

ADVISORY COMMITTEE REPORT

TO: Secretary, Planning and Operations Committee
FROM: Chair, Saskatoon Environmental Advisory Committee
DATE: November 16, 2000
SUBJECT: Noise Attenuation for Heavy Traffic Near Residential Neighbourhoods
FILE NO.: CK. 175-9

RECOMMENDATION: that a report be submitted to City Council with the following recommendations:

- 1) that a noise level standard of 65 decibels (dBA Ldn) be adopted for traffic noise in the City;
- 2) that a noise attenuation retrofit project be undertaken to deal with the increase in heavy traffic noise at 8th Street and Circle Drive, notwithstanding the noise level has been recorded at less than 65 decibels, in that sporadic noise caused by heavy traffic reaches much higher levels;
- 3) that funding for retrofit projects for noise attenuation in existing heavy traffic areas backing residential neighbourhoods be referred to the Administration for inclusion in future budget provisions;
- 4) that the cost of noise attenuation be incorporated into the budget for future roadway/overpass construction projects (including 22nd Street and Attridge Drive); and
- 5) that the Saskatoon Police Service be instructed to enforce Bylaw No. 6052, the Noise Bylaw, on roadways in the City, in order to support quality of life for residents of areas backing heavy traffic roadways.

BACKGROUND:

The Saskatoon Environmental Advisory Committee was approached by the Circle Drive Issues Group for support in their request for traffic noise attenuation at 8th Street and Circle Drive in order to provide relief from noise pollution due to increasing heavy traffic on the overpass. The topic of Noise Pollution was included in the slate of issues identified in the State of the Environment Report produced by the Committee in 1998 (Attachment No. 1 - excerpt). Research on the complaint from the Issues Group was subsequently undertaken by Committee members Dr. Gladys Murphy and Dr. Carroll Chubb, in order to determine what traffic noise levels are acceptable. As part of this research, the Committee requested and received a presentation from Mr. Paul Nyirongo, Planning and Design Engineer, Municipal Engineering Branch, Infrastructure Services Department, on the issues involved with noise attenuation in this area. The Committee also reviewed the Saskatoon Traffic Noise Study, June 1991, (Attachment No. 2) written by Mr. Paul Nyirongo, and determined that traffic noise is a major component of the noise experienced in residential areas. Noise impacts on residential neighbourhoods include annoyance; sleep interference, speech interference and lower property values. In D.L. Johnson's book entitled "Noise: Its Effect and

Control (2000)", (Page 648), there are figures showing what activities are affected by which sound levels. For parks and for single family outdoor use there are marginal effects at 'yearly day-night average sound levels' of 55 decibels.

Traffic noise is complex, consisting of many components that are always changing. The complex methods of measuring noise are outlined in detail in the Saskatoon Traffic Noise Study, June, 1991, (Attachment No. 2). Most municipalities that have addressed traffic noise have established a noise level range of 60 - 70 decibels (dBA Ldn). This means 60-70 decibels (dB)A, in the middle frequency (similar to human ear) Ldn, averaging sound energy over daytime and night time, with additional decibel weighting for night time sensitivity. Table I of the Saskatoon Traffic Noise Study gives some of the standards adopted by other jurisdictions.

The Saskatoon Environmental Advisory Committee suggests that City Council adopt the standard of 65 dBA Ldn as recommended by the Saskatoon Traffic Noise Study. This standard should be applied to both existing and future traffic corridors near residential land in Saskatoon. The Committee could find no medical basis for this standard nor could the Saskatoon Traffic Noise Study or Public Health Services. Mr. Nyirongo reported that people begin to complain about noise at the 65 dBA Ldn level, and on that basis this level is recommended as the safety standard. K.D. Kryten's book, "Effects of Noise on Man" (1985), mentions problems occur when noise levels are even less than 50 decibels (Chapter 13).

The noise level readings at Circle Drive and 8th Street, taken by the Infrastructure Services Department staff are as follows:

	<u>1999</u>	<u>2000</u>
78 Lindsay Drive (West of Circle Drive)	54.8 dBA Ldn	57.1 dBA Ldn
138 Spinks Drive (East of Circle Drive)	53.4 dBA Ldn	54.2 dBA Ldn

This information was obtained from the Circle Drive East Sound Levels report, (Attachment No. 3).

The Committee's concern (as well as that of the Circle Drive Issues Group) is that the areas backing Circle Drive at 8th Street are older established neighbourhoods, and that increased traffic noise has now been introduced by the twinning of the Circle Drive roadway and the overpass at 8th Street. The Committee notes that the above readings are averages, and periodic noise due to heavy truck traffic is higher. Residents are unable to carry on normal conversation in their yards at these times. In the book entitled "Noise - Its Effects and Control" by D.L. Johnson, figures are given on how far apart people having a normal conversation can be when background noise is at certain levels, with figures from a 1974 United States Environmental Protection Agency document, (Page 649). For example, at 55 decibels the listener and talker can be up to 4 feet apart, and have a 'relaxed conversation', whereas a conversation with 'normal effort' can occur with the participants up to 10 feet apart. It therefore seems reasonable that some retrofit noise attenuation should be considered.

The City of Saskatoon Traffic Noise Attenuation Status Report (Attachment No. 4), Table I, gives a list of areas where noise attenuation has been requested. Currently there is no formal program to deal with retrofit traffic noise attenuation. The Saskatoon Environmental Advisory Committee recommends that City Council consider funding for retrofit traffic noise attenuation in areas where the average or periodic noise is 65 dB or greater, according to prioritized need and cost-benefit considerations. While the Committee acknowledges the cost of noise attenuation is considerable, and benefits a small group of residents, these costs should be incorporated into the budget of any new roadway/overpass projects. Developers of new residential areas, where traffic noise levels are expected to exceed the standard 65 dBA Ldn, should cover the expense of noise attenuation measures.

The Saskatoon Environmental Advisory Committee has reviewed Bylaw No. 6052, *The Noise Bylaw*, (Attachment No. 5), which provides that, “The City of Saskatoon deems it expedient that regulations be made restricting and abating the activities which give rise to unnecessary noise in the City.” The intent of the Bylaw, under General Prohibition Section, (3)2 is; “Except to the extent it is allowed by this bylaw, no person shall make, or continue to make, or cause to be made or cause to be continued, or allow to be made, or allow to be continued, any noise whatsoever which either annoys, disturbs, injures, endangers or detracts from the comfort, repose, health, peace or safety of other persons within the limits of the City.” The question then - Is heavy traffic noise due to “necessary” traffic activity a part of urban life we cannot change?

The Saskatoon Environmental Advisory Committee encourages the enforcement of Section 10A of *The Noise Bylaw*, Engine Brakes, on Circle Drive near residential areas.

Traffic noise is a fact of life, however the Committee urges City Council to consider a plan for traffic noise attenuation beyond the level of 65 dBA Ldn, in order to ensure quality of life for all residents affected by heavy traffic noise.

ATTACHMENTS:

1. Excerpt from State of Environment Report, Saskatoon Environmental Advisory Committee.
2. Saskatoon Traffic Noise Study, Executive Summary, June, 1991, Prepared by Stanley Associates Engineering Ltd. in association with Harris, Miller, Miller & Hanson Inc. for City of Saskatoon.
3. Circle Drive East Sound Levels Report, December 1, 1999, Infrastructure Services Department.
4. City of Saskatoon Traffic Noise Attenuation Status Report, Infrastructure Services Department.
5. Bylaw No. 6052, *The Noise Bylaw*.

REFERENCES:

Source: University of Saskatchewan Library

1. Johnson, D.L. (2000) *Noise - Its Effects and Control*, p 639-654 on Environmental Toxicants (2nd ed.); M. Lippmann (ed) Wiley-Interscience, John Wiley and Sons, Inc., New York..
2. *Effects of Noise on Man*, K.O. Kryten (1985), Chapter 13.

Written by: Dr. Gladys Murphy and Dr. Carroll Chubb

Approved by: _____
Ms. Shirley Buzik, A/Chair
Saskatoon Environment Advisory Committee
Dated: _____

Note: The Planning and Operations Committee considered this report at its meeting held on November 28, 2000 and the matter was referred to the file regarding sound attenuation, and that the forthcoming report include a comment respect noise originating from rail yards. _____