

Follow Up on 2024.EC9.5 – Stationary Decibel Levels for Motor Vehicles and Motorcycles

Municipal Licensing and Standards (MLS)

ECDC - February 20, 2024



Overview

- [2024.EC9.5](#) (Implementation Review of the Noise By-law) recommended several refinements to the Noise By-law to improve compliance and enforcement and streamline the exemption permit process.
- A key recommendation in [2024.EC9.5](#) was to implement Council direction to add a noise decibel limit for stationary motor vehicles, in addition to limits currently in place for motorcycles at idle.
- On January 11, 2024, the Committee referred this specific change back to staff and requested a report back to Economic and Community Development Committee on **February 20, 2024** on options for reduced decibel levels for motorcycles and motor vehicles.
 - The remainder of [2024.EC9.5](#) was adopted by City Council on February 7, 2024.
- This follow-up report recommends keeping the decibel limits as originally proposed.

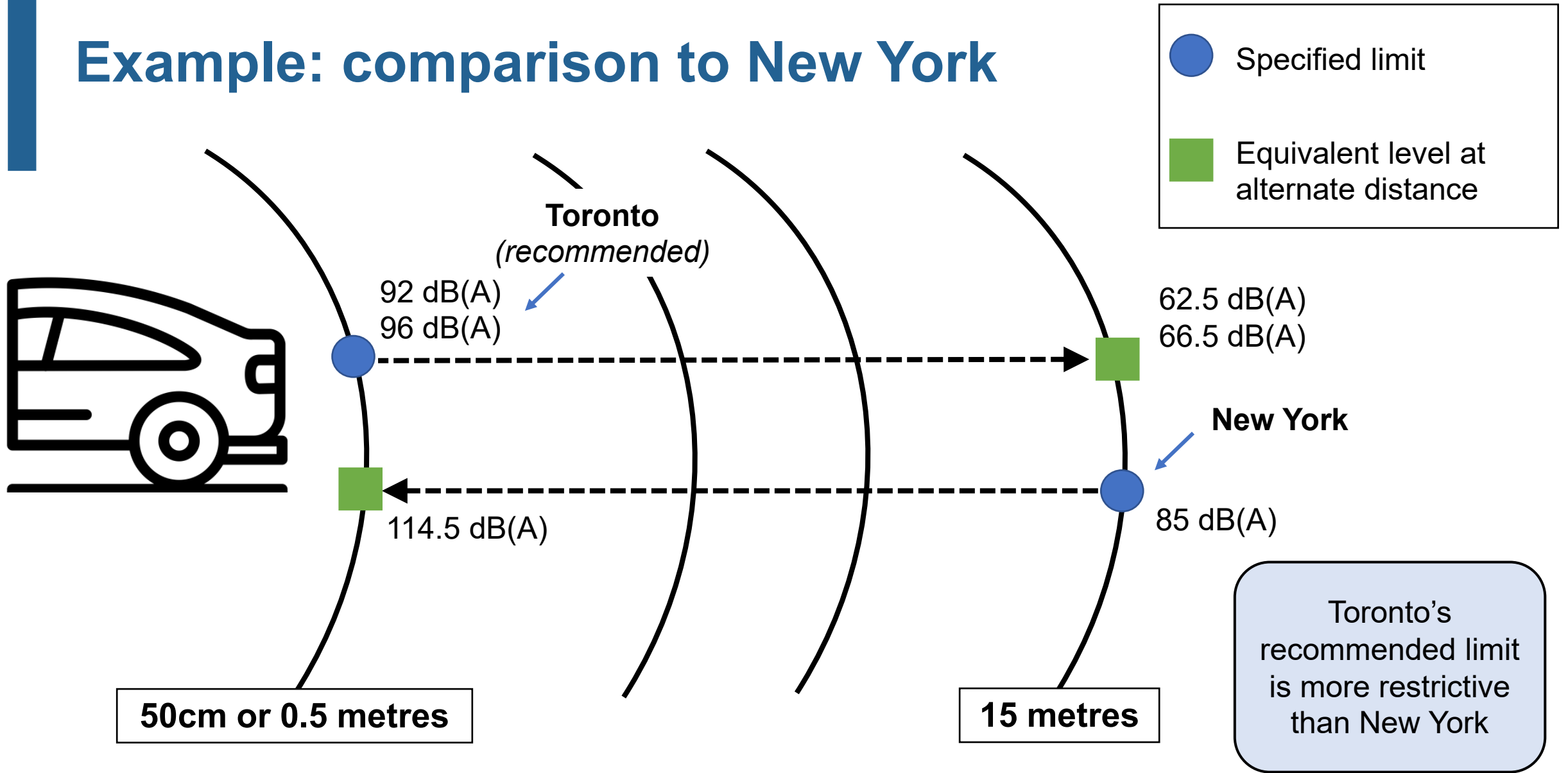
Determining appropriate decibel limits

- **A vehicle's noise level will depend on engine type, age of vehicle, and number of kilometers travelled.**
- Measuring noise levels depends on test conditions (idle vs. above idle), surrounding environment (e.g. presence of reflecting surfaces), and distance from the noise source.
- To apply numerical sound limits effectively, in practice, there must be a reference to detailed, standardized sound measurement procedures; otherwise, sound measurements would not be repeatable nor reliable.

Vehicle noise limits in other jurisdictions

City	Details	Measurement
Oakville; Caledon	For stationary motorcycles 92 dB at idle 96 dB and 100 dB at different RPMs	0.5m from exhaust
Red Deer; Toronto (proposed)	For stationary motor vehicles (incl. motorcycles) 92 dB at idle 96 dB at any speed greater than idle	0.5m from exhaust
Calgary	For any vehicle 96 dB	At any point of reception
Knoxville	Range of 82 to 90 dB ➤ Equivalent range of 111.5 to 119.5 dB when measured 0.5m from exhaust	15m/50ft from vehicle
New York City	85 dB used for noise radar equipment ➤ Equivalent to 114.5 dB when measured 0.5m from exhaust Otherwise, vehicle noise is excessive if 'plainly audible' from 150ft (cars) / 200ft (trucks and motorcycles)	15m/50ft from vehicle

Example: comparison to New York



Options in Report

Recommended Option – Maintain staff’s recommendation from <u>2024.EC9.5</u>	Option considered but not recommended – Further reduction in decibel limits
<p><i>Stationary limits for motor vehicles and motorcycles of 92dB(A) at idle and 96dB(A) any speed greater than idle, measured 50cm from the exhaust</i></p>	<p><i>Reduce the stationary limits to 89dB(A) at idle and 93dB(A) if any speed greater than idle, measured 50cm from the exhaust.</i></p>
<ul style="list-style-type: none"> • Targets vehicles with modified exhausts • Determined in consultation with an acoustical engineer and aligns with Society of Automotive Engineers (SAE) industry standard; based on a comprehensive study of a wide variety of vehicles • Similar limits have been implemented and enforced in other Ontario municipalities • Directly aligns with previous requests from Council to implement a limit in accordance with SAE 	<ul style="list-style-type: none"> • These reduced limits vary from the SAE industry standard, and the limits used in other jurisdictions • Decreasing below 92 could result in non-modified vehicles being in violation of the Noise Bylaw and could inadvertently impact the use of particular vehicles in the City – this is not advisable

Implementation

- Staff propose implementing the approved decibel limit on **June 1, 2024**, to align with the proposed in-effect date of other changes to the By-law (which were approved by City Council on February 7, 2024).
 - This would enable joint initiatives between MLS and TPS staff in time for summer 2024.
 - TPS staff have confirmed their support for the proposed decibel levels, as well as for conducting periodic joint enforcement initiatives with MLS.
- Staff will monitor the effectiveness of these limits in ensuring compliance.

Appendix



Current Motor Vehicle Noise Regulations

CITY OF TORONTO	GOVERNMENT OF ONTARIO	GOVERNMENT OF CANADA
NOISE BYLAW	HIGHWAY TRAFFIC ACT (HTA)	MOTOR VEHICLE SAFETY ACT
<ul style="list-style-type: none">• Prohibits unnecessary vehicle noise and noise from vehicle repairs• Applicable to City roads and expressways, but not major highways (400-series)• City Bylaw Enforcement do not have the authority to stop moving vehicles and can only enforce against stationary vehicles	<ul style="list-style-type: none">• Classifies traffic offences and regulates noise created by the operation of motor vehicles in Ontario• Outlaws excessive motor vehicle noise, and the installation or modification of equipment• Enforceable by police services and transportation officers, who have authority to stop moving vehicles	<ul style="list-style-type: none">• All vehicles manufactured or imported must federal safety regulations for noise emissions (set out for newly manufactured motor vehicles)

Current Motor Vehicle Noise Regulations (continued)

CITY OF TORONTO	GOVERNMENT OF ONTARIO	GOVERNMENT OF CANADA
NOISE BYLAW	HIGHWAY TRAFFIC ACT (HTA)	MOTOR VEHICLE SAFETY ACT
<ul style="list-style-type: none"> • Unnecessary motor vehicle noise is prohibited • Time prohibition on sound from repairing, rebuilding, modifying or testing of a vehicle (9 p.m. until 7 a.m. weekdays, 9 a.m. on weekends) • 92 dB(A) limit for motorcycles, measured 50 cm from the exhaust while the engine is at idle – enforced via joint initiatives with Toronto Police 	<p>The following are prohibited under the HTA:</p> <ul style="list-style-type: none"> • <u>Exhaust modifications</u> that exacerbate vehicle noise [section 75(1)] • <u>Operation of a motor vehicle that produces excessive noise</u> [section 75(4)] • <u>Removal or modification of the “original emission control system” (exhaust)</u> in a way that increases emissions [section 75.1, new as of April 1, 2022] • <u>Speeding</u> exceeding established limits (section 128) and <u>stunt driving</u> (section 172) 	<ul style="list-style-type: none"> • Noise emission standards (sound level limits) vary by vehicle type and align with international industry standards

Options Considered by Acoustical Engineer

TABLE 1 MOTOR VEHICLE SOUND LEVEL LIMITS – STATIONARY TESTS

Jurisdiction	Vehicle Type	Vehicle Manufactured	Test Condition	Distance (m)	Sound Limit (dBA)
40 CFR 202 (202.21)	>4536 kg	1986	full throttle, neutral gear	15 (50 ft)	85
49 CFR 325	≤4536 kg	–	full throttle acceleration, neutral gear	15 (50 ft)	85 (soft ground) 87 (hard ground)
Oregon OAR 340-035-0030 Table 2	autos, light trucks	all	full throttle acceleration, neutral gear	7.6 (25 ft)	95 ⁽¹⁾
Oregon OAR 340-035-0030 Table 2	motorcycles	after 1975	full throttle acceleration, neutral gear	7.6 (25 ft)	99 ⁽²⁾
SAE J1492	autos, light trucks	–	continuous sweep of engine speed, neutral gear or in park	0.5 m, 45°	not given
SAE J2825	motorcycles: all	–	idle	0.5 m, 45°	92
SAE J2825	motorcycles: less than 3 cylinders; more than 4 cylinders	–	Set RPM test Swept RPM test	0.5 m, 45°	96
SAE J2825	motorcycles: 3 or 4 cylinders	–	Set RPM test Swept RPM test	0.5 m, 45°	100
UN Reg. No. 41	motorcycles	–	neutral gear constant speed test	0.5 m, 45°	not given
UN Reg. No. 51	autos, trucks	–	neutral gear constant speed test	0.5 m, 45°	not given (given for in motion only)

(1) Equivalent to 89 dBA at 15 m.

(2) Equivalent to 93 dBA at 15 m.