



Outline of Noise Attenuation Guidelines and Policies for Regional Road Corridors

Transportation and Field Services

Re: Report # 2023-W-8

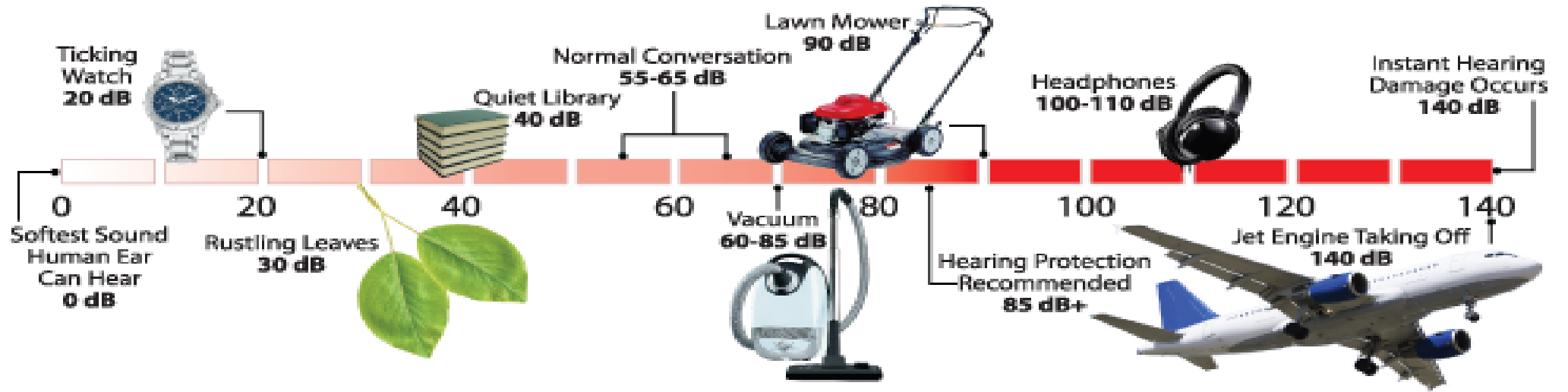
Works Committee

February 8, 2023

Outline

- ☐ **General Noise Information**
- ☐ **Noise Mitigation and Related Regional Policy and Guidelines**
- ☐ **Typical Costs**
- ☐ **Summary**

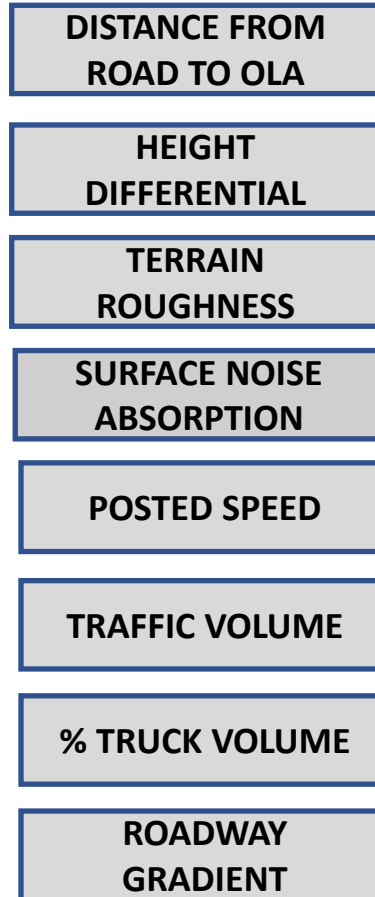
How Loud are Things?



60 dBA - Threshold for traffic noise attenuation at rear yard patio location/Outdoor Living Area (OLA)

How do we Calculate Noise Levels from Traffic?

INPUT

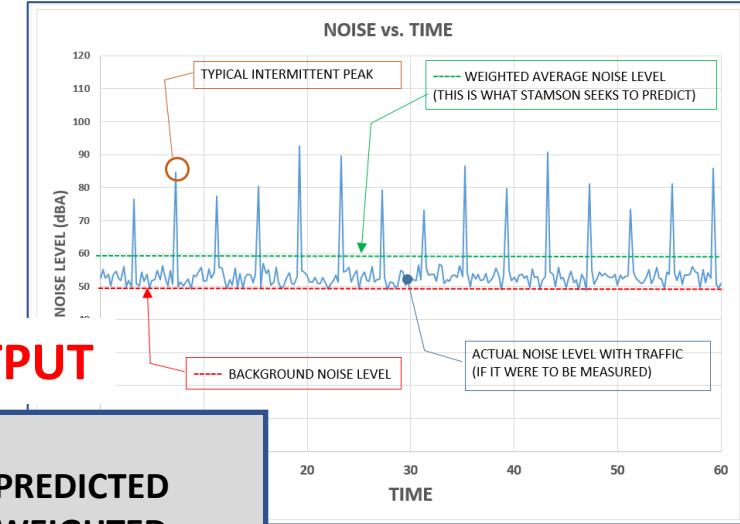


Computer Model used by the Region of Durham and endorsed by the Ontario Ministry of Environment and Climate Change (MECP)

STAMSON
Model

OUTPUT

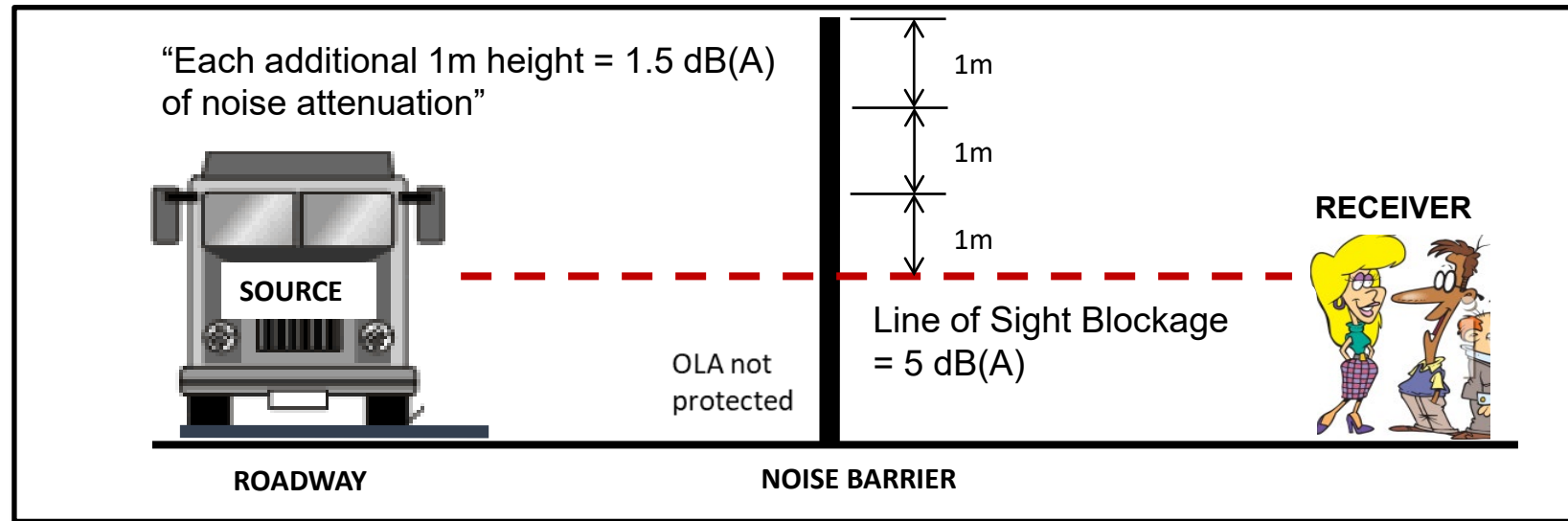
**PREDICTED
WEIGHTED
AVERAGE NOISE
LEVEL AT THE OLA**



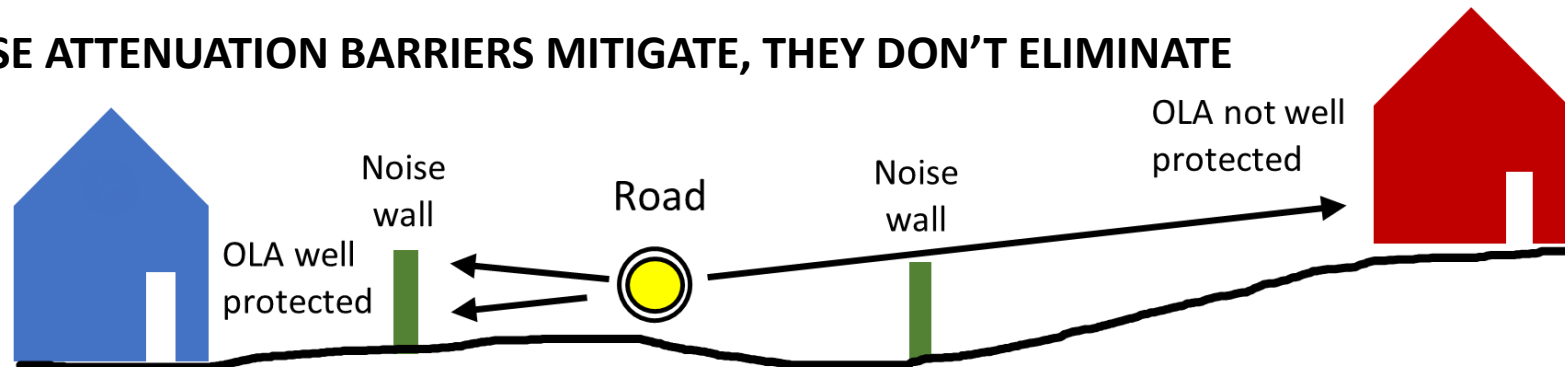
OLA is defined as 3 m from back of house and 1.5 m high

Stamson Noise Modelling analysis provides a consistent and fair approach to all residents of Durham Region and is used throughout Ontario and Canada

How does a Noise Attenuation Barrier Work?



- A barrier (wall, berm, wall/berm, etc.) must be tall enough and long enough to block the view of a roadway from the area that is to be protected
- Barriers provide very little benefit for backyards on a hillside overlooking a roadway or for porches and decks which rise above the barrier
- NOISE ATTENUATION BARRIERS MITIGATE, THEY DON'T ELIMINATE



Noise Mitigation and Related Regional Policy and Guidelines

The four situations related to noise mitigation:

New Residential Development

Assessment & mitigation for new developments along road rights-of-way

Regional Road Expansion

Assessment & mitigation for Regional road expansion projects

Retrofit of Privacy Fences to Noise Walls

Regional policy for existing residential properties adjacent to Regional roads where no new expansion work is planned

Replacement of Private Noise Walls

Regional policy for dealing with private noise walls that were built through earlier developments

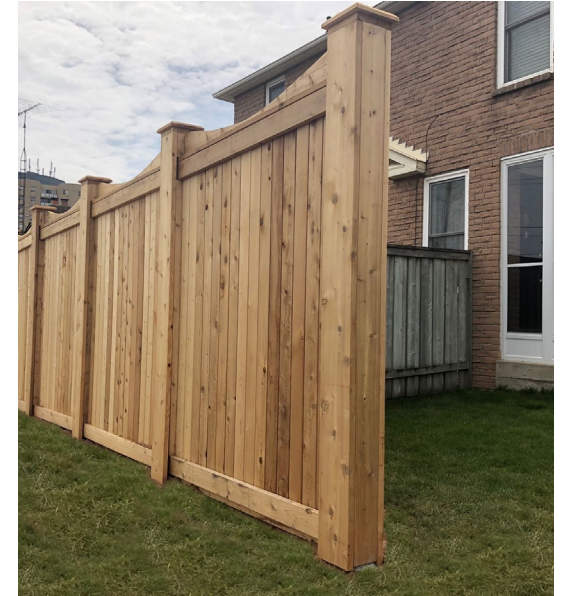
New Residential Development

- In 1991, Regional Council adopted a Policy that the impacts of noise, based on traffic volumes projected for the mature state of development, on residential development be a factor in the design of residential developments.
- Developer's engineer provides a noise study for developments close to an arterial roadway.
- Developer may be required to implement noise mitigation measures that may include a noise barrier.
- Notices of some noise warnings and mitigation requirements are included in developer agreements and individual purchase agreements.
- Noise walls are typically constructed entirely on private property (not always been the case).
- Changing development styles, such as laneway access townhomes, are resulting in minimal use of noise barriers.



Regional Road Expansion

- Regional road expansions often increase noise levels in adjacent rear yard Outdoor Living Areas (OLA).
- Municipal Class Environmental Assessment (EA) process includes noise study.
- Study follows Ministry of Environment, Conservation and Parks (MECP) methodology for noise modelling and not measurement of existing noise.
- In 2012, Regional Council approved a policy which identifies that a noise level threshold of 60 dBA within an OLA, using traffic volumes based on the mature state of development, will trigger the installation of a noise attenuation barrier for new road expansion construction projects.
- Barrier must achieve a minimum sound level reduction of six decibels.
- Barrier must be technically and economically feasible.
- Barriers mandated by road expansion are constructed within the Regional right-of-way (ROW) or on an easement and are owned by the Region.
- Occasionally, walls which must be located outside of a Regional ROW shall be owned and maintained by the Local Area Municipality (LAM) or the private property owner.



Retrofit of Privacy Fences to Noise Walls

- Residents with backyards on Regional Roads but not having a noise wall have requested that the Region replace their privacy fence with a noise wall (e.g., Bayly, Harmony, Westney).
- In many locations, a noise study would confirm OLA noise levels warrant a noise wall.
- There is no legislation requiring the Region to replace fencing with noise walls on a retrofit basis.
- Some municipalities have a retrofit policy in place using a mechanism in the Municipal Act, including a cost-sharing between the municipal agency and the benefiting property owner(s).
- Such cost-shared programs have had very limited success due to various factors, primarily the cost, and not getting the required number of adjacent neighbours to commit to a continuous wall.
- York Region advises that since their policy, which includes a 50/50 cost-sharing, was put in place in 2006, no retrofit noise attenuation barriers have been constructed.
- Durham Region does not have a retrofit policy. Given the success rate in other jurisdictions, a cost-shared policy can create unrealistic expectations and be a frustrating experience for homeowners, along with requiring significant staff resources.
- A very preliminary high-level estimated cost to retrofit Regional Road rear lot properties is \$100 million.



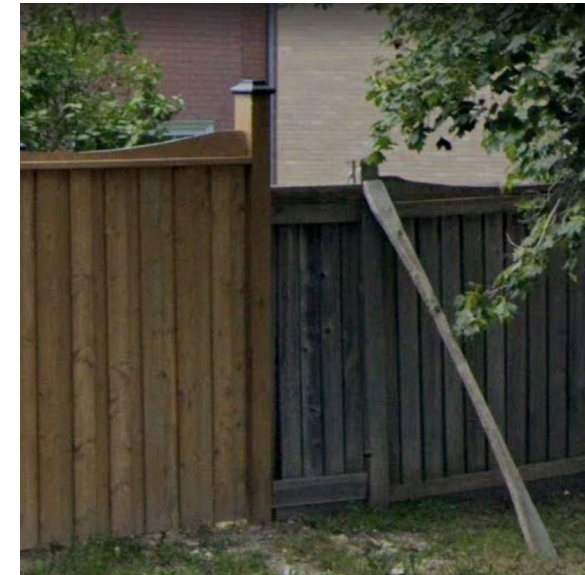
Replacement of Private Noise Walls

- As communities age, noise walls need to be replaced.
- The Region has had requests to construct and pay for these replacements.
- In 2009, Regional Council confirmed that the Region's core maintenance responsibilities continue to exclude maintenance and replacement of rear lot fencing, including noise attenuation barriers.
- As a result, the Region has taken the position that private noise attenuation walls, along with privacy fencing, are the responsibility of adjacent property owners.
- Some existing noise walls have been constructed in landscape strips and are owned by LAMs. These will be maintained or replaced by the LAM, unless they have given responsibility to the adjacent property owner.



Typical Costs

- Region standard noise walls are estimated to cost \$4,800/m for a typical 2.4 m high wall
- Concrete/composite and cedar wood walls have comparable costs
- Included costs – design, grading, drainage, restoration, very durable long-life noise wall
- Homeowner's noise wall construction might be lower design standard and therefore lower cost



Summary

The Region's current noise attenuation guidelines and policies for the installation and maintenance of noise barriers on or adjacent to Regional road rights-of-way, as detailed in Works Committee Report 2023-W-8, continue to be followed:

- 1) New Residential Development – Developer constructs, Property Owner or LAM owns**
- 2) Regional Road expansion – Region constructs and owns**
- 3) Retrofit of Privacy Fences to Noise Walls – Property Owner constructs and owns**
- 4) Replacement of Private Noise Walls – Property Owner or Local Area Municipality replaces**



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Questions?

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