membres du Conseil et les gens se présentant devant eux;
- veiller à ce qu'on encourage et favorise l'engagement des citoyens;
- plaider pour le développement économique, à encourager l'innovation, la productivité et la création d'emplois;
- être une source d'inspiration pour la croissance culturelle en faisant la promotion de l'excellence dans les domaines du sport, du cinéma, des arts, de la musique, du théâtre et de l'architecture;
- respecter notre patrimoine historique et naturel en protégeant et en préservant les édifices, les lieux d'intérêt, les paysages, les lacs et les plans d'eau d'importance;
- favoriser l'unité par la diversité en tant que caractéristique de la citoyenneté au Grand Sudbury;
- devenir des chefs de file municipaux et régionaux en favorisant les échanges d'idées, de connaissances et concernant l'expérience;
- viser l'atteinte de la meilleure qualité et du meilleur niveau de vie possible pour tous les résidents du Grand Sudbury.