

## **Follow Up on 2024.EC9.5: Implementation Review of the Noise By-law – Stationary Decibel Levels for Motor Vehicles and Motorcycles**

**Date:** February 5, 2024

**To:** Economic and Community Development Committee

**From:** Executive Director, Municipal Licensing and Standards

**Wards:** All

### **SUMMARY**

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On January 11, 2024, the Economic and Community Development Committee adopted, with amendments, [2024.EC9.5](#): Implementation Review of the Noise By-law.

A key recommendation in the staff report 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. The proposed limits align with industry standards and associated test procedures and were recommended in consultation with an acoustical engineering firm. The Committee referred this specific change back to Committee and requested staff report back to the February 20, 2024, Economic and Community Development Committee meeting on options for reduced decibel levels for motorcycles and motor vehicles.

This supplementary report provides the Committee with further information regarding proposed motorcycle and motor vehicle noise decibel limits, including additional details on how decibel limits are measured and the importance of the distance a measurement is taken (as sound levels vary depending on one's distance from the noise source).

After additional consideration, staff recommend keeping the decibel limits as proposed in [2024.EC9.5](#). The proposed limits are the lowest decibel limit range identified for implementation by the acoustical engineer, respond to Council direction to implement a Society of Automotive Engineers (SAE) standard, and are consistent with those that have been implemented and enforced in other Ontario municipalities. In addition, the proposed approach has been endorsed by Toronto Police Service (TPS) staff, whose Board requested that MLS consider enforceable decibel limits above idle. If and when updated limits are approved, TPS staff have confirmed their support in conducting periodic joint enforcement initiatives with MLS to address excessive vehicle noise and illegally modified vehicles.

The goal of implementing decibel limits for motorcycles and motor vehicles is to target excessively noisy vehicles with modified emissions systems, not to inadvertently

capture the use of normally operating motorcycles or other motor vehicles in the City. Introducing decibel limits as proposed in [2024.EC9.5](#) would accomplish this policy goal.

## **RECOMMENDATIONS**

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The Executive Director, Municipal Licensing and Standards recommends that:

1. City Council amend Toronto Municipal Code Chapter 591, Noise to replace 591-2.5C with the following: “No person shall emit or cause or permit the emission of any sound from a stationary motor vehicle exceeding the following when measured at least 50 cm from the exhaust outlet using a sound level meter: (a) 92 dB(A) at idle; or (b) 96 dB(A) at any engine speed greater than idle.”
2. City Council direct that the amendment come into force on June 1, 2024.

## **FINANCIAL IMPACT**

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There are no financial implications resulting from this report. The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial implications as identified in the Financial Impact section.

## **DECISION HISTORY**

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On January 11, 2023, the Economic and Community Development Committee adopted, with amendments, [2024.EC9.5 – Implementation Review of the Noise By-law](#), which referred a staff recommendation to introduce a stationary decibel limit for motor vehicles for further discussion, along with a request to the Executive Director, Municipal Licensing and Standards to report to the Economic and Community Development Committee on February 20, 2024 on options for reduced decibel levels for motorcycles and cars.

On July 19, 2022, City Council adopted [2022.EC31.4 – Report on Outstanding Noise Directives](#), which requested MLS to report back during the Noise By-law Review in 2023 regarding developments on motor vehicle noise, consultation with Toronto Public Health on health impacts of noise, a report on noise from City fleets such as waste collection services, and decibel limits for power devices, as well as directed staff to introduce a sound level limit for motor vehicles when their engines are idle in accordance with the Society of Automotive Engineers (SAE).

On April 16, 2019, City Council adopted [2019.EC3.6 - Noise By-law Review- Proposed Amendments to Chapter 591, Noise](#), which resulted in the introduction of sound level limits for amplified sound and motorcycles, alignment of time constraints between similar activities, enhancements to the noise exemption permit process, and the introduction of a dedicated noise enforcement team with late night coverage. A request

was also made for MLS to report back on the implementation, success, and outstanding issues from these changes to the Noise By-law.

## COMMENTS

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### Overview

The City reviewed the successes and challenges of the implementation of the comprehensive changes to the Noise By-law that were made in 2019 and recommended several enhancements to improve compliance and enforcement as part of Item [2024.EC9.5](#). The review included extensive research, consultations, engagement, and technical advice from an acoustical engineering firm.

Specific to motor vehicle noise, Bylaw Enforcement Officers do not have the authority to pull over a vehicle; this authority is, appropriately, granted to police officers under the Highway Traffic Act. Bylaw Enforcement Officers therefore have primarily taken enforcement action against noise from stationary vehicles and in recent years have worked with the Toronto Police Service (TPS) to address issues of noise with moving vehicles.

### Context

During the 2019 Noise By-law Review ([2019.EC3.6](#)), City Council introduced a 92 dB(A)<sup>1</sup> limit for motorcycles measured from the exhaust at 50 centimetres (cm) (or 0.5 metres [m]) while the motorcycle is at idle, which is based on an industry test procedure and used in other jurisdictions (like Oakville and Caledon). This decibel limit was intended to capture noisy after-market exhausts and has been enforced through collaborative data-driven enforcement initiatives between Toronto Police Service (TPS) and MLS, strategically targeting areas with a high volume of complaints.

In a 2022 Report on Outstanding Noise Directives ([2022.EC31.4](#)), staff were directed to implement a sound level limit for motor vehicles when their engines are idle in accordance with the Society of Automotive Engineers (SAE).

As part of the Implementation Review of the Noise By-law ([2024.EC9.5](#)), in January 2024 as directed by Council, staff proposed a noise decibel limit for stationary motor vehicles to be enforced alongside the TPS, in addition to limits currently in place for motorcycles at idle. MLS retained the services of an acoustical engineering firm to provide technical and expert advice in identifying options to implement a motor vehicle decibel limit. The proposed limits were 92dB(A) at idle and 96 dB(A) at any speed above idle, measured from the exhaust at 50cm (or 0.5m). These proposed limits align

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<sup>1</sup> The decibel is the universal unit of sound measurement and is logarithmic. dB(A) is an A-weighted decibel reading, which is standard weighting. dB(A) gives a single number measure of noise by including sound energy at all frequencies as experienced by the human ear. It is structured to be a realistic representation of human hearing.

with industry standards and associated test procedures and environments. The firm's report is re-attached as Attachment A for reference (note: the section on motor vehicle noise begins on page 16, with a summary table of different motor vehicle sound level limits provided on page 32).

During discussion of [2024.EC9.5](#) at the Economic and Community Development Committee on January 11, 2024, alternative decibel limits were mentioned, and the Committee referred this specific change back to staff, requesting a report back on options for lower decibel limits.

### **Considerations for determining appropriate decibel limits**

As discussed by staff and by the acoustical engineering firm as part of [2024.EC9.5](#), if motor vehicle sound tests are to be done, the tests should be stationary. Beyond the specific decibel threshold, there are various elements that need to be considered when incorporating specific limits in a Noise By-law, including the test condition (e.g., if measured when the vehicle is at idle, above idle, or at full acceleration), the test site (e.g. appropriate environment with no sound-reflecting surfaces that could impact readings), and the identified distance from the source (e.g., if measured 0.5 metres or 15 metres from the vehicle's exhaust) as sound levels vary depending on one's distance from the noise source.

An important point is that decibels are a logarithmic unit, with every 3 decibel increase resulting in a doubling of intensity of "sound energy level" or noise. Relatedly, each doubling of distance away from a source decreases the sound energy level by approximately 6 decibels.

### **Findings from other jurisdictions**

Jurisdictions that have decibel limits consistent with limits proposed in [2024.EC9.5](#) include:

- Caledon and Oakville, Ontario have decibel limits for stationary motorcycles of 92dB(A) at idle, and 96 dB(A) and 100 dB(A) at different RPMs (measured 50 cm from the exhaust).
- Windsor, Ontario has a 92dB(A) decibel limit for stationary motorcycles at idle (measured 50 cm from the exhaust).
- Red Deer, Alberta, has decibel limits for stationary motor vehicles of 92 dB(A) at idle or 96 dB(A) at any speed greater than idle (measured 50 cm from the exhaust).

Jurisdictions that have decibel limits that are different from limits proposed in [2024.EC9.5](#) due to different measuring techniques include:

- Calgary, Alberta's Traffic By-law prohibits "objectionable noise", which includes sound from a motor vehicle at 96 dB(A) or more as measured by a sound level meter at any point of reception.
- Knoxville, Texas, which uses a range of 82 to 90dB(A) depending on the vehicle's speed, measured 15m (or 50 feet [ft]) from the source.

- New York City is piloting noise radar equipment and has set a limit of 85dB(A) measured 15m (or 50 ft) away from the vehicle. This equates to 114.5 dB(A) if measured at a distance of 0.5 metres (or 50 centimetres).

## Options

As communicated extensively throughout [2024.EC9.5](#), enforcing decibel limits for motor vehicles would require involvement from the Toronto Police Service (TPS). Given many tests of the decibel limits would be roadside (away from other sound-reflecting surfaces), the most effective limits and test procedures are those that are closest to the vehicle's exhaust; testing 50cm from the exhaust maintains accuracy of readings. In addition, MLS' goal with any decibel limits for motor vehicles is to target excessively noisy vehicles and motorcycles that have modified their emissions systems, not to inadvertently prohibit the use of motorcycles or particular vehicles in the City of Toronto.

Upon City Council's decision, staff intend to implement the change to Chapter 591, Noise on June 1, 2024, to align with staff's initial recommendation and the proposed in-effect date of other potential changes to the By-law, to be discussed and finalized at the City Council meeting beginning on February 6.

### ***Recommended Option – Maintain staff's recommendation from [2024.EC9.5](#)***

Staff recommend implementing the original staff proposal in [2024.EC9.5](#), specifically to implement simple stationary limits to be used for both motor vehicles and motorcycles of 92dB(A) at idle and 96dB(A) if any speed greater than idle, measured 50cm (or 0.5m) from the exhaust.

Staff recommend retaining this recommendation for the following reasons:

- The limits were determined in consultation with an acoustical engineer and align with industry standards (SAE2825) and associated test procedures and environments (as identified in detail in Attachment A). The proposed limits are the **lowest decibel limit range identified for implementation by the acoustical engineer.**
  - Per Attachment A, other standards (40 CFR 202 or 49 CFR 325) set out limits of 85dB(A) or 87 dB(A) measured 15 metres from the source. This would equate to 114.5 dB(A) if measured at a distance of 0.5 metres (or 50 centimetres), significantly higher than what is proposed.
- These limits are similar those that have been implemented and enforced in other Ontario municipalities and directly align with requests from the Toronto Police Services Board to consider enforceable decibel limits above idle<sup>2</sup>.
- These limits also align with direction from Council in 2022 for the sound level limit for motor vehicles to be implemented in accordance with the Society of Automotive Engineers (now known as SAE International).

### ***Option considered but not recommended – Further reduction in decibel limits***

<sup>2</sup> <https://tpsb.ca/jdownloads-categories?task=download.send&id=775&catid=32&m=0>

During discussion of [2024.EC9.5](#), it was suggested for staff to consider an 85dB(A) limit that is being used in New York City to pilot noise radar equipment. It was not clarified that this limit is measured 15m (or 50 ft) away from the vehicle. 85dB(A) from 15 metres is equivalent to 114.5 dB(A) from 0.5 metres, significantly higher than staff's proposal.

Other stationary limits that may be used for both motor vehicles and motorcycles could use the same test procedures (SAEJ1492 and SAEJ2825) and reduce the limits in the proposed option to 89dB(A) at idle and 93dB(A) if any speed greater than idle, measured 50cm from the exhaust. A reduction in 3dB(A) reduces sound energy level by 50%.

However, staff encourage Council to exercise caution with this Option:

- The reduced limits vary from the SAE industry standard, and the standards used in other jurisdictions.
- Decreasing the decibel level below 92 could result in a number of non-modified motorcycles or vehicles being in violation of the Noise Bylaw. Staff do not propose using a decibel limit that could inadvertently impact the use of motorcycles or particular vehicles in the City of Toronto.

## Next Steps

Staff recommend that proposed decibel limits come into effect June 1, 2024, in order to ensure alignment with other proposed amendments to the Noise By-law as part of [2024.EC9.5](#). Specifically for motor vehicle noise, an effective date of June 1, 2024, would enable joint initiatives between MLS and TPS staff in time for the summer.

TPS staff have confirmed their support in conducting periodic joint enforcement initiatives with MLS to address excessive vehicle noise and illegally modified vehicles. MLS and TPS will work to develop operational enforcement strategies and plans if the proposals are approved and will endeavour to undertake initiatives in summer 2024.

Staff will monitor the effectiveness of these limits in ensuring compliance, including ascertaining whether these sound limits are appropriate or whether they need adjusting.

## CONTACT

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**SIGNATURE**

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A handwritten signature in blue ink, appearing to read 'C. Grant', written in a cursive style.

Carleton Grant  
Executive Director, Municipal Licensing and Standards

**ATTACHMENTS**

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Attachment 1: Summary of Third-Party Technical Advice (from Item 2024.EC9.5)