

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,

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Norman Kyle, Director
Roadways & Transportation

Respectfully submitted,

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

Kim Onrait, Executive Director
Citizen Services

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