

Design Standard

Noise Attenuation

September 2026

City of Regina



REGINA
Infinite Horizons

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1. General

1.1. Traffic Noise Assessment Screening

1.1.1. Noise screening can be conducted and supporting document(s) submitted to the City of Regina, in lieu of a traffic Noise assessment report submission, for new developments outside of the screening distances based upon the following table (ultimate buildout traffic forecasts can be obtained from the City of Regina):

1.1.2. **Table 1:** Screening Setback Distance in Metres

Posted Speed Limit [km/h]	Ultimate Buildout Traffic Forecast - AADT								
	Up to 5,000	Up to 7,500	Up to 10,000	Up to 15,000	Up to 20,000	Up to 25,000	Up to 30,000	Up to 50,000	Up to 75,000
50	35	50	60	85	105	125	140	175	200
60	45	60	75	105	125	145	155	190	230
70	55	75	95	125	145	160	170	210	250
80	70	95	115	145	160	175	190	230	275
100	105	135	150	175	200	215	230	275	320

1.1.3. The above table was based upon the following assumptions:

- Single straight roadway
- Asphalt surface
- Generally flat between road and receptor location
- Intervening land is grass covered
- Flat longitudinal road gradient
- 13% truck percentage (8% heavy trucks, 5% medium trucks)
- Distance measured from edge of roadway

1.1.4. Only expressways and major arterial roads require analysis unless otherwise noted by the City of Regina.

1.1.5. If the development situation differs from the screening assumptions, the developer is required to demonstrate to the City of Regina (City) how the screening distance is still applicable to their development or submit a Noise Assessment Report to the City.

1.1.6. A guideline detailing requirements of a Noise Assessment Report can be obtained from the City of Regina.

1.2. Noise Mitigation Measure Concepts

1.2.1. Area layout – using the main structures as shielding for noise sensitive spaces, maximizing the distance between the roadways and the noise sensitive land use (as defined in the Noise Attenuation Policy), using buffer land uses between major roadways and noise sensitive land uses. Using shielding lowers Noise levels by obstructing sound waves and forcing them to travel a longer path before reaching the receiver location. Increasing the direct separation distance between roadways and receivers also increases the waves' travel length, which allows the waves more time to decay before reaching the receiver location.

1.2.2. Roadway geometry – lower longitudinal road grade can reduce engine-generated noise emissions for vehicles travelling in the uphill direction. Increasing the

setback distance between roadways and receivers allow sound waves more time to decay before reaching receiver locations.

- 1.2.3. Designed speed limit – lower speed limits would result in lower Noise emissions. Noise emissions are reduced by approximately 3 to 5 decibel (dB) per halving of vehicle speed.
- 1.2.4. Road surface – use of asphalt instead of concrete to reduce noise generated by tire-road interaction.
- 1.2.5. For outdoor locations above ground level (e.g. on building podiums), the building design can be used to attenuate Noise levels, such as using higher parapets to increase shielding.
- 1.2.6. Where required, noise barriers installed to meet outdoor noise criteria shall:
- 1.2.7. Be located approximately on the property line on the City's Right of Way (ROW); if there is a deviation from this (including locating on top of a berm or cut for improved performance), coordinate with City staff on design requirements.

1.3. Field Measurements

- 1.3.1. Measurements, where conducted, should be collected using a Class 1 or Class 2, as per IEC 61672, laboratory-calibrated Sound Level Meter during weather conditions conducive to measurement of the background environment (no precipitation, and wind-generated noise 10 dB less than the measured values).
- 1.3.2. Locations should be representative of the noise sensitive locations under the study and should be representative of the assessment location(s), without interference from nearby reflecting planes (such as furniture, fencing, sheds, or other acoustically reflective surfaces). Measurement duration should be long enough to characterize the Background Noise levels with respect to the applicable criteria limit, typically 48-72 hours for full day criteria.
- 1.3.3. Field measurements can capture extraneous noise events not characteristic of the background, such as animal sounds, lawnmowers, snow removal equipment, impulsive noise from garbage collection trucks, and thunder, among others. The engineer should use their professional judgement to filter anomalous events from the field measurements dataset.
- 1.3.4. The engineer should document the noise measurements and identify the measurement standards followed. Example standards typically used for noise measurements include, but are not limited to:
 - ANSI S1.13-2005: Measurement of Sound Pressure Levels in Air
 - ANSI S12.18: Outdoor Measurement of Sound Pressure Level
 - ASTM E1014 – 08: Standard Guide for Measurement of Outdoor A-Weighted Sound Levels
 - ASTM E1686 – 10: Standard Guide for Applying Environmental Noise Measurement Methods and Criteria

2. Traffic Noise Modelling

2.1. Traffic Noise Modeling

- 2.1.1. Predictions should be conducted using the original implementation of the prediction method.
- 2.1.2. Third-party implementations of approved prediction models should have a certificate of conformance, or an example conformance calculation showing that the third-party implementation results are similar to the results produced by the original implementation of the prediction method.
- 2.1.3. Traffic Noise predictions should account for various items that can affect the Noise prediction, which can include, but are not limited to:
 - Ground features such as differing elevations and berms
 - Existing Noise barriers and permanent structures
 - Traffic volumes and composition (higher of the SADT [if available] or AADT)
 - Roadways classified as freeways, expressways and arterial roads, including on and off-ramps, with posted speed limits of 40 km/h or higher should be included in Noise modelling
 - Posted traffic speed limit
 - Roadway grade
 - Ground absorption
 - Noise sensitive location, layout, and building shielding
 - Separate garages, sheds, and privacy fencing should not be included in Noise modeling
 - Local streets that specifically provide access to dwellings should not be included in Noise modelling
- 2.1.4. The assessment point of outdoor locations is three metres from the centre of the façade in the back or side yard facing the roadway, at a height of 1.5 metres. For common use outdoor spaces, the assessment point is approximately the centre of the space at 1.5 metres above grade/floor.
- 2.1.5. For capital works, retrofit, or replacement programs, replacement noise barriers are based upon the performance of the noise barrier (i.e. no barrier vs with replacement barrier), not the predicted difference between the old and new noise barriers.

2.2. Noise Barrier Specifications

- 2.2.1. Where required, noise barriers installed to meet outdoor noise criteria shall:
 - Meet standard CSA Z107.9-00 (R2004) or the latest version.
 - Follow the City of Regina's Standard Construction Specifications and Noise Attenuation Policy.
 - Have a warranty period of one year.
 - Have a designed 20-year maintenance free period, with a design life of at least 50 years.
 - Have a minimum height of two metres, with a maximum height of five metres. Where space allows, a berm/wall combination may be used as an alternative option to increase the total height of the barrier.
 - Where the peak of a berm matches the length, height, and physical position of a noise barrier, they are considered acoustically equivalent.

- Be designed to have minimal impact of the surrounding stormwater drainage and overland flow paths.
- Special consideration shall be given to designing the system to withstand wind loading and shall adhere to Part 4 – Structural Design of the National Building Code of Canada.

Revisions		
Description	Notes	Date
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