

# Noise and Vibration Perspective & Overview

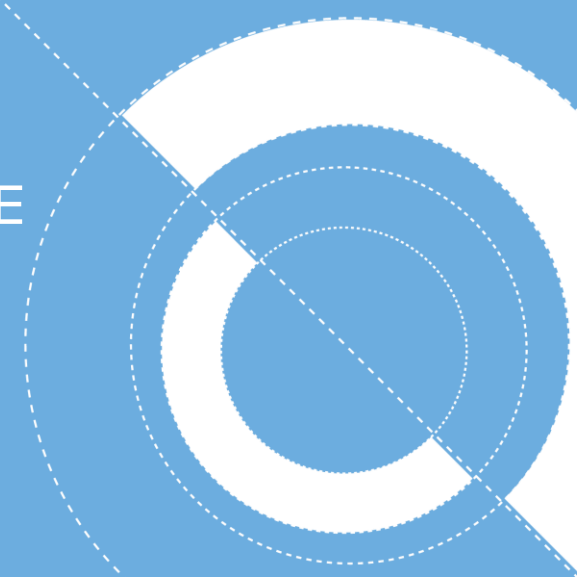
## **A&WMA- OS & OPPI:**

*Land Use Compatibility between  
Sensitive Land Uses and Nuisance Sources*

## **Presented by:**

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## **Aercoustics Engineering Limited**

has dedicated itself to providing high quality consulting services in the science and engineering of acoustics, noise and vibration since 1974.

- Environmental Noise & Vibration Impact Studies
- OMB Expert Witnesses
- Wind Turbine Noise
- Building Vibration Design and Analysis
- Peer reviews

# Outline



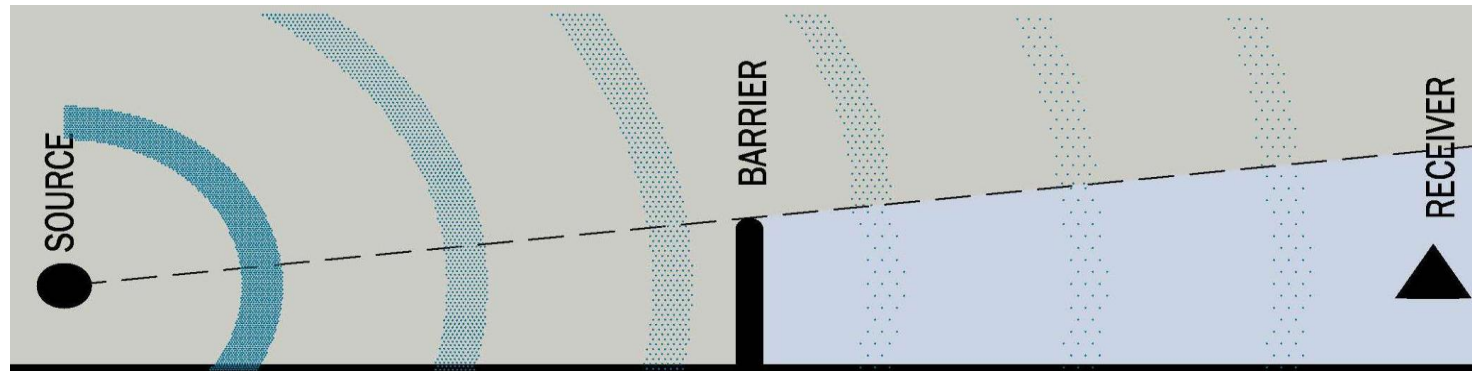
- 1. Noise 101**
- 2. Regulatory Framework**
- 3. Breakdown of NPC-300**
- 4. Current Issues**

Sound is me cutting my lawn

Noise is my neighbour cutting his lawn

Music is my neighbour cutting my lawn

## Noise decay with distance with Barrier



# Basics of Noise

- Typical Noise Levels

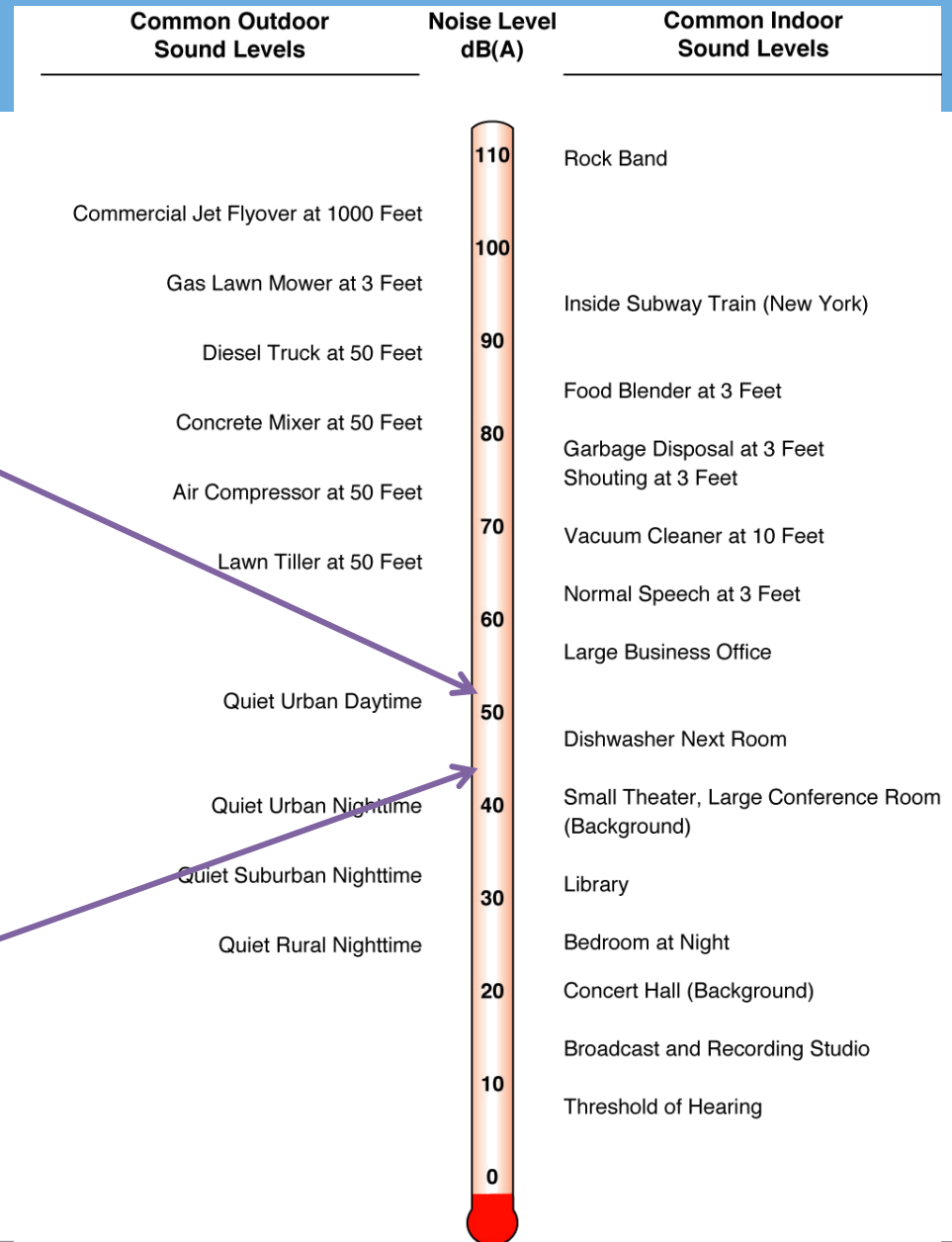


~~85~~ dBA 100m(operator)


# So what's the issue?

Typical Day Limit (50 dBA)

Typical Night Limit (45 dBA)



# So what's the issue?

 13° Toronto

  
**BUSINESS**

> HOME

Business

> NEWS

## Zoning battles rage on shrinking industrial lands

> YOUR TORONTO

A tutoring program in Scarborough ordered to move in fight that dragged on for years.

Eight-year-old Maryam Becirspahic comes bounding into the Kumon tutoring centre in Scarborough just after school let outs.

She's a bundle of energy and full of smiles. Her dad Muhamed loves the program, which he believes has helped boost her English reading skills, especially since she's in French immersion at school.

"We think it's a really good program. We're going to keep her in it," Becirspahic said.

But Kumon owner Jane Wei, who has run the franchise at Middlefield Rd. and McNicoll Ave., was ordered last week by an Ontario Municipal Board panel to move her business after more than two decades in the same location, because she is not in compliance with zoning rules.

She has owned the 1,400-square-foot unit since 1991. The latest ruling, which came after a two-day hearing, is the culmination of a long battle that includes four decisions of the Toronto Committee of Adjustment, and two hearings at the Ontario Municipal Board.

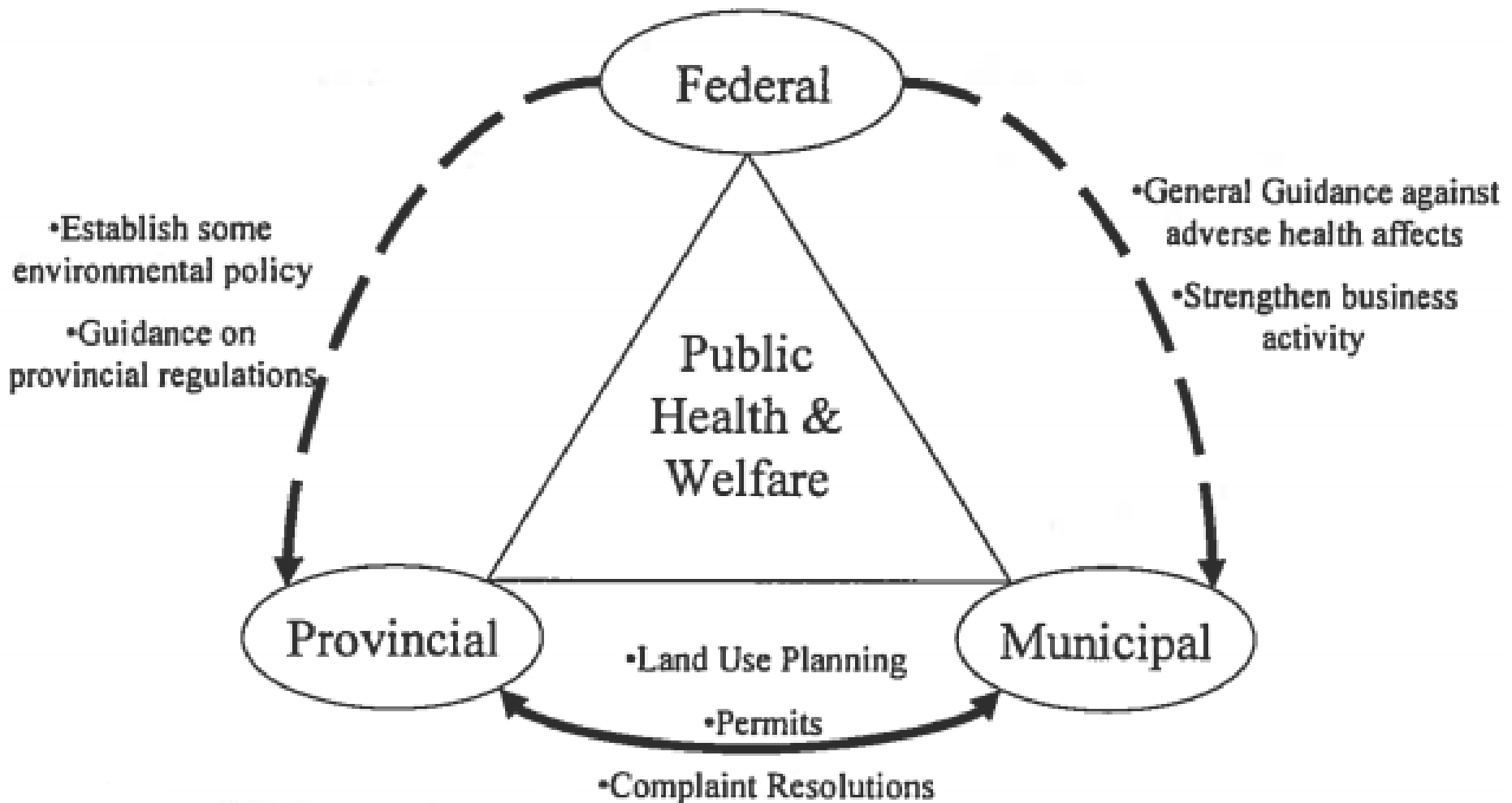
Because Kumon caters to children — kids are given worksheets and homework in self-directed math and reading programs — the city views Wei's business as a school, with is a "sensitive land use." Many uses can be deemed sensitive, including day cares, community centres and nursing homes.

And because her second-floor location is within 300 metres of an employment area zoned for heavy industry, provincial environment ministry rules set out additional requirements for nearby companies, dealing with issues such as odour and contaminants, but especially noise.

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# Regulatory Framework



A BETTER TOMORROW made possible

# Regulatory Framework - Municipal

## GUIDELINE D-6 (formerly 07-09)

### COMPATIBILITY BETWEEN INDUSTRIAL FACILITIES AND SENSITIVE LAND USES



#### Legislative Authority:

*Environmental Protection Act, RSO 1990, Section 14*  
*Environmental Assessment Act, RSO 1990, Section 5(3)*  
*Planning Act, RSO 1990, Sections 2 (a) (b) (c) (f) (g) (h), 17(9), 22(3), 41(4) and 51(3)*  
*Condominium Act, RSO 1990, Section 50(3)*  
*Niagara Escarpment Planning & Development Act, RSO 1990, Section 9*

#### Responsible Director:

Director, Environmental Planning & Analysis Branch

#### Last Revision Date:

July 1995

[The D-series Guidelines are] intended to be applied in the land use planning process to prevent or minimize future land use problems due to the encroachment of sensitive land uses and industrial land uses on one another.

# Influence Areas

Industry Class	Potential Influence Area
Class I	70 meters
Class II	300 meters
Class III	1000 meters

*In exceptional circumstances the Ministry shall recommend separation distances greater than the outer limit of the potential influence areas*

# Recommended Minimum Separation Distances

Industry Class	Minimum Separation Distance
Class I	20 meters
Class II	70 meters
Class III	300 meters

*Noise shall be addressed through Ministry Publication LU-131 for all situations applicable to this guideline.*

# Regulatory Framework - Provincial



*“In the context of applying for MOECC approval, it is the responsibility of the owner of a stationary source to comply with the applicable sound level limits.”*

# NPC Documents

- NPC-101 – Technical Definition

- NPC-102

- NPC-103

- NPC-104

- [NPC-205](#)

- NPC-106

- NPC-207

- NPC-115

- NPC-216

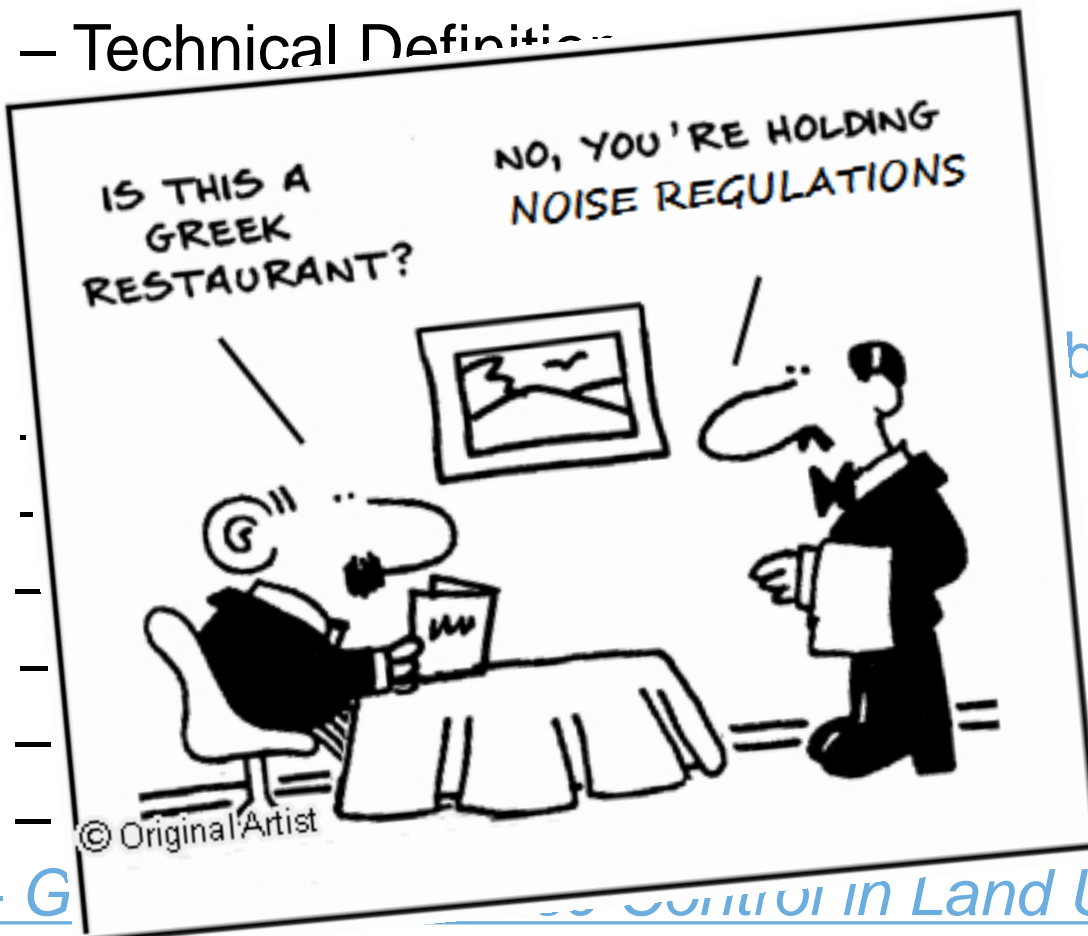
- NPC-117

- NPC-119

- [LU-131 – G](#)

- [NPC-232 – Stationary Noise Limits in Rural Areas](#)

- NPC-233 – Guidelines for Info Required (Stationary)



ban Areas

[Noise Control in Land Use Planning](#)

# Bringing Planning and Permitting together

1. NPC-205 - “*Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)*”, dated Oct ‘95.
2. NPC-232 – “*Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)*”, dated Oct ‘95.
3. LU-131 – “*Noise Assessment Criteria in Land Use Planning*”, dated Oct ‘97
  - Annex to Publication LU-131
  - Requirements, Procedures & Implementation, Oct. ‘97



**NPC – 300: Environmental Noise Guideline,  
dated Aug ’13**

**Table B-1**

**Minimum Values of  $L_{EQ}$  by Time of Day (Window)**

<b>Time of Day</b>	<b>Class 1 Area</b>	<b>Class 2 Area</b>	<b>Class 3 Area</b>	<b>Class 4 Area</b>
0700 -1900	50	50	45	60
2300 - 0700	45	45	40	55

Note: Here “*Class*” refers to the Receptor class, NOT the Industry Class



# What does NPC 300 NOT address

- Renewable Energy Approvals (e.g. wind turbines, solar);
- Vibration, including Blasting;
- Construction Noise;
- Noise from Safety Equipment (i.e. Back-up beepers);
- Haul-route Noise;
- Traffic noise from Highway Expansions;
- Anything with a local by-law; or
- Wildlife Noise

## Part C – Land Use Planning

- Guidance only from the MOECC!
- Section C2 suggests Noise Impact Studies be conducted.
- Should be prepared by qualified individuals with experience in environmental acoustics; preferably Professional Engineers.

### Environmental Noise Guideline

Stationary and Transportation Sources –  
Approval and Planning

Publication NPC-300

# Is there a problem?

**Land Use  
Planning**

**Environmental  
Approvals**



***“The Ministry shall not be held liable for municipal planning decisions that disregard Ministry policies and guidelines.”***

# Setbacks

## D-6

- Class I Industrial (light commercial) 70m
- Class II Industrial (commercial / light industrial) 300m
- Class III Industrial (large industrial) 1000m

## MNR

- Pits 150m
- Quarries 500m

## MOECC

- Industries 500m
- Very Large Industries 1000m

# Setbacks

	Setback of Dwelling	Noise Assessment and Ground-borne Vibration Assessment	Noise Attenuation Barrier	Berm and Fence	Buyer Awareness	Drainage Pattern/Utilities	Others
<b>CN Rail</b>							
<b>Railway yards</b>	300 m	All residential uses located between 300m and 1000 m (Noise and Ground-borne Vibration)					
<b>principal main lines</b>	30 m	All residential uses located within 300 m (Noise)	A min. of 5.5 m above top-of-rail	2.5 m safety berm with Acoustic fence (subject to the noise report)	A clause be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sales or lease of each dwelling unit within 300m of the railway right-of-way, advising the property owners of the potential adverse impacts as a result of the railway operations.	Alterations to the existing drainage pattern affecting railway property requires prior concurrence from CN.	Restrictive Covenants on title advising that any berm, fencing, or vibration isolation features implemented are not to be tampered with or altered, and further that the owner shall have the sole responsibility for maintaining these features. 1.83m min. height chain link fence along the mutual property line.
<b>secondary main lines</b>	30 m	All residential uses located within 75 m (Ground-borne Vibration)	A min. of 4.5 m above top-of-rail	2.0 m safety berm with Acoustic fence (subject to the noise report)			
<b>principal branch lines</b>	15 m		A min. of 4.0 m above top-of-rail	2.0 m safety berm with Acoustic fence (subject to the noise report)			
<b>secondary branch lines</b>	15 m		A min. of 4.0 m above top-of-rail	2.0 m safety berm with Acoustic fence (subject to the noise report)			
<b>spur lines</b>	15 m		n/a	n/a			

# Noise Impact Studies

Noise impact studies are recommended and may be required by the land use planning authority to support the development application for a noise sensitive land use proposal.

## **These studies are:**

- requested by the land use planning authority;
- submitted to the land use planning authority; and
- reviewed by the land use planning authority.

# How does the City decide when to look further?

**Feasibility studies** should be reviewed for acceptance prior to adoption of:

- Official Plan Amendments;
- Zoning by-law amendments;
- Subdivision Plans;
- Condominium Draft Plan approval;
- New Proposed Noise sensitive land use; or
- New proposed industrial/commercial facility.

## How does the City decide when to look further?

The **detailed noise study** is to assess the impact of all noise sources and determine the appropriate layout, design and required noise control measures.

### **Detailed Noise studies should be requested for:**

- Site Plan Approval;
- Road & Surface Transportation projects;
- New Proposed Noise sensitive land use; or
- New proposed industrial/commercial facility.



# Our Experience

- Arbitrary set-back met and no further study;
- Pushing the envelope (w/ setbacks, or mitigation);
- Usually noise not covered by any clear Ministry document so likely decided vaguely written guidelines or by-laws;
- Industry was there first, but asleep while neighbourhood changed; or
- Issue was never addressed and now people live there.

# Hope you enjoyed: Noise and Vibration Perspective & Overview

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