



# **Public Works and Infrastructure Committee**

**Thursday, April 18, 2019  
4:00 PM**

**Henry Baker Hall, Main Floor, City Hall**



---

**OFFICE OF THE CITY CLERK**

---

**Public Agenda  
Public Works and Infrastructure Committee  
Thursday, April 18, 2019**

**Approval of Public Agenda****Adoption of Minutes**

Minutes of the meeting held on March 7, 2019.

**Administration Reports**

PWI19-7 Noise Attenuation

**Recommendation**

1. That Administration be directed to report back to Public Works & Infrastructure Committee with recommendations for an updated Roadway Noise Policy by Q1 2021 which:
  - a. modernizes the acceptable methodologies and materials for design and implementation of noise attenuation
  - b. maintains requirements for the provision of noise attenuation in new neighbourhoods where required
  - c. reviews the requirement for the City of Regina to monitor and install noise attenuation for existing development locations exceeding the established limit.
2. That the 1990 Roadway Noise Attenuation Policy be amended to remove the requirement for the Administration to monitor roadway noise in established neighbourhood locations for compliance until such time as a new policy is adopted.
3. That EX16-27 be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.



---

**OFFICE OF THE CITY CLERK**

---

**PWI19-8 Safety in School Zones – School Zone Safety Audit****Recommendation**

1. That the following amendments to *The Regina Traffic Bylaw, 1997*, No. 9900 (the “*Traffic Bylaw*”) be approved and come into force on September 1, 2019:
  - a. reducing the speed to 30 kilometres per hour from 7 a.m. to 7 p.m. in school zones and playground zones to enhance pedestrian safety
  - prohibiting U-turns in school zones
2. That the City Solicitor be instructed to prepare the necessary bylaw to authorize the respective *Traffic Bylaw* amendments.
3. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

**PWI19-9 Lead Service Connection Management Program Update****Recommendation**

That this report be received and filed.

**PWI19-10 Placemaking: Community Street Painting Program****Recommendation**

1. That City Council approve the following amendment to *The Regina Traffic Bylaw, 1997, No. 9900 (Traffic Bylaw)*:
  - a) Add “Street Painting Event, \$400 per permit” to *Schedule “J” – Fees and Charges*.
2. That the City Solicitor be instructed to amend the *Traffic Bylaw* to reflect the change proposed in recommendation 1(a) of this report.
3. That *CR18-36* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

**Adjournment**

AT REGINA, SASKATCHEWAN, THURSDAY, MARCH 7, 2019

AT A MEETING OF PUBLIC WORKS AND INFRASTRUCTURE  
COMMITTEE  
HELD IN PUBLIC SESSION

AT 4:00 PM

**These are considered a draft rendering of the official minutes. Official minutes can be obtained through the Office of the City Clerk once approved.**

Present: Councillor John Findura, in the Chair  
Councillor Lori Bresciani (Teleconference)  
Councillor Jason Mancinelli  
Councillor Andrew Stevens

Regrets: Councillor Barbara Young

Also in Attendance: Council Officer, Donna Mitchell  
City Solicitor, Byron Werry  
Legal Counsel, Jayne Krueger  
Executive Director, City Planning & Community Development, Diana Hawryluk  
Executive Director, Kim Onrait, Citizen Services  
Director, Roadways & Transportation, Norman Kyle  
A/Director, Transit, Nathan Luhning  
Director, Water, Waste & Environmental Services, Pat Wilson  
Manager, Waste Diversion, Janet Aird  
Manager, Infrastructure Planning, Geoff Brown  
Manager, Water & Sewer Engineering, Kurtis Doney  
Manager, Urban Planning, Shanie Leugner

APPROVAL OF PUBLIC AGENDA

**Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the agenda for this meeting be approved, as submitted.**

ADOPTION OF MINUTES

**Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the minutes for the meeting held on February 7, 2019 be adopted, as circulated.**

ADMINISTRATION REPORTS

---

PWI19-3 Transportation Master Plan Annual Report

---

**Recommendation**

1. That this report be received and filed.
2. That item CR17-52 be removed from the Public Works and Infrastructure Committee outstanding items list.

**Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the recommendations contained in the report be concurred in.**

---

PWI19-4 Residential Roadway Repairs

---

**Recommendation**

1. That this report be received and filed.
2. That *MN16-9* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.

**Councillor Andrew Stevens moved, AND IT WAS RESOLVED, that the recommendations contained in the report be concurred in.**

---

PWI19-5 Waste Plan Regina – 2018 Update

---

**Recommendation**

That this report be received and filed.

**Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that this report be received and filed.**

---

PWI19-6 Wastewater Capacity Upgrades – South Trunk Project Issue Request for Proposals and Award Engineering Services Contract

---

**Recommendation**

1. That the Executive Director of Citizen Services, or designate, be authorized to initiate a public procurement process to engage consulting and professional engineering services for the Wastewater Capacity Upgrades - South Trunk Project.
2. That the Executive Director of Citizen Services, or designate, be authorized to negotiate, award, and enter into a contract with the highest-ranked proponent from the public procurement process.
3. That the City Clerk be authorized to execute a contract with the highest-ranked proponent upon approval of the Executive Director of Citizen Services or designate.

4. That this report be forwarded to the March 25, 2019 meeting of City Council for approval.

**Councillor Andrew Stevens moved, AND IT WAS RESOLVED:**

1. That the Executive Director of Citizen Services, or designate, be authorized to initiate a public procurement process to engage consulting and professional engineering services for the Wastewater Capacity Upgrades - South Trunk Project.
2. That the Executive Director of Citizen Services, or designate, be authorized to negotiate, award, and enter into a contract with the highest-ranked proponent from the public procurement process.
3. That the City Clerk be authorized to execute a contract with the highest-ranked proponent upon review and approval of the City Solicitor.
4. That this report be forwarded to the March 25, 2019 meeting of City Council for approval.

ADJOURNMENT

**Councillor Jason Mancinelli moved, AND IT WAS RESOLVED, that the meeting adjourn.**

The meeting adjourned at 5:35 p.m.

---

Chairperson

---

Secretary

April 18, 2019

To: Members  
Public Works and Infrastructure Committee

Re: Noise Attenuation

---

**RECOMMENDATION**

1. That Administration be directed to report back to Public Works & Infrastructure Committee with recommendations for an updated Roadway Noise Policy by Q1 2021 which:
  - a. modernizes the acceptable methodologies and materials for design and implementation of noise attenuation
  - b. maintains requirements for the provision of noise attenuation in new neighbourhoods where required
  - c. reviews the requirement for the City of Regina to monitor and install noise attenuation for existing development locations exceeding the established limit.
2. That the 1990 Roadway Noise Attenuation Policy be amended to remove the requirement for the Administration to monitor roadway noise in established neighbourhood locations for compliance until such time as a new policy is adopted.
3. That *EX16-27* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

**CONCLUSION**

The City of Regina's (City) existing Roadway Noise Attenuation Policy was adopted in 1990 to address the complex challenges of roadway noise. It requires high-speed, high-volume roadways within the city to maintain traffic noise levels below an established threshold, as well as stipulates data collection techniques and road noise attenuation design requirements.

As this policy is nearly 30 years old, Administration has concluded a review is required to modernize it, including but not limited to:

- update alignment with current terminology
- address current best practices in measurement, modelling and noise level standards

- consider current and potentially innovative designs and materials requirements for attenuation of roadway noise from high-speed, high-volume roadways, or less costly measures, such as earthen berms.

The City currently requires developers to ensure new residential developments adjacent to high speed/volume roadways install noise attenuation.

Where the policy will be exceeded, developers are required to install noise attenuation fencing. Developers are responsible for ensuring the fence is maintained until transferred to the ultimate registered property owner, as fencing is typically placed on private lands with a caveat attached for the property owner to maintain them.

Existing locations throughout the city have been monitored for compliance within the policy for approximately four decades including most recently in 2014. Since the establishment of policy, locations exceeding the limit have not had noise attenuation implemented due to the high cost of implementation, and in some cases limited right of way.

Given the difficulty to construct new noise attenuation barriers in existing areas and the above noted factors, Administration recommends that roadway noise monitoring be suspended until such time as a new policy is adopted by Council.

Further, an updated, modernized policy should be created for Council consideration and adoption into the City standards and bylaws as required.

## BACKGROUND

At the September 14, 2016 Executive Committee meeting, the following motion (*EX16-27*) was passed:

1. *That Administration review the City of Regina's current Noise Attenuation Policy to ensure that it meets current standards and that those standards are being complied with.*
2. *That Administration provide the results of the Noise Monitoring Study that was conducted in 2012.*
3. *That a report back to the Public Works and Infrastructure Committee in Q4 of 2017 with the findings of the review of the policy, the Noise Monitoring Study and recommendations on any changes and associated costs.*

The 2012 Noise Monitoring Study referenced in the motion was commissioned in 2013 and finalized in 2016.

The current Roadway Noise Attenuation Policy was developed by Stanley Associates Engineering Ltd. in 1990 and can be found in Appendix A. Since the adoption of the policy, Administration has completed noise monitoring along high-speed, high volume roadways to determine whether measured noise levels exceed the policy limits.



## DISCUSSION

Noise in municipalities is a complex issue, with primary contributing sources including roadway, air and railway traffic. Other community noise sources include commercial and industrial activities, construction, special events such as concerts, extreme weather conditions and noise associated with normal daily activity.

Of the primary sources, roadway noise for those residents who live near high-volume or high-speed roads, without noise attenuation measures in place may result in dissatisfaction as expressed through complaints to the City. As such, the City, like other municipalities, addresses roadway noise separately from the considerations associated with other noise sources.

### **1.0 Current State**

The current policy stipulates the maximum noise levels that should be maintained for properties adjacent to freeways, expressways and divided arterials, with the exception of locations where abutting lands are zoned industrial or commercial. Developers are responsible for ensuring noise attenuation is installed in new neighbourhoods based on 20-year traffic projections. The policy also dictates the attenuation's minimum level of noise reduction required, in addition to minimum and maximum heights, density and design life. Notably, the policy also stipulates that noise barriers should be technically and economically feasible to install.

Since the time the policy was first developed, vehicle noise emissions, noise abatement technologies and City infrastructure plans have all changed. Additionally, the policy itself is in need of modernization, including but not limited to, alignment with current terminology, addressing contemporary best practices in measurement, modelling and standards, as well as considering current innovative designs and materials.

Since adoption of the policy, noise measurements have been collected and predictions forecasted to determine if existing noise levels or forecasted noise levels exceed the policy limit. Noise monitoring has been conducted for various periods throughout the 1980s, 1990s and 2000s, with the most recent collection in 2014.

From time to time, some residents abutting high-speed roadway locations have raised concerns regarding roadway noise or expressed an interest in the implementation of noise attenuation measures. Noise attenuation projects have not proceeded on locations where concerns were raised because:

- The noise did not exceed the policy limit.
- When the City offered a limited cost-sharing arrangement to fund construction of noise attenuation measures, the majority of residents declined to proceed.
- Past Administration proposals for noise attenuation projects for locations exceeding the threshold did not receive budget approval.

### **1.1 Noise Attenuation Implementation in Existing Areas**

Few noise attenuation measures have been implemented in existing areas of the city, while new development areas have seen some noise attenuation constructed as part of development agreements, based on noise impact studies. Proposed City-funded noise attenuation projects have typically failed to secure the required funding to proceed.

### **1.2 New Development Noise Wall Implementation**

The City requires a noise assessment during the planning stages of new developments as part of the Traffic Impact Assessment (TIA). The requirement to construct a barrier fence is typically identified as an obligation within the Servicing Agreement between the City and the Developer.

### **1.3 Golder Study Summary**

The City commissioned Golder Associates Ltd. (Golder) to conduct a roadway noise mitigation study for 10 major transportation routes to determine if these areas met the policy threshold for acceptable sound levels. The purpose of the study was to assess the locations through data collection and recommend areas that may require retrofitted noise attenuation measures. To complete the study, Golder collected noise data utilizing 14 points of reception with 24 hours of real-time continuous data collection in each outdoor residential location.

Noise unrelated to roadway traffic, including weather, rail or air traffic was omitted. Golder predicted future noise levels to 2024 to identify which areas may require mitigation measures as per the policy.

From the collected data, Golder indicated two locations which currently exceed the current policy limits for noise:

- Ring Road adjacent to Dewdney Avenue
- Highway 1 Bypass near Shannon Road

Golder indicated 2.3 kilometers of noise attenuation would be required to address these two locations. The report also provided 24 additional noise attenuation locations which were projected to exceed the policy limits by 2024. The proposed locations represent an additional 12.24 kilometers of noise attenuation barriers.

## **2.0 Future State Recommendations**

As the City has funded ongoing noise monitoring without the actual implementation of mitigation or attenuation measures to date, as per the policy, Administration considered the following options:

### **Option 1 – Maintain Status Quo (Not Recommended)**

The City would continue to monitor roadway noise volumes and submit capital budget requests for construction of noise attenuation in accordance with the policy.

The most recent data collected indicates two locations require noise attenuation barriers. The proposed noise barriers for these locations are 2.3 kilometres in length and capital costs are estimated at approximately \$3.5 million. The scope of the proposed work would benefit approximately 130 dwelling units for an approximate average cost of \$27,000 per unit. These costs are high-level estimates and may be impacted by design constraints.

The most recent noise modelling indicates that a total 12.24 kilometres of noise attenuation will be required in the next six years. The estimated capital cost of the additional noise attenuation barriers is approximately \$17 million, for a total of \$20.5 million which would be required in future capital budget submissions.

Newly constructed noise barriers would also have additional associated annual operating costs for maintenance and repairs.

Noise monitoring and modelling over the same six-year period is estimated to cost \$260,000. Administration does not recommend this option based on the cost/benefit analysis and given the previous inability to secure funding for proposed projects in the past.

### **Option 2 – End Noise Monitoring & Noise Barrier Installations (Not Recommended)**

The City would cease to gather roadway noise data for existing locations and no longer submit budget requests for construction projects. New development locations would continue with noise attenuation requirements. A revised policy would remove the City's obligation to monitor existing areas for roadway noise or implementation of noise attenuation.

Noise monitoring savings over a six-year period is estimated at \$260,000, ensuring further costly data collection is not undertaken given that the data collected to date has not been successfully acted upon.

Neither the current 2.3 kilometers of required noise attenuation barriers would be installed, nor the proposed 12.24 kilometres of noise attenuation required within the next six years. This could result in estimated total capital savings of approximately \$20.5 million from future capital budget submissions.

Administration does not recommend this option as it does not address community concerns around roadway noise and would not provide Administration with any tools to address these concerns. It also does not provide consistency for residents in established areas compared with new developments.

### **Option 3 – Temporarily Suspend Noise Monitoring and Update the Roadway Noise Policy (Recommended)**

Administration updates the policy to make it more consistent with other municipalities and best practices. This would include reviewing and updating the measurement requirements, acceptable noise levels for new and existing developments and modernizing the acceptable methodologies

and materials for design and implementation of noise attenuation.

The City would temporarily suspend noise monitoring and defer construction of noise barriers in established areas until a new policy is adopted. New developments would still continue to be required to meet all pertinent City standards, bylaws and the Policy on noise attenuation until a new policy is adopted.

Development locations pose the greatest opportunity for robust and cost-effective implementation of noise attenuation features in the city of Regina. Going forward, maintaining developer requirements for noise attenuation is a responsible step in ensuring an attainable long-term strategy for addressing roadway noise in the city. This ensures the City's noise attenuation infrastructure deficit gap does not increase over time, as compared to the policy in place when development occurred.

This option is recommended as an updated policy would better align with best practices and modern techniques to mitigate noise from traffic. This would provide a more consistent approach in dealing with traffic noise concerns and may provide more cost-effective solutions. The updated Policy would then be brought back to Council for approval.

## RECOMMENDATION IMPLICATIONS

### Financial Implications

Suspending the City's Roadway Noise Monitoring Program will reduce future capital budget requests for monitoring by the approximately \$43,000 annually until a new policy is in place.

Noise attenuation construction that may be required under a new policy would be brought forward through future budget requests.

Additionally, an updated policy will require a submission in the 2020 budget for the provision of consulting expertise.

### Environmental Implications

None with respect to this report.

### Policy and/or Strategic Implications

None with respect to this report. *Design Regina: The City's Official Community Plan Bylaw No. 2013-48* and the *City Transportation Master Plan* do not provide policy directions regarding roadway noise.

### Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

A Developer communication plan will be included in work undertaken to update the policy and any other engineering design standards, related bylaws, policy or documents impacted.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'N. Kyle', written in a cursive style.

Norman Kyle, Director  
Roadways & Transportation

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kim Onrait', written in a cursive style.

Kim Onrait, Executive Director  
Citizen Services

Report prepared by:

Carolyn Kalim, Manager, Traffic Engineering and Geoff Brown, Manager, Infrastructure Planning

## Appendix A

Stanley Associates Engineering Ltd.  
1170 - 8th Avenue  
Regina, Saskatchewan, Canada S4R 1C9  
Telephone (306) 757-3581  
Fax (306) 359-0233

1990 April 19  
File: 59-045-10-10 C

City of Regina  
P.O. Box 1790  
Regina, Saskatchewan  
S4P 3C8

Attention: Mr. A.N. Duff  
Manager Traffic Engineering

Dear Sir:

Reference: Roadway Noise Attenuation Policy

Please find enclosed our Roadway Noise Attenuation Policy report for the implementation of a traffic noise standard along major roadways in the City.

The report contains procedures and standards to implement a traffic noise level policy of 65 dBA Ldn.. Procedures to identify and prioritize candidate sites in developed areas for barriers as well as policy guidelines for new development are also presented herein.

The assistance provided by City personnel in the preparation and review of this report was most appreciated.

Should you have any questions or comments, please feel free to contact the undersigned. We are prepared to assist with program implementation at your direction.

Yours truly,

STANLEY ASSOCIATES ENGINEERING LTD.

*D. L. Halliday*

David L. Halliday, P.Eng.  
Manager, Engineering Services

DLH/bv

Attachment



Canada Prix d'excellence  
Export à l'exportation  
Award canadienne

# CITY OF REGINA ROADWAY NOISE ATTENUATION POLICY

## Table of Contents

	<u>page</u>
<b>ATTENUATION POLICY</b>	
Section 1.0 INTRODUCTION	1.1
1.1 Purpose	1.1
1.2 Background	1.1
1.3 Glossary of Terms	1.2
Section 2.0 NOISE LEVEL MEASUREMENT PROCEDURE	1.6
Section 3.0 NOISE LEVEL PROJECTION PROCEDURE	1.7
Section 4.0 NOISE LEVEL STANDARDS	1.8
Section 5.0 ACOUSTICAL BARRIER DESIGN STANDARDS	1.9
Section 6.0 PRIORITIZATION OF CANDIDATE SITES - EXISTING DEVELOPMENT	1.14
Section 7.0 IMPLEMENTATION - NEW DEVELOPMENT	1.16

**CITY OF REGINA**  
**ROADWAY NOISE ATTENUATION POLICY**



## **1.0 INTRODUCTION**

---

### **1.1 PURPOSE**

The purpose of the Roadway Traffic Noise Attenuation Policy is:

To define acceptable standards for community noise levels originating from roadway traffic sources,

To define implementation strategies for roadway noise attenuation that are technically, administratively and economically feasible to implement, and

To provide standards, guidelines and procedures to effectively deal with roadway traffic noise in the land use, land development and transportation planning process.

### **1.2 BACKGROUND**

Transportation noise represents a major component of the total community noise found in many residential areas in the City of Regina. Although train and airport noise is evident in several areas of the City, vehicular traffic, and in particular heavy truck traffic, provide a major continuous noise source which impacts upon many City residents. These impacts range from general annoyance, speech interference, interference with radio or TV, through to sleep interference and reduced property values.

In recognition of the above and in response to several noise related complaints in specific problem areas, the City of Regina initiated a Noise Attenuation Policy Study to develop an acceptable design noise level and to identify noise barrier requirements adjacent to major roadways. As follow up to that study, this document has been prepared to identify mechanisms and procedures whereby a noise level standard of 65 dBA Ldn could be implemented to attenuate traffic noise along major roadways.

## GLOSSARY OF TERMS

The following definitions are provided as an aid in understanding acoustical terminology to those persons reading this policy document and to those involved in noise and land use planning and decision making including planners, elected officials, private developers and the general public.

### **A-Weighted Sound Level**

The sound level as measured on a sound level meter, using a setting that emphasizes the middle frequency components similar to response of the human ear. The A-weighted sound level is found to correlate well with subjective assessments of the annoying or disturbing effects of sounds.

### **Absorption**

Absorption is a property of materials that reduces the amount of sound energy reflected. Thus, the introduction of an "absorbent" into the surfaces of a room will reduce the sound pressure level in that room by virtue of the fact that sound energy striking the room surfaces will not be totally reflected. It should be mentioned that this is an entirely different process from that of transmission loss through a material, which determines how much sound gets into the room via the walls, ceiling and floor. The effect of absorption merely reduces the resultant sound level in the room produced by energy which has already entered the room.

### **Ambient Noise Level**

The sound level of background noise characteristic of an environment. Practically speaking, the level of a specific sound must be above the ambient noise level in order to be perceived.

**Annoyance**

General term encompassing adverse citizen opinion of a roadway that generally correlates with noise level increases caused by peak hour traffic or trucks. Annoyance is generally predicted by the amount the vehicular noise exceeds existing neighborhood noise.

**Attenuation**

A reduction in sound level in travelling from a source to a receiving point.

**Barrier**

A solid physical obstruction between the roadway and the observer, which interrupts the line of sight between them.

**Barrier Attenuation**

The reduction in level of sound travelling over hard ground resulting from a barrier between source and receiving point.

**Berm**

A mound of earth that interrupts the line of sight between a source and receiving point, thus acting as a barrier.

**Day-Night Average Sound Level (Ldn)**

Day-night sound level in dBA is derived by averaging time varying sound energy over the daytime (daytime Leq) with the varying sound energy over the nighttime (nighttime Leq) to which an additional ten decibel weighting is applied to the nighttime hours between 2200 and 0700.

**Decibel (dB)**

One tenth of a bel. Sound is measured in decibels. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Decibels are not linear units, but representative points on a

sharply rising (exponential) curve. Thus, 100 decibels represents 10 billion times as much acoustic energy as one decibel.

### **Equivalent Level (Leq)**

An hourly unit of noise. The Leq condenses an hour's worth of noise fluctuations into a single number, with units of dBA. The Leq is also called the "energy-equivalent level". Leq (24) is the average noise level over a 24 hour period.

### **Line Source of Noise**

A source of noise spread out into a line, such as the combined traffic on a roadway or railway.

### **Loudness**

A psychological quantity that corresponds to noise intensity where a ten-fold increase in noise energy results in a two-fold increase in loudness. Similarly, a ten-fold decrease in noise energy is heard as a halving of the loudness.

### **Noise Sensitive Land Uses**

Noise sensitive land uses include: residential, schools, libraries, churches, hospitals, auditoriums and outdoor recreation areas. These typify land uses whose suitability is restricted by intrusive noise, hence are termed "noise sensitive". Noise sensitivity factors include: interference with speech communication, subjective judgements of noise acceptability and relative noisiness, need for freedom from noise intrusion, and sleep interference criteria.

### **Point Source of Noise:**

A source of noise essentially concentrated at a single source, such as noise from a single vehicle.

## **Propagation**

The passage of sound energy from noise source to observer.

## **Road Classifications**

### Freeway

Divided roadway or street with fully controlled access with traffic to be free flowing and all intersections grade separated.

### Expressway

Divided roadway or street with fully controlled access. Intersections are controlled by traffic signals.

### Major Arterial I

Divided roadway with or without emergency lanes. No frontage allowed. Sidewalks optional.

## **Sound Insulation**

The use of structures and materials designed to reduce the transmission of sound from one room or area to another or from the exterior to the interior of a building.

1. For actual noise measurements, noise monitoring receptors shall be located in the ground level outdoor living space area, 1.5 m above typical ground elevation and approximately 3.0 m away from the dwelling wall, unless otherwise approved by the City of Regina Municipal Engineering Department.
2. For the purposes of calculating or measuring the interior noise level, the noise monitoring receptors shall be located approximately 3.0 m from the wall of the dwelling. This noise level may be used as a representative indicator of the interior noise level by subtracting from this noise level the generally accepted standard noise level reduction of 15 dBA (or greater depending on the use of acoustical building materials), that may be attributed to standard building face construction.
3. Noise levels shall be measured using the A-weighted 24 hour day-night sound level Ldn (24) expressed in decibels (dBA) and be based on the higher of the Average Annual Daily Traffic Volume or Summer Average Daily Traffic Volume for existing residential areas.
4. Ambient noise measurements to determine noise levels contributed by sources other than the roadway traffic noise in question shall be measured in the outdoor living space area 1.5 m above typical ground elevation and approximately 3.0 m away from the dwelling wall of the third row of dwellings away from the subject roadway.

**NOISE LEVEL PROJECTION PROCEDURE**

---

1. In the case of new residential development or in the evaluation of barriers, the twenty year projection of future traffic volumes will be used in noise studies.
2. Traffic volume projections will be provided by the Municipal Engineering Department.
3. Vehicle speed shall be the proposed or posted speed.
4. Truck volumes shall comprise 6% of the total projected traffic flow, unless known, by actual traffic count or by trip generation rates and land use.
5. Noise levels shall be calculated using traffic noise prediction methods approved by the City of Regina Municipal Engineering Department Traffic Division. These methods include: The Alberta Surface Transportation Noise Attenuation Study Manual for the Prediction of Surface Transportation Noise, the Canada Mortgage and Housing Corporation method, the Federal Highway Administration method Stamina 2.0/Optima. Other technically accurate methods of noise prediction shall be subject to Municipal Engineering Department approval. When appropriate, actual measurements with noise monitoring equipment shall be employed.
6. Noise levels shall be calculated as the A-weighted 24-hour day-night sound level Ldn (24) expressed in decibels (dBA).

1. The noise level standards of this policy shall apply to all existing or proposed transportation corridors with roadway classification "freeway", "expressway", or "Arterial I".
2. For existing or proposed transportation corridors abutting residential land, a noise level standard of 65 dBA Ldn shall apply subject to a maximum barrier height of 5.0 m, a minimum barrier height of 2.0 m, and a reduction of 5 dBA Ldn by the installation of a noise barrier.
3. For future or existing transportation corridors where abutting lands are to be zoned industrial or commercial, with good expectation that commercial buildings will occupy these lands and with enforcement of such zoning: no noise barrier standard shall apply.
4. The requirement for barriers for other land uses or zoning classifications shall be at the discretion of the City of Regina Municipal Engineering Department.
5. Where residential developments are being planned adjacent to existing or proposed transportation corridors, the developer shall be responsible for ensuring that noise levels in the ground level outdoor living space area do not exceed 65 dBA Ldn.
6. For residential development where the incident sound level at the facade of any dwelling unit is project to exceed 55 dBA Leq (24), the City shall require as a condition of approval that the building construction standard shall be in accordance with Canada Mortgage and Housing Corporation recommendations for "adequate sound insulation".



The following design requirements are not to be considered as all inclusive but specify minimum basic requirements for the design and construction of such facilities.

**General**

1. The noise barrier must be acoustically designed so as to reduce noise levels to the objective noise level of 65 dBA Ldn or less.
2. Design of any noise attenuation facility must be to the satisfaction of the City of Regina Municipal Engineering Department.
3. Where required by the City, all property required for noise attenuation facilities shall be in addition to road right-of-way requirements.
4. Design heights of noise attenuation facilities are 2.0 m, 2.5 m, 3.0 m, 4.0 m, 4.5 m and 5.0 m above top of footing and/or above general site grade unless otherwise approved by the City of Regina Municipal Engineering Department.
5. Changes in wall profile elevation greater than 2% shall be achieved by stepping successive sections.
6. Visual and physical relief at uniform intervals is required on both sides of the barrier by the use of posts or other approved means.
7. Changes in horizontal alignment shall occur at the posts by suitable means to avoid noise leaks at corners.
8. If a berm of a height of 2.0 m or more is used, a 3.0 m berm top is required. Noise attenuation walls or screen fences should be centered on the berm. The 1.5 m on the public side of the fence or wall should include 0.65 m rounding from the slope to the top. Where applicable, access and maintenance agreements shall be negotiated with abutting landowners.

9. The maximum slope on the public side of berms shall be 1 vertical to 4 horizontal.
10. Berm material shall be compacted to a minimum of 95% Standard Proctor Density.
11. Noise walls which are to be in whole or in part publicly maintained must be constructed of steel sheeting or concrete compound. Minimum density required is 9.76 kg/m<sup>2</sup> (2 lbs/ft<sup>2</sup>). The design life of the wall shall be a minimum of fifty (50) years with a minimum maintenance-free life of twenty (20) years.

### Materials

1. General - Any material used in the construction of noise barriers must meet the specified requirements for sound transmission loss and structural design.

All exposed steel components shall be hot dip galvanized after fabrication in accordance with the requirements of CSA Standard G164.

All reinforcing steel must be epoxy coated. The concrete cover shall be a minimum of 35 mm.

2. Steel Panels - Any profile which is vertically mounted is acceptable. Panels must be constructed of minimum 0.91 mm (nominal) galvanized steel (20 gauge) and coated with a "Barrier Series" vinyl coating system or approved equal, 0.2 mm thickness on the traffic side of the wall and a 0.1 mm thickness on the reverse side.

Pop-rivets shall be either aluminum with an aluminum mandrel or aluminum with a stainless steel mandrel.

PRIORITIZATION OF CANDIDATE SITES - EXISTING DEVELOPMENT

1. Candidate sites for noise attenuation shall be those with noise sensitive land use where noise level exposure in the ground level outdoor living space area nearest the roadway noise source is greater than 65 dBA Ldn.
2. Areas where barrier installations would not be technically or economically feasible will not be candidate sites. Such sites will include, but will not necessarily be limited to those sites where barrier heights required to meet the noise level standard would exceed 5 m or where property access requirements would prevent construction of an effective barrier.
3. Where noise level reduction due to a barrier is expected to be less than 5 decibels, a barrier is not considered to be cost effective. Such sites will not be candidate sites.
4. Where roadways are scheduled to be upgraded within the next 5 years; noise attenuation will be addressed at the time of roadway reconstruction.
5. Feasibility of barrier placement will respect future twenty year road right-of-way requirements.
6. Candidate sites will be prioritized using the Barrier Priority Index which is a relative measure of the noise attenuation cost benefit ratio for each site. The Barrier Priority Index is defined as:

$$BPI = \frac{(ENL - DNL)N}{C} \quad \text{where}$$

BPI = Barrier Priority Index

ENL = Estimated Noise Level in dBA Ldn based on current or projected traffic counts or actual noise measurement

DNL = Design Noise Level in dBA Ldn or the minimum noise level for consideration in prioritization (65 dBA Ldn)

N = Number of first row ground level dwelling units which would be protected by barrier attenuation

C = Barrier construction cost in thousands of dollars (including all associated costs such as utility modifications)

The value of the index increases with the traffic noise level and number of residences protected, and decreases with the cost. The larger the value of the index the higher the relative priority of the site.

7. Implementation of attenuation of candidate sites will be dependent upon budget allocations, priority ranking and cost/benefit analysis.

1. For proposed development adjacent to roadways where projected traffic noise levels exceed these standards, the Developer shall be responsible for provision of noise attenuation measures to meet the City of Regina Noise Level Standards.
2. Upon request from the Developer, the City of Regina Municipal Engineering Department will provide traffic volume projections for use in predicting noise levels.
3. The noise barrier shall be designed and accredited by a Professional Engineer. Six (6) copies shall be submitted to the City of Regina Municipal Engineering Department and shall include the following:
  - ▶ All design calculations
  - ▶ Detailed design drawings
  - ▶ Specifications regarding installation requirements, i.e. sequence of construction
  - ▶ Specifications for all materials
  - ▶ If requested by the City of Regina Municipal Engineering Department six (6) copies of the following shall also be submitted:
    - Effective sound transmission loss report
    - Noise reduction coefficient report.
4. Restrictive access and use agreements between the Developer and the City of Regina shall be entered into and registered against the lots abutting roadways where noise attenuation is to be provided.

Terms of the agreement are to be negotiated with the City of Regina Municipal Engineering Department and, in general, address the following:

- ▶ Location of barrier with respect to property line.
- ▶ For berms, top width, rounding, backslopes and, where applicable, positioning of barriers within a berm section.
- ▶ Drainage.
- ▶ Access restriction from roadway to abutting lots.
- ▶ Removal of and modifications or attachments to the barrier.
- ▶ Maintenance.
- ▶ Access by City of Regina.

April 18, 2019

To: Members  
Public Works and Infrastructure Committee

Re: Safety in School Zones – School Zone Safety Audit

---

### RECOMMENDATION

1. That the following amendments to *The Regina Traffic Bylaw, 1997*, No. 9900 (the “*Traffic Bylaw*”) be approved and come into force on September 1, 2019:
  - a. reducing the speed to 30 kilometres per hour from 7 a.m. to 7 p.m. in school zones and playground zones to enhance pedestrian safety prohibiting U-turns in school zones
2. That the City Solicitor be instructed to prepare the necessary bylaw to authorize the respective *Traffic Bylaw* amendments.
3. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

### CONCLUSION

Administration has completed a school zone safety audit which consisted of a review of existing school zones for size of zone, signage locations, parking and drop off locations, as well as overall safety. After the audit, proposed changes were reviewed by the Traffic Bylaw Working group to ensure they were acceptable. Administration is supportive of the School Zone Safety Committee’s proposed changes. In anticipation of potential changes to school zones for the 2019-2020 school year, Administration has also started pre-design work of all school zones.

The results of the audit are consistent with expected outcomes and Administration will continue to work with our community partners in implementing the proposed changes as time and budget permit

The following changes to school zones are proposed:

#### Amendments to the *Traffic Bylaw*:

- reducing the speed to 30 kilometres per hour from 7 a.m. to 7 p.m. in school zones and playground zones to enhance pedestrian safety
- prohibiting U-turns in school zones

#### Other Proposed Changes that Administration will undertake:

- pedestrian crosswalks in school zones to be constructed or upgraded to national standards, including ‘zebra crossings’ where appropriate

- education and collaboration with community partners to help ensure safety is addressed in a proactive manner, help ensure citizens understand the importance of complying with school zone regulations, and discouraging inappropriate driver behaviour
- signing of school zones and school areas to be consistent with national guidelines and best practices
- possible increase fine amount for stopping where prohibited in school zones. This change requires further investigation and will require a subsequent amendment to the *Traffic Bylaw*

## BACKGROUND

In response to Council Motion *MN16-4*, the School Zone Safety Committee consisting of subject matter experts, reviewed school zone safety issues and considered the following:

- school zone signage
- speeding
- pedestrian and vehicle movements
- parking concerns
- violations and fines
- educational opportunities
- school site layout concerns

This committee also considered the implementation, feasibility, costs, enforceability, expected compliance levels of safety improvement and impact on the community, including the road user in their proposed changes.

At the February 13, 2019 meeting of Executive Committee, report *EX18-16* was presented outlining the proposed changes for safety improvements in school zones. As noted in *EX18-16*, the committee was supportive of a multi-faceted approach to improving safety in school zones that used a balance of appropriate engineering controls, education, and enforcement. To support the implementation of proposed engineering controls, including changes to speed limits and school zone hours, an audit was first required to assess individual school zones to provide proper safety controls for their unique needs.

In response to *EX18-16*, the following motion was passed:

*Administration to complete its audit of existing school zones and playground zones to review signage locations, parking and drop-off locations and overall safety consideration; and provide a report to Public Works & Infrastructure Committee by Q2 2019 outlining recommended changes to:*

- *Speed zones*
- *U-turns*
- *Visibility and traffic calming initiatives*
- *Fines for speeding*
- *Other recommendations from the Traffic School Zone Safety Committee*



## **DISCUSSION**

Following the work of the Traffic School Zone Safety Committee, Administration began work on the School Zone Safety Audits (audits) for 93 school zones across the city. A framework was developed to ensure consistent application, which also recognizes specific considerations at each location and is outlined below.

### **School Zone Safety Audit**

A school zone safety audit was conducted for all school zones in the city. The evaluation methodology combined data collection and engineering analysis and research. Administration examined each school zone on a case-by-case basis, considering information gathered as noted above to produce individualized solutions. Administration engaged with representatives from each school to assess issues that are specific to their site.

Through the audit, a list of safety improvements for each school was developed. The short-term improvements can be done at the same time as a speed limit changeover and include school zone limits, intersection controls and sightlines near pedestrian crossings. The long-term items will be a part of future budget discussions and include installation of bus loading zones, curb extensions and pedestrian corridors.

### **Proposed Changes**

Upon completion of the safety audit, recommendations from the previously presented report, *EX18-16* are valid and Administration recommends proceeding with the initial recommendations. Below is a brief summary of those recommendations:

#### **School Zone Speed Limit**

Administration recommends changing school zone speed limits from 40 kilometres per hour to 30 kilometres per hour.

While the current speed of 40 kilometres per hour is not inherently unsafe, the recommendation to reduce speed zones to 30 kilometres per hour was put forward as a method to improve the safety in existing school zones and decrease risk. The 30-kilometre recommendation is based on research that indicates there is a substantial increase to the survival rates for pedestrians struck at this lower speed compared with the current 40 kilometres per hour limit.

Further, school zones by their nature have a high concentration of vulnerable persons who are still developing impulse control and depth perception and are more likely to act contrary to instruction, misjudge the risk or assume a motorist sees them.

Finally, 30 kilometres per hour is consistent with the many other comparable Canadian municipalities and is also consistent with the City of Regina's (City) speed reductions in construction zones on 50 kilometre per hour roads.

### Effective Hours and Days

Administration recommends changing the effective time for a school zone from 8 a.m. to 10 p.m. to 7 a.m. to 7 p.m. and maintaining the current 365 days per year operation of the school zones.

The 7 a.m. to 7 p.m. timeframe strikes a balance with lowering vehicle speeds during peak pedestrian times, including during, before and after school programming, while mitigating the impact on motorists in the zones that are largely inactive in the later evenings. Playground zones are also more likely to be used outside of school hours. A consistent approach for all zones encourages increased driver awareness which will have a distinct impact on safety.

Maintaining 365 days a year, operation of school zones is consistent with the current operation of the City's school zones. It also decreases the amount of awareness drivers must have with respect to the day of the week or time of year it is while passing through these zones. It also promotes consistency throughout the City with playground zones which are frequently used during summer months and weekends.

Consistent days and hours of operation across all zones means that some locations will have periods where the lower speed limit is in effect while the volume of pedestrian activity is low, however the trade-off is that there are zones during those times where the lower speeds will have a positive impact on safety.

### Prohibition of U-Turns in School Zones

Administration recommends prohibiting U-turns in school zones.

Vehicle U-turns within school zone limits represent a substantial risk to children. They are contrary to pedestrian expectations and are particularly dangerous for children who find these movements challenging to predict. U-turns are currently prohibited at signalized intersections, including pedestrian half signals, at flashing pedestrian corridors when activated, and at intersections controlled by school safety patrols. The recommendation will extend the prohibition to all intersections within the school zone, as well as midblock locations in school zones via a bylaw amendment, as previously recommended.

### Visibility of School Zones

Some speed violations in school zones are inadvertent as drivers fail to notice they entered a school zone. Increasing the visibility of school zones using alternative sign posts with reflective markings and zebra crossings are reasonably low-cost solutions, which will increase the awareness for drivers and help voluntary compliance rates. The zones will also be clearly established so drivers are more aware of where the zone begins and ends.

### School Zone Fines

Changes to the fine amount for no stopping will be considered through the Traffic Bylaw Working Group and if necessary, amendments to the *Traffic Bylaw* will be forwarded to the Public Works & Infrastructure committee in the future for consideration.

## IMPLICATIONS

### Financial Implications

The estimate to implement immediate changes to the school zones to go in effect September 1, 2019 is \$450,000. This will be funded from past fine revenue from the Automated Speed Enforcement Program (ASE) which the City has set aside for traffic safety initiatives. The ASE Program funding model has recently changed meaning the revenues will be lower in future budget years. Sufficient funds currently exist from ASE revenue to cover these expenses.

### Environmental Implications

None with respect to this report.

### Policy and/or Strategic Implications

The pursuit of an overall action plan for school zone safety supports the strategic priorities of the Official Community Plan (OCP), the Transportation Master Plan and the City's vision of promoting active transportation for residents to get to work and school.

Strategic priorities from the OCP that will be addressed through this work include:

- *Section C, Goal 4 - Ensure that new neighbourhoods and employment areas maximize infrastructure investments and quality of life through a compact and integrated built form.*
- *Section D1, Goal 2 - Support regional economic growth through an effective and efficient transportation system.*
- *Section D2, Goal 4 - Build a resilient city and minimize Regina's contributions to climate change.*
- *Section D3, Goal 1 - Offer a range of year-round sustainable transportation choices for all, including a complete streets framework.*
- *Section D3, Goal 3 - Integrate transportation and land-use planning in order to better facilitate walking, cycling, and transit trips.*
- *Section D3, Goal 4 - Optimize road network capacity.*
- *Section D3, Goal 5 - Promote active transportation for healthier communities.*
- *Section D4 Goal 1 - Meet regulatory requirements and industry best practices for design, construction and operation of infrastructure.*

This will contribute to achieving the City's outcomes for a connected, safe, and accessible community.

### Other Implications

The Traffic Bylaw Working Group is a multidisciplinary group of the Administration with members in Traffic Engineering, Bylaw Enforcement, Legal, Bylaw Prosecutions, Parking Branch, Regina Police Service and Planning & Development. The Traffic Bylaw Working Group reviewed these proposed amendments and supports the recommendation contained in this report.

In order to fully implement the changes by the start of the school year (September 1, 2019), approval is required at the April 29, 2019 meeting of City Council, due to the staff work required to implement these changes due to the large number of schools.

Accessibility Implications

None with respect to this report.

COMMUNICATION

Education and communication will play an important role in the successful implementation of any changes to the *Traffic Bylaw* and school zones in our community. Administration will work with our partners to launch a targeted education and advertising campaign for the fall of 2019, should recommendations be adopted. Communications may include PSA's, social media and messaging from the school boards and schools

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'N. Kyle', written in a cursive style.

Norman Kyle, Director  
Roadways & Transportation

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kim Onrait', written in a cursive style.

Kim Onrait, Executive Director  
Citizen Services

April 18, 2019

To: Members  
Public Works and Infrastructure Committee

Re: Lead Service Connection Management Program Update

---

### RECOMMENDATION

That this report be received and filed.

### CONCLUSION

Administration will continue to enhance the Lead Service Connection Management Program (LSCMP) within the existing budget. This will include:

- Increased lead service connection replacement
- Continued improvement of our construction practices
- Improved record keeping for both the City of Regina (City) and privately-owned lead service connections
- Exploration of the feasibility and implications of corrosion control technologies
- Continued public education and communication

### BACKGROUND

Ninety-five per cent of City-owned water service connections (see Appendix A) today are lead-free. In the past, up to 7,000 City-owned lead service connections were present. City records show that less than 3,600 remain at the beginning of 2019.

On June 26, 2017 (CR17-74), City Council approved additional elements for the LSCMP including a filter and testing program for residents (see Appendix B).

On April 30, 2018 (CR18-27), City Council was provided with an update of 2017 and proposed 2018 program activities. Administration was also directed to provide a report to Public Works & Infrastructure (PWI) Committee annually on the progress of the LSCMP.

### DISCUSSION

#### **2018 Program Description**

A number of new industry standards relating to managing lead service connections are expected in the near future. Earlier this year, Health Canada released *Health Canada's Guidelines for Canadian Drinking Water Quality Guideline Technical Document Lead* that reduced the maximum acceptable concentration of lead in drinking water from 0.010 mg/L to 0.005 mg/L. In

preparation for these and other proposed changes, proactive data collection and education was the primary focus of the 2017 and 2018 LSCMP. Specific 2018 program activities included the following:

- **Replacement:**
  - The City currently replaces the City-owned side of lead service connections when they break or during planned major road upgrades. The City-owned portion of the lead service connection is replaced during re-development of an existing property with a lead service connection. The City also replaces a City-owned lead service connection when requested by a property owner, where the private portion of the service connection is not lead.
  - The City replaced 144 City-owned lead service connections through City construction programs in 2018. This 32 per cent increase is up from 109 City-owned lead service connections replaced in 2017. In 2018, the City received and accepted eight applications to replace a City-owned lead service connection from residents. These replacements are scheduled to take place in 2019.
- **Random Testing Study:**

This testing program collects data by testing tap water in 50 to 100 homes each year in order to evaluate corrosion.

  - Testing participants were recruited through a combination of random selection as well as residents who expressed an interest in the program.
  - Sampling was completed at 90 residential homes. The other participants were obtained by contacting residents where City work related to the service connection occurred, and by responding to public requests.
  - The City's results indicate that the City should continue to enhance the program, based on Health Canada's guidance.
- **In-Home Point of Use Testing:**
  - The second testing program offered by the City provides eligible property owners and residents an option for lead testing. Property owners collect and submit their own tap water sample and the City covers the analytical costs.
  - In 2018, the City received 84 requests for In-Home Point of Use Testing. Of those, 14 have followed through with the testing. In 2017, three residents expressed an interest in this testing.
- **Filters:**

Eligible residents (see Appendix B) have the option to receive either a City-provided filter with replacement cartridges that last for one year or a one-time rebate of up to \$100.00.

  - In 2017, this program cost \$1,375.00 and provided:
    - four rebates at a total cost of \$360.
    - 19 City-provided filters costing approximately \$50.00 each, plus tax, at a total cost of \$1,012.32.

- In 2018, this program cost just over \$27,000.00 and provided:
  - 21 rebates at a total cost of \$2,020.
  - 315 City-provided filters in total costing approximately \$25,000.00
- In 2018, the City offered eligible residents the tap-mounted filter used in previous years and a new pitcher-style filter for residents that have non-standard kitchen taps.
- **Public Information:**
  - Educational material is provided on Regina.ca and directly to sampling participants regarding actions residents and property owners can take to reduce their potential exposure to lead.
  - An annual notification letter is provided to residents and owners of properties serviced by a City-owned lead service connection.
  - In late 2018, the City mailed 4,468 letters to all owners and residents of properties where records indicate that a City-owned lead service line is present. The letters provided actions residents can take and offered a free filter. The City received 752 service requests in 2018 in response to the notification representing more than 675 locations. Residents continue to respond to this mail-out into 2019.
  - A notification letter is sent to property owners affected by construction, where the lead service connection could be disturbed, that advised them of the LSCMP and filter and testing options.

## **2019 Program Enhancements**

Response to the City's annual notification is better than expected, with a resident or owner from approximately one-third of the addresses affected contacting the City. As the test results from 2018 fall in the range where Health Canada recommends additional enhancements, the LSCMP will implement improvements in 2019. These improvements include:

- **Increase lead service connection replacement**
  - The City is targeting a 10 per cent increase (up to 160 total) of lead service connection replacements in 2019. To accomplish this, the City will develop activities to provide more options to replace City-owned lead service connections. This is to ensure that the City can be more responsive to residents. The rate of lead service connection replacements will continue to increase as residents become more aware of options. It also helps to ensure that replacements are done in a manner that will be effective in reducing lead concentrations in tap water. Increasing the rate of City-owned lead service connections without property owner participation is not effective in reducing lead concentrations.
- **Continue Improving Construction Practices**
  - The City will continue to review construction practices to ensure that lead service connection replacements occur whenever the opportunity is available.
  - The City will explore other technical solutions such as service connection relining.

- Improve record keeping for both City and privately-owned lead service connections
  - The City will collect information on private lead service connections in conjunction with other City programs, such as meter replacement. The collected information will improve record keeping and track progress towards replacing lead service connections regardless of their ownership.
- Explore feasibility and implications of corrosion control technologies
  - The City will continue to explore the addition of a corrosion control chemical to the water to reduce lead in tap water. Work is currently ongoing to analyze the technical requirements and understand their implications. Changes to water chemistry are complex and can have impacts on the wastewater treatment system.
- Public education and communication
  - Continue an already established communication strategy to raise awareness of the various drinking water programs, including LSCMP. The City will repeat the annual notification letter, encouraging residents to get a free water filter and to assist the City in conducting water testing at residents' taps. This will be supported by other tactics including brochures, videos and Regina.ca content. The program will be monitored for effectiveness and additional tactics will be added as needed.

The above improvements are based on best management practices to achieve the goal of reducing the risk of lead at the tap.

These improvements are focused actions the City can take; however, to be effective in reducing the potential for lead in tap water, residents will have to use the information and supports, such as the filters provided. These actions will ensure the City is effectively managing the program, which is intended to remove all lead service connections from the City's water distribution system, while ensuring customers have the information and means to reduce their risk of lead exposure.

## RECOMMENDATION IMPLICATIONS

### Financial Implications

Assuming work is evenly distributed until all lead service connections are replaced and costs to replace lead service connections remain at historical averages, the proposed activities can be managed within the existing long-term financial model for the Utility and by itself, will not result in a rate increase. Unit costs to replace a lead service connection will be monitored as some replacements in older neighbourhoods require significantly more work including, in some cases, replacing sections of water main piping. If unit costs rise, future year budget allocations may be required.

The LSCMP is funded through both capital and operating utility funds.



The 2019 Utility Capital Budget includes funding for water infrastructure renewal. Lead service connection replacements are a portion of the work funded from this budget. No additional funding is required in 2019 to address additional expected lead service connection replacements that may result from increased resident and business owner awareness. The capital budget includes \$4.5 million for service connection replacement. A portion of this work would be replacing lead service connections.

The 2019 Utility Operational Budget also includes funding for the LSCMP. The operational funding is for staffing, filters, the Random Testing Study, communication needs and in-home point of use testing. The operational budget for the LSCMP is \$235,000.

#### Environmental Implications

None with respect to this report.

#### Policy and/or Strategic Implications

Over the long term, the LSCMP is consistent with the City's *Design Regina: The Official Community Plan* (OCP) as follows:

- A revised program will meet industry best practices for managing lead service connections (OCP D4 Goal 1 - Safe and Efficient Infrastructure).
- Additional financial resources to replace City-owned lead infrastructure helps make the City's LSCMP affordable and accessible to all property owners of Regina (OCP D11 Goal 5 - Social Inclusion: 13.19).
- Providing filters or a rebate for a filter, demonstrates that Regina is a caring community for all property owners, including those who are vulnerable and marginalized and who may not be able to afford lead service connection replacement (OCP D11 Goal 4 - Vulnerable and Marginalized Populations).
- Future program activities will encourage the replacement of both the City-owned and privately-owned lead service connections, helping to improve the condition of existing housing stock (OCP D6 Goal 2 - Existing Housing Stock: 8.9).

#### Other Implications

None with respect to this report.

#### Accessibility Implications

None with respect to this report.

#### COMMUNICATIONS

Information on the revised LSCMP is currently available on Regina.ca. Activities during 2019 will continue to focus on providing information to residents that may have a City-owned or privately-owned lead service connection. This information will include:

- Providing educational information to residents and property owners where partial lead service connections are replaced.
- Letters to property owners seeking volunteers to participate in water testing.
- Letters to property owners where a City-owned lead service connection is present, as well as information targeting property owners in areas where lead service connections may have been used on either side of the property line.
- Improved communication with residents whose service is impacted by a neighbouring lead service connection replacement.

#### DELEGATED AUTHORITY

The recommendation contained in this report is within the delegated authority of Public Works & Infrastructure Committee.

Respectfully submitted,



Pat Wilson, Director  
Water, Waste and Environmental Services

Respectfully submitted,



Kim Onrait, Executive Director  
Citizen Services

Report prepared by:  
Christopher Seeley, Manager of Infrastructure Delivery

## APPENDIX A

### Water Service Connection Responsibility



**Note:** While the water meter is inside the home, it is City-owned and maintained by the City.

Credit: City of London

## APPENDIX B

### Program Activities

#### Testing

Two types of testing are used to provide information for evaluating and if necessary, refining the Lead Service Connection Management Program (LSCMP). Testing tap water for lead serves many purposes, including:

- Determining the amount of corrosion.
- Assisting the City with setting priorities.
- Engaging consumers in understanding the issue.
- Determining adherence to government recommendations.

Tap water sampling can identify homes where further sampling and investigation should be done; however, water testing alone, particularly a single water test, cannot reliably determine if a property has a lead service connection.

#### Random Testing Study

The City of Regina (City) complete detailed annual sampling at 50 to 100 sites following industry guidelines recommended by Health Canada. The testing include 11 samples taken during a number of different conditions to simulate water use scenarios. Test locations are selected from volunteers living in private residences.

This testing provides in-depth information about lead including potential sources of lead and effectiveness of flushing. This testing program:

- Demonstrates adherence to industry lead testing best practices.
- Provides information to assist in further program development.
- Provides information to determine the level of future monitoring.

#### In-Home Point of Use Testing

The second monitoring approach provides free testing for interested residents and property owners. On request, City staff will cover the analytical costs for a single annual water test for eligible residents and property owners (approximately 12,000 buildings).

The voluntary tap water sampling program:

- Informs and empowers individual households to take action to reduce risk.
- Provides the City with information.

A single test does not reflect the actual risks posed by a lead service connection. As long as a lead service connection is present, periodic testing is advisable and the connection should

eventually be replaced.

All residents and property owners within the City are eligible to participate in free water testing where any of the following is true:

- The building was constructed prior to 1960 and is in a neighbourhood where other lead service connections are present.
- Records indicate that the building is served by a known City-owned lead service connection.
- The City-owned lead service connection was replaced in the last five years.
- There are incomplete historical records for the City-owned service connection material (i.e. material unknown) and the building is in a neighbourhood that has lead service connections present.

### **Filters (Rebate or Provision)**

Eligible residents and property owners are able to either receive: (i) a City-purchased and selected filter, certified to NSF International Standard 53 for lead removal; or, (ii) a rebate of up to \$100.00 for the purchase of a NSF 53 filter certified for lead removal. NSF 53 is a standard published by NSF International that sets minimum requirements for the certification of an in-home filtration system to remove drinking water contaminants, such as lead. Each resident owner of a property are able to access a rebate or filter once per property.

A water filter or water filter rebate is offered to residents and property owners who meet the following criteria:

- Records indicate that the building is served by a City-owned lead service connection.
- The building is confirmed to be served by a private lead service connection.
- Water in the building has been tested for lead and exceeds Health Canada Guidelines.
- A location in which a partial lead service connection replacement has occurred.

Rebates are provided for invoices dated January 1, 2016 or later.

April 18, 2019

To: Members  
Public Works and Infrastructure Committee

Re: Placemaking: Community Street Painting Program

---

### RECOMMENDATION

1. That City Council approve the following amendment to *The Regina Traffic Bylaw, 1997, No. 9900 (Traffic Bylaw)*:
  - a) Add “Street Painting Event, \$400 per permit” to *Schedule “J” – Fees and Charges*.
2. That the City Solicitor be instructed to amend the *Traffic Bylaw* to reflect the change proposed in recommendation 1(a) of this report.
3. That *CR18-36* be removed from the List of Outstanding Items for Public Works & Infrastructure Committee.
4. That this report be forwarded to the April 29, 2019 meeting of City Council for approval.

### CONCLUSION

Administration will establish a permanent Community Street Painting Program starting in 2019 following the successful Street Painting Pilot Project undertaken in 2017 and 2018.

This program will require community groups to apply for a permit and upon approval by Administration, be permitted to secure a temporary closure of a city road for a street painting event, subject to compliance with temporary street use permit requirements.

The recommended fee for an event is \$400 per permit as proposed in Appendix A. The fee will ensure the cost of administering the application process is covered in addition to the provision of a temporary traffic control plan and the traffic control set up/tear down by City of Regina (City) operational staff.

### BACKGROUND

In 2017, Administration undertook a Street Painting Pilot Project (Pilot Project) in collaboration with the Cathedral Area Community Association and Cathedral Village Arts Festival. The placemaking event saw members of the community gather on a temporarily closed portion of the roadway at the intersection of 14th Avenue and Montague Street to create a public art installation designed by the Neil Balkwill’s artist in residence, Brendan Schick.

In 2018, Administration brought forward report CR18-36 “*Placemaking: Street Painting Project Update*” with the recommendation for an expansion of the Pilot Project as detailed in Appendix B.

At the April 30, 2018 City Council meeting, the following was passed:

- 1. That City Council approve the expansion of the Street Painting Pilot Project up to a maximum of three additional locations in 2018. These locations will include Harbour Landing, Downtown Business Improvement District and the Warehouse Business Improvement District and are subject to the locations meeting the criteria of the Pilot Project.*
- 2. That City Council direct Administration to bring back a report in 2019 with the Pilot Project findings and any recommendations for a future program.*

## **DISCUSSION**

### **Regina’s Cultural Plan**

Regina’s Cultural Plan defines placemaking as a holistic and community-driven approach to adaptive, inclusive and flexible public spaces through art and design. A street painting event contributes to placemaking by providing an opportunity for a community to gather for the purpose of a collaborative, artistic endeavour that provides a sense of community, inclusion or cultural representation.

### **Pilot Project Findings**

The three locations shown in Table 1 were evaluated as part of the Pilot Project.

**Table 1: Pilot Project Locations**

<b>Location</b>	<b>Installation Date</b>	<b>Group</b>
14th Avenue & Montague Street	September 30, 2017	Cathedral Area Community Association & Cathedral Village Arts Festival
James Hill & Aerodrome Road	June 11, 2018	École Harbour Landing Elementary School
8th Avenue & Hamilton Street	September 2, 2018	Warehouse Business Improvement District

The evaluation of the Pilot Project considered various factors including the rate of community participation and satisfaction, alignment to the goals of Regina’s Cultural Plan, impact to public safety, impact to traffic flow, paint quality/longevity and City cost implications.

## **Community Participation and Satisfaction**

The events at each of these locations saw numerous participants engaged with the street painting events. The various projects demonstrated a diverse approach to placemaking. For example, the Cathedral area event engaged with the Neil Balkwill Artist in Residence Program in conjunction with Culture Days. Conversely, the Harbour Landing location was a youth-driven project at École Harbour Landing School and the Warehouse location was designed to match the character of the Warehouse Business Improvement District.

The rate of participation, positive feedback received from participants and the alignment with the City's goals of fostering creativity, supporting the artistic and cultural community, strengthening social cohesion and expansion of events reflective of diverse community interests, was well met by all the respective projects.

Throughout the Pilot Project Administration has been in direct contact with the Warehouse Business Improvement District, Downtown Business Improvement District and the Cathedral Area Community Association as all these groups had shown a desire and interest in this type of project. Their interest and feedback has helped to form the recommendation of a permanent program.

Administration from Citizen Services and Community Services will continue to work together for both the determination of locations, as well as appropriateness of the artwork for approved placemaking locations.

## **Paint Longevity and Traffic Flow**

The Pilot Project's 2018 expansion permitted higher traffic locations than in 2017. An evaluation of the paint treatments at various locations confirmed that higher traffic volume directly correlated with a decreased quality and longevity of the artwork. The winter season was also highly detrimental to the artwork regardless of traffic volumes and as such future works should be expected to last for the year of completion only. Images of the paint treatments can be found in Appendix C.

All events included temporary traffic controls to provide a safe road closure and appropriate guidance was given to motorists to ensure safety.

The City did not observe and is not aware of any issues with tire traction on the painted surfaces. Applicants were required to source only pre-approved paint products that were mixed with silica sand for traction. Further to the inclusion of painted treatments with marked crosswalks, marked crosswalks were not determined to have noticeable motorist or pedestrian confusion.

Administration, through its research, is aware that forthcoming national standards may restrict the usage of certain colors on the roadway surface, particularly those colors restricted to specific traffic controls or bright color shades. Once these have been published, Administration will review these guidelines to ensure alignment with the City's program.



## **Cost Implications**

The City's costs of Pilot Project events were determined to primarily be related to the provision of engineered traffic control plans and installation/removal of traffic control devices. Locations required the installation of parking restrictions in advance of the event to ensure an adequate, clear roadway for closures, as well as barricades and signage to inform motorists. These temporary traffic controls were required prior to and during the event and needed to remain in place after the event was complete to ensure the paint had adequately dried before reopening the road. Administration determined the average cost per location to undertake this was \$400 per event. Therefore, Administration would be looking to charge a fixed rate of \$400 per permit for a typical event to recoup direct costs and to provide cost certainty to community groups. Administration will continue to review these costs to ensure that they are appropriate in providing direct costs recovery only for City's expenses.

In accordance with City Council's approval of the expansion of the Pilot Project, organizers were required to cover all costs associated with the events, including the provision of temporary traffic controls. City costs were invoiced to organizers through a standard application for service process.

Administration receives numerous of requests for special events and temporary street use permits each year. Although the City does not typically charge special events for the use of the road right of way, it does for the costs associated with City provided services, such as any temporary traffic accommodations. Further, Administration does not currently have budget to provide these services without charges.

## **Program Recommendations**

In accordance with the Pilot Project findings, Administration has determined that community interest, social benefit and the relative operational feasibility of the street painting events warrants the establishment of an official program.

To ensure the orderly review of applications, Administration will establish and communicate the deadline each year for program applications. Events may only be scheduled between May 1 and September 30 of each year. Locations choices may be restricted by Administration to accommodate construction activities or previously approved special events, in accordance with standard temporary street use approval processes.

A maximum of 20 applications will be approved annually to ensure the program can be effectively administered within the scope of existing budgets. Applications will be reviewed in the order they are received by Administration and upon approval of the maximum of events. Additional applications will not be considered.

Events approved through the program that wish to renew their artwork in subsequent years will be required to submit new applications annually for approval.

Administration recommends that a permit fee of \$400 be established in *Traffic Bylaw 9900* for street painting events, based on the Pilot Project findings. It was determined that a preestablished, fixed-rate fee is preferable and allows groups to better manage their event budgets when compared to variable rate contracts with post-event invoicing for actual expenditures. Should Administration determine a change to the \$400 permit fee is required to ensure the program remains cost neutral for the City. Any proposed future fee changes would be brought forward to City Council for approval.

Administration will continue to review the program and adjust application requirements as needed to ensure compliance with national standards and adherence to industry best practices. This may include adjusting criteria to exclude restricted colors, imagery or other placement and proximity restrictions.

## RECOMMENDATION IMPLICATIONS

### Financial Implications

Administration costs associated with the establishment of the program and the provision necessary traffic control operations for the events will be funded by applicants through the addition of a \$400 permit fee for Street Painting in the *Traffic Bylaw 9000*.

Other costs associated with community street painting events will also be at the expense of the applicants, including but not limited to painting supplies, equipment and artist fees.

Limiting the number of approved program events each year to a maximum of 20 will ensure Administration does not require additional operating or capital budget funding for the provision of additional resources, material or equipment.

### Environmental Implications

Paint products shall be specified by the City to ensure they meet the same environmental requirements as traffic paint used for City pavement markings.

### Policy and/or Strategic Implications

The program is consistent with the Official Community Plan's (OCP) goals of supporting cultural development and inclusion, specifically *Section D8, Goal 1 - Support Cultural Development and Cultural Heritage*.

It aligns with the Regina's Cultural Plan by fostering creativity, strengthening social cohesion and supporting the artistic/cultural community and the expansion of festivals/events that reflect diverse community interests and needs. Furthermore, it aligns with the value of the innovation and responsiveness, as it demonstrates the City's commitment to the development of policies and programs that respond to community needs.

Other Implications

None with respect to this report.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

Road closures to support placemaking events will be communicated through standard Administration processes as required, such as public service announcements. Organizations that are most likely to be interested in the program, including community associations and arts/cultural organizations, will be notified by Administration that the program was approved. Administration will also provide program information on [Regina.ca](http://Regina.ca) and will respond to inquiries through Service Regina.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,



Norman Kyle, Director  
Roadways & Transportation

Respectfully submitted,



Kim Onrait, Executive Director  
Citizen Services

Report prepared by: Carolyn Kalim, Manager, Traffic Engineering

## Appendix A Traffic Bylaw No. 9900 Amendment

The proposed amendment to the existing table is highlighted yellow under *Temporary Street Use Permits (Miscellaneous)*, 65.

### SCHEDULE “J” – FEES AND CHARGES

Section	Description	Fee
37	Loading zone parking meters	\$1/15 minutes
	All other parking meters	\$2/hour
47	Stadium resident parking permit	No Charge
49	Taxi cab parking stands	\$1,120/stand/year
55	Resident parking permit	\$15/vehicle/year
56	Visitor parking permit	\$15/vehicle/year or \$5 if purchased with Residential Parking Permit
57	Special occasion parking permit	\$5/vehicle/occasion
	Additional permits	\$1/permit
58	<b>City Parking Permits</b>	
	Approved City employee; emergency vehicle; President of Economic Development Regina Inc.	No Charge
	Health or social service organization; justice official	\$260/vehicle/year
	Non-government organization;	\$520/vehicle/year
	Elected Government Official; Consular Corps Representative; Saskatchewan Health Authority Board member; Government Agency or Crown Corporation; Press/Media; and any other person	\$1040/vehicle/year
59	Daily Parking Permit	No Charge
60	<b>Privilege Parking Permits</b>	
	Saskatchewan school trustees association; members of the legislative assembly of the province of Saskatchewan with constituency boundaries in the City of Regina or who are Cabinet Ministers;	\$5200/vehicle/year

	Council members; persons appointed by Council to City Boards, Committees or Commissions; the Lieutenant Governor; Members of Parliament; Executive members of the Saskatchewan Association of Rural Municipalities; Executive members of the Saskatchewan Urban Municipalities Association; Senators of the Senate of Canada; City employees pursuant to clause 60(2)(j)	No charge
61	Convention parking permit	\$15/vehicle/day
62	Parking permit for persons with disabilities	\$12.50/vehicle/month
63	Reserved parking meter permit	\$40/meter/day + \$5/meter bagging fee
63.1	Business motor vehicle parking permit	\$130/vehicle/year
65	<b>Temporary Street Use Permits</b>	
	Minimum rate	\$24/permit
	Metered parking	\$1.08/m <sup>2</sup> /day
	Parking lane, sidewalk or boulevard	\$0.12/m <sup>2</sup> /day
	Traffic lane or alley	\$0.18/m <sup>2</sup> /day
	<b>Temporary Street Use Permit (Miscellaneous)</b>	
	Horse drawn carriage	\$60/year/permit
	Mobile food vending – with meter bag	\$1,680/year/unit
	Mobile food vending – without meter bag	\$1,300/year/unit
	Pedicabs and rickshaws	\$60/year/permit
	Street painting event	\$400/permit
66	Parade permit	No Charge
	Community event (non-profit/charitable organization)	No Charge
72	Over dimensional load permit	\$50 for any load over 3.7 meters in width, 25 meters in length or 4.2 meters in height
80	Bicycle license	\$5/Bicycle Life
91	Impoundment of vehicles – daily storage fee	\$15/day

April 30, 2018

To: His Worship the Mayor  
And Members of City Council

Re: Placemaking: Street Painting Project Update

---

RECOMMENDATION

**RECOMMENDATION OF THE PUBLIC WORKS AND INFRASTRUCTURE  
COMMITTEE - APRIL 12, 2018**

1. That City Council approve the expansion of the Street Painting Pilot Project to up to a maximum of three additional locations in 2018. These locations will include Harbour Landing, the Downtown Business Improvement District and the Warehouse Business Improvement District, subject to the locations meeting the criteria of the Pilot Project.
2. That City Council direct Administration to bring back a report in 2019 with the Pilot Project findings and any recommendations for a future program.

*PUBLIC WORKS AND INFRASTRUCTURE COMMITTEE - APRIL 12, 2018*

The Committee adopted a resolution to concur in the recommendation contained in the report. Recommendation #3 does not require City Council approval.

Councillors: Sharron Bryce (Chairperson), Lori Bresciani, Jason Mancinelli, Andrew Stevens and Barbara Young were present during consideration of this report by the Public Works and Infrastructure Committee.

The Public Works and Infrastructure Committee, at its meeting held on April 12, 2018, considered the following report from the Administration:

RECOMMENDATION

1. That City Council approve the expansion of the Street Painting Pilot Project to up to a maximum of three additional locations in 2018. These locations will include Harbour Landing, the Downtown Business Improvement District and the Warehouse Business Improvement District, subject to the locations meeting the criteria of the Pilot Project.
2. That City Council direct Administration to bring back a report in 2019 with the Pilot Project findings and any recommendations for a future program.

Paint was not permitted within the confines of a painted crosswalk or within one metre of a curb installation.

The event organizers were required to follow the City's Block Party Procedure to obtain consent of a two-thirds majority of affected property owners, prior to obtaining a Temporary Street Use Permit to close the road for the placemaking event. Additionally, the organizing committee was required to assign a coordinator that would liaise with the City and ensure site safety.

The installation was completed on September 30, 2017 and has been in place since then under predominately winter season conditions. An evaluation of the impact of regular vehicle traffic and winter snow removal activities will be conducted in the spring, with an additional condition evaluation after one year of installation. Further data will be analyzed with respect to traffic safety and expected operating impacts on business areas.

## DISCUSSION

The scope of the Street Painting Pilot Project was initially limited to one location, which was to be evaluated over the course of a year following its installation. Prior to completion of this pilot project, there has been significant, ongoing community interest for increased opportunities to participate in similar street painting events, including inquiries on creating a rainbow motif crosswalk as part of the celebrations for Queen City Pride 2018.

To meet the known community demand, while still ensuring the opportunity to conduct a fulsome evaluation, Administration will initiate a second phase of the Street Painting Pilot Project, which will permit up to three new locations in 2018. These new locations will be evaluated in conjunction with the existing location to develop final policies and procedures for a proposed Community Street Painting Program.

Administration will relax two criteria for the second phase; increasing the maximum daily traffic volumes and permitting the art within the interior of a painted crosswalk. The resulting locational and installation variety will also provide more meaningful data for the evaluation that may shape a future Community Street Painting Program.

Administration has determined the expansion will permit the following interested parties to submit an application for street painting under the extended Pilot Project:

- École Harbour Landing School within Harbour Landing subdivision
- Regina Downtown Business Improvement District (RDBID) within the downtown district
- Regina Warehouse Business Improvement District (RWBID) within the warehouse district

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

Road closures to support placemaking events will be communicated through standard Administration processes as required, such as public service announcements. Administration is also working with these groups to help them prepare for the expansion of the Pilot Project.

DELEGATED AUTHORITY

The recommendations contained in this report require City Council approval.

Respectfully submitted,

PUBLIC WORKS AND INFRASTRUCTURE COMMITTEE



Kristina Gentile, Secretary



**Approved Paint Products for Street Paint Projects:**

The paint product used for Street Paint events **MUST** be one of the products from the following list. These can be ordered and purchased from a variety of retail outlets in Regina:

**Sherwin-Williams** Pro-park waterborne traffic paint  
**Sherwin-Williams** Superdeck solid deck stain  
**General Paint** Breeze 70-010 or Breeze 70-030 or Breeze 71-010  
**General Paint** 41-line porch and floor enamel  
**Dulux** Weather Guard Latex exterior paint  
**Dulux** Flood Pro solid colour deck  
**Cloverdale** Latex zone marking paint

**5. Site Safety and Logistics:**

- A site coordinator must be assigned to ensure work site safety requirements are followed.
- The site coordinator will also be the emergency contact should there be any problem during the session of street painting.

**6. Painting Expenses and Materials:**

- The community event organizer is responsible for all costs associated with the event, including paint materials, artist feeds, road closures, permit fees and any other related expenses.

**Application Requirements**

The following is required:

- ☐ A completed Street Paint Project Application form with **all** questions answered;  
**Accuracy of information provided on the application form is critical to a timely decision.**  
**Be as accurate as possible.**

Your application will be deemed incomplete and sent back to you in the event that any of the above required elements are missing from your submission.

## COMMUNITY STREET PAINTING SURVEY

We, the undersigned residents, agree to block off \_\_\_\_\_  
(Name of Street)

from \_\_\_\_\_ to \_\_\_\_\_ between the hours  
(Street) (Street)

of \_\_\_\_\_ and \_\_\_\_\_ for the purpose of holding a street painting event.

**Two-thirds (2/3) of the households in the blocked area must be in agreement with the street paint party. The attached petition must be signed by one (1) person only in each household that is in agreement.**

NAME (Print)	ADDRESS	SIGNATURE

EVENT CONTACT PERSON:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Phone No: \_\_\_\_\_

**Appendix C**  
**Street Painting Images**

**1) Cathedral Area Event - Montague Street & 14th Avenue**

**October 2017:**

**After Initial Installation**



**May 2018:**

**Seven Months Later (One Winter Season)**



2) **École Harbour Landing School Location - James Hill Road & Aerodrome Road**

**Painted June 11, 2018. Picture Taken July 24, 2018**



3) **Warehouse Project - 8th Avenue & Hamilton Street**

**Painted September 2, 2018. Picture Taken September 27, 2018**

