

Traffic Noise Sound Attenuation Monitoring – August 2021 Update

ISSUE

As per the Traffic Noise Sound Attenuation (TNSA) program, noise measurements are to be collected at locations identified on the monitoring list. This report provides the measurements of 11 locations as information.

BACKGROUND

At its Regular Business Meeting held on February 27, 2017, City Council considered the Traffic Noise Sound Attenuation Policy and resolved,

“That the policy pertaining to Traffic Noise Sound Attenuation Program be approved.”

Key items from Council Policy C07-028, Traffic Noise Sound Attenuation includes:

In the Definitions section:

- dBA: The decibel (dB) sound pressure level filtered through the A-weighting filtering network to approximate human hearing response at low intensities.
- 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, rather they are expressed using a base-10 logarithmic scale. An increase of 10 decibels represents 10- times the acoustical energy. An increase of 20 decibels represents 100- times the acoustical energy.
- Day-Night Average Sound Level (L_{dn}): Day-night sound level in dBA is derived by performing a logarithmic average of the time varying sound energy equivalent over the daytime (L_{eqDay}) with the time varying sound energy equivalent over the night time ($L_{eqNight}$) and adding a 10 decibel “penalty” to the $L_{eqNight}$.
- A-Weighted Sound Level: A-weighted sound level is 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 effect of sounds.

In the Policy section:

- Assessment
 - a. Decibel Scale and Weighting – dBA (A-weighted decibel sound level)
 - b. Threshold (Timeframe and Value) – L_{dn} 65 dBA (logarithmic average conducted over an entire 24-hour period with a 10 dBA penalty to the monitored or modeled noise during the night-time period.)

- Monitoring of potential Traffic Noise Attenuation projects
 - a. A monitoring list of potential projects is maintained by the Administration.
 - b. The monitoring list includes locations that meet the following criteria:
 - i. Adjacent to existing arterial roads or freeways/expressways.
 - ii. Average daily traffic levels greater than 20,000 vehicles per day on the adjacent arterial roads or freeways/expressways.
 - iii. Locations that have sound attenuation, or where sound attenuation is not economically or physically feasible, are excluded from the monitoring list.
 - iv. Traffic noise measurements will be completed every three years.

The locations on the monitoring list are provided in the table below:

No.	Adjacent Roadway	Limits	Adjacent Neighbourhood
1	22 nd Street	Circle Drive West to Witney Avenue	Mount Royal
2	Circle Drive West	Adjacent to Camponi Place	Fairhaven
3	Circle Drive West	Adjacent to Vancouver Avenue South	Meadowgreen
4	Circle Drive West	Avenue P North to Airport Drive	Hudson Bay Park
5	Circle Drive West	Adjacent to Davidson Crescent	Westview
6	Circle Drive East	108 th Street to CPR Bridge	Sutherland
7	Attridge Drive	Adjacent to Haslam Crescent and Fairbrother Crescent	Silverspring
8	Attridge Drive	Adjacent to Kellins Crescent	Forest Grove
9	McOrmond Drive	Attridge Drive to Kerr Road	Erindale
10	College Drive	Adjacent to Western Crescent	College Park East
11	22 nd Street	Circle Drive West to Witney Avenue	Meadowgreen

CURRENT STATUS

Through a competitive procurement process GHD Limited, an acoustical engineering consultant, was retained to complete the noise measurements and adjust the noise measurements to reflect traffic conditions prior to COVID-19.

The contract was awarded in the winter of 2019 with the intent to complete traffic noise monitoring in the spring of 2020. However, due to the COVID-19 pandemic, the monitoring was delayed and completed in the fall of 2020.

DISCUSSION/ANALYSIS

The 2020 traffic noise measurements are shown in the following table. After COVID-19 struck, traffic volumes dropped in the City of Saskatoon. To determine what the traffic noise would have been had there been no pandemic, the traffic noise measurements were adjusted to reflect pre-COVID 19 traffic volumes.

Traffic Noise Sound Attenuation Monitoring – August 2021 Update

No.	Adjacent Roadway	Limits	Adjacent Neighbourhood	Fall 2020 Noise Level, L _{dn} (dBA)	Fall 2020 Adjusted to pre-COVID-19 Traffic
1	22 nd Street	Circle Drive West to Witney Avenue	Mount Royal	59	59
2	Circle Drive West	Adjacent to Camponi Place	Fairhaven	59	60
3	Circle Drive West	Adjacent to Vancouver Avenue South	Meadowgreen	62	63
4	Circle Drive West	Avenue P North to Airport Drive	Hudson Bay Park	60	60
5	Circle Drive West	Adjacent to Davidson Crescent	Westview	61	62
6	Circle Drive East	108 th Street to CPR Bridge	Sutherland	61	61
7	Attridge Drive	Adjacent to Haslam Crescent and Fairbrother Crescent	Silverspring	58	58
8	Attridge Drive	Adjacent to Kellins Crescent	Forest Grove	58	58
9	McOrmond Drive	Attridge Drive to Kerr Road	Erindale	54	54
10	College Drive	Adjacent to Western Crescent	College Park East	58	58
11	22 nd Street	Circle Drive West to Witney Avenue	Meadowgreen	57	57

The noise measurement indicates that the road traffic noise levels are below the 65 dBA threshold for all locations.

FINANCIAL IMPLICATIONS

Vehicle noise monitoring is funded through Capital Project #1522 – Traffic Noise Attenuation. There are no other financial implications.

OTHER IMPLICATIONS

There are no privacy, legal, social, or environmental implications identified.

NEXT STEPS

Complete vehicle noise monitoring for locations on the monitoring list in 2023.

Report Approval

Written by: Mariniel Flores, Transportation Engineer, Transportation
Reviewed by: Nathalie Baudais, Senior Transportation Engineer, Transportation
David LeBoutillier, Engineering Manager, Transportation
Jay Magus, Director of Transportation

Traffic Noise Sound Attenuation Monitoring – August 2021 Update

Approved by: Terry Schmidt, General Manager, Transportation and Construction

Admin Report - Traffic Noise Sound Attenuation Monitoring – August 2021 Update.docx