

## **Appendix A – Presentation Slides**

# **Ministry of the Environment, Conservation and Parks (MECP)**

## **Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning Publication NPC-300**

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Publication NPC-300 replaced the following four publications:

- ❑ Publication LU-131 – Noise Assessment Criteria in Land Use Planning. October 1997;
- ❑ Noise Assessment Criteria in Land Use Planning: Requirements, Procedures and Implementation. October 1997;
- ❑ Publication NPC-205 – Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban). October 1995; and
- ❑ Publication NPC-232 – Sound Level Limits for Stationary Sources in Class 3 Areas (Rural). October 1995.

Publication NPC-300 is organized into three main parts:

- ❑ Part A: provides material that is common and applicable to the whole document, such as purpose, definitions, common principles and references.
- ❑ Part B: specifically addresses the approval and compliance of stationary sources of noise.
- ❑ Part C: deals with the planning of new noise sensitive land uses.

Part A is integral to both Part B and Part C.

All three parts are interrelated and need to be considered together.

**Part A**

**BACKGROUND**



## Publication NPC-300 provides:

- ❑ Sound level limits that are applied by the MECP to stationary sources, such as industrial and commercial establishments and auxiliary transportation facilities.
- ❑ Advice, sound level limits and guidance that may be used when land use planning decisions are made. The MECP has no authority under the Planning Act and has no direct role in the land use planning process.
- ❑ Sound level limits that may be incorporated into noise control by-laws, which may be developed by municipalities.
- ❑ Sound level limits that may be applied in licensing and permitting activities for aggregate resource extraction activities.

Publication NPC-300 does not provide sound level limits for:

- ❑ Blasting in quarries and surface mines
- ❑ Wind turbine facilities
- ❑ Landfills
- ❑ New or expanded transit corridors

# Definitions

## “Acoustic barrier”

- ground-based / permanent barriers – minimum mass surface density 20 kg/m<sup>2</sup>
- rooftop / temporary barriers – minimum mass surface density 10 kg/m<sup>2</sup>

## “Agreement for noise mitigation”

- one, or multiple, legally binding agreements involving parties such as land use planning authorities, proponents of a noise sensitive land use and owners of a stationary source.
- Agreement(s) may be associated with decisions made by the land use planning authority under the Planning Act or established as collateral agreements.
- The need for the agreement(s) is triggered by the use of receptor based noise control measures to ensure compliance with the applicable sound level limits. The finalized agreement(s) are to be submitted by the stationary source with any application for an MECP approval.

# Definitions (Cont.)

The agreement should:

- ❑ ensure that the stationary source is able to comply with the applicable sound level limits at the new noise sensitive land use;
- ❑ provide assurance that receptor based noise control measures are implemented and maintained;
- ❑ provide consistency for planning noise sensitive land use(s) in the proximity of stationary source(s);
- ❑ address the long-term responsibilities of all the parties to the agreement; and
- ❑ describe the noise control measures and provide information about how these measures will result in compliance with the applicable sound level limits.

# Definitions (Cont.)

## “Background sound level”

- ❑ the sound level that is present in the environment, produced by noise sources other than the source under impact assessment;
- ❑ typically caused by road traffic;
- ❑ sound from existing adjacent stationary sources may be included in the determination of the background sound level if such stationary sources have the appropriate approvals and are not under consideration for noise abatement by the municipality or the MECP;
- ❑ highly intrusive short duration noise caused by an aircraft flyover or a train pass-by is normally excluded from the determination of the background sound level; and
- ❑ under unique/special circumstances, train pass-by noise may be included in the determination of the background sound level in accordance with specific conditions and procedures.

# Definitions (Cont.)

## “Class 1 area”

- an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as “urban hum.”

## “Class 2 area”

- an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas:
  - sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00 hours); and
  - low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 hours (19:00 or 23:00 to 07:00 hours).

# Definitions (Cont.)

“Class 3 area”

- a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:
  - a small community;
  - agricultural area;
  - a rural recreational area such as a cottage or a resort area; or
  - a wilderness area.an area or specific site that would otherwise be defined

# Definitions (Cont.)

“Class 4 area”

- an area or specific site that would otherwise be defined as Class 1 or 2 and which:
  - is an area intended for development with new noise sensitive land use(s) that are not yet built;
  - is in proximity to existing, lawfully established stationary source(s); and
  - has formal confirmation from the land use planning authority with the Class 4 area classification which is determined during the land use planning process.

Areas with existing noise sensitive land use(s) cannot be classified as Class 4 areas.

# Definitions (Cont.)

## “Enclosed noise buffer”

- ❑ an enclosed area outside the exterior wall of a building such as an enclosed balcony specifically intended to buffer one or more windows of noise sensitive spaces. In order for the concept of enclosed noise buffer to be acceptable within the context of an MECP approval of stationary sources, it can only apply to high-rise multi-unit buildings in a Class 4 area.

## “High-rise multi-unit building”

- ❑ a residential building with four or more floors (storeys) and with more than one dwelling per floor (storey).

## “Inoperable (fixed or sealed) window”

- ❑ an exterior window that is acoustically designed to provide a suitable indoor acoustical environment for occupants of new noise sensitive land uses. The inoperable window is a receptor based “on building” noise control measure.

# Definitions (Cont.)

## “NEF/NEP”

- ❑ Noise Exposure Forecast/Noise Exposure Projection contours for airports.

## “Noise control measure”

- ❑ may include, but are not limited to, the following:
  - source based noise control measures
  - receptor based outdoor noise control measures
  - receptor based “on building” noise control measures
  - receptor based site configuration noise control measures
  - receptor based site construction and architectural noise control measures

## “Noise sensitive commercial purpose building”

- ❑ a building used for a commercial purpose that includes one or more habitable rooms used as sleeping facilities such as a hotel and a motel

# Definitions (Cont.)

## “Noise sensitive institutional purpose building”

- ❑ a building used for an institutional purpose, including an educational facility, a day nursery, a hospital, a health care facility, a shelter for emergency housing, a community centre, a place of worship and a detention centre. A place of worship located in commercially or industrially zoned lands is not considered a noise sensitive institutional purpose building.

## “Noise sensitive zoned lot”

- ❑ a lot or a property of a person that has been zoned to permit a noise sensitive land use and that is either:
  - currently vacant; or
  - has an existing land use that is not a noise sensitive land use.

## “Outdoor Living Area (OLA)”

- ❑ applies to transportation sources

## “Point of reception (POR)”

- ❑ applies to stationary sources

# Definitions (Cont.)

“Predictable worst case noise impact”

- the noise impact associated with a planned and predictable mode of operation for stationary source(s), during the hour when the noise emissions from the stationary source(s) have the greatest impact at a point of reception, relative to the applicable limit. It addresses the following activities:
  - regular, routine operation of equipment;
  - infrequent operation of equipment; and
  - operation of emergency equipment.

# Definitions (Cont.)

## “Stationary source”

- stationary sources subject to Part B of Publication NPC-300:
  - aggregate extraction facilities (except blasting);
  - auxiliary transportation facilities;
  - commercial facilities;
  - industrial facilities;
  - natural gas facilities;
  - repair or storage garages for public vehicles;
  - storage, maintenance and repair facilities;
  - warehousing and truck terminal facilities; and
  - works yards.

The stationary source is understood to encompass all the activities taking place within the property boundary of the facility.

# Definitions (Cont.)

- stationary sources exempted from Section 9 of the EPA in O. Reg. 524/98:
  - car washes;
  - HVAC systems (subject to certain qualifiers);
  - mobile equipment for crushing or screening of aggregate, if it located below grade in a pit or quarry that is operated in accordance with a licence or permit issued under the Aggregate Resource Act;
  - outdoor firearm ranges / gun clubs;
  - race tracks;
  - schools / private schools;
  - snow disposal sites; and
  - standby power systems (subject to certain qualifiers).

Sources in this category are also subject to the sound level limits in Part C of Publication NPC-300.

# Definitions (Cont.)

- stationary sources under the jurisdiction of Ontario Ministry of Agriculture, Food and Rural Affairs:
  - pest-scaring devices;
  - wind machines used to protect agricultural crops;
  - irrigation pumps used for horticultural, field or nursery crops
  - equipment used for food crop seeding, chemical spraying or harvesting;
  - Building HVAC equipment used in livestock, greenhouse, horticultural and other facilities;
  - on-farm anaerobic digesters used to generate clean energy that are exempt under Ontario Regulation 359/09;
  - on-farm processing by a farmer of the products produced primarily from the farmer's agricultural operation such as grain dryers, grain aeration fans and hay dryers; and
  - other stationary sources on agricultural operations during normal farm practice.

# Definitions (Cont.)

Part B and Part C of Publication NPC-300 do not apply to the noise impact of stationary sources associated with agricultural operations during the course of normal farm practice which are addressed through the Farming and Food Production Protection Act, 1998, These sources do not require an MECP approval.

# Definitions (Cont.)

- stationary sources that may not require an MECP approval. The following are examples of stationary sources that usually do not require an MECP approval because most aspects of the facility are solely regulated by the federal government:
  - federally-regulated railway yards;
  - airport facilities;
  - port facilities and marine shipping activities; and
  - nuclear facilities.

Ancillary facilities to these sources may require MECP approval.

Regardless of whether provincial approvals are required, these sources are subject to the sound level limits in Part C of this guideline.

# Definitions (Cont.)

- sources not considered as stationary sources in the context of Part B and Part C of Publication NPC-300:
  - temporary construction activities;
  - transportation corridors, i.e., railways and roadways;
  - residential air conditioning devices;
  - gas stations;
  - auditory warning devices required authorized by law;
  - back up beepers' on construction equipment or other vehicles;
  - occasional movement of vehicles on the property; and
  - parking lots for private passenger vehicles at offices, commercial facilities, employee parking and commuter parking lots.

# Definitions (Cont.)

Sources not considered as stationary sources in the context of Part B and Part C of Publication NPC-300 and that are normally addressed in a qualitative manner in municipal noise by-laws:

- ringing of bells or gongs and the blowing of horns or sirens or whistles, or the production, reproduction or amplification of any similar sounds by electronic means;
- animals kept as domestic pets such as dogs barking;
- tools and devices used by occupants for domestic purposes such as domestic power tools, radios and televisions;
- domestic situations such as domestic quarrels, noisy parties;
- gathering of people at facilities such as restaurants, fairs and parks; and
- essential services and maintenance of public facilities such as, roadways, parks and sewers, snow removal, road cleaning, road repair and maintenance, lawn mowing and maintenance, sewage removal, garbage collection.

# Definitions (Cont.)

- sources not requiring noise impact assessment:
  - sources, equipment, activities or facilities connected with emergency measures undertaken for:
    - the immediate health, safety or welfare of inhabitants; and
    - the preservation or restoration of property; unless such noise is clearly of a longer duration or nature more disturbing than is reasonably necessary for the accomplishment of such emergency purpose.

These sources are exempt from the application of the limits in Part B and Part C of Publication NPC-300.

# Definitions (Cont.)

“Time periods” (applicable to stationary sources)

- “Daytime”: is the 12-hour period between 07:00 and 19:00 hours;
- “Evening”: is the 4-hour period between 19:00 and 23:00 hours; and
- “Nighttime”: is the 8-hour period between 23:00 and 07:00 hours.

“Time periods” (applicable to transportation sources)

- “Daytime”: is the 16-hour period between 07:00 and 23:00 hours; and
- “Nighttime”: is the 8-hour period between 23:00 and 07:00 hours.

**Part B**

**STATIONARY SOURCES**

- ❑ Part B pertains to MECP approvals for noise emissions from stationary sources.
- ❑ It is the responsibility of the owner of a stationary source to comply with the applicable sound level limits.
- ❑ The sound level limit is set as the higher of either the applicable exclusion limit, or the minimum background sound level.
- ❑  $L_{eq}(1h)$  and  $L_{Lm}$  are sound level metrics used for approval and complaint investigation of stationary sources.

# Exclusion Limits for Steady and Varying Sound

**Table B-1**  
**Exclusion Limit Values of One-Hour Equivalent Sound Level ( $L_{eq}$ , dBA)**  
**Outdoor Points of Reception**

<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>
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

**Table B-2**  
**Exclusion Limit Values of One-Hour Equivalent Sound Level ( $L_{eq}$ , dBA)**  
**Plane of Window of Noise Sensitive Spaces**

<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>
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

# Exclusion Limits for Impulsive Sound

**Table B-3**  
**Exclusion Limit Values for Impulsive Sound Level ( $L_{LM}$ , dBAI)**  
**Outdoor Points of Reception**

<b>Time of Day</b>	<b>Actual Number of Impulses in Period of One-Hour</b>	<b>Class 1 Area</b>	<b>Class 2 Area</b>	<b>Class 3 Area</b>	<b>Class 4 Area</b>
07:00 – 23:00	9 or more	50	50	45	55
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

# Exclusion Limits for Impulsive Sound (Cont.)

**Table B-4**  
**Exclusion Limit Values for Impulsive Sound Level ( $L_{LM}$ , dBAI)**  
**Plane of Window – Noise Sensitive Spaces (Day/Night)**

<b>Actual Number of Impulses in Period of One-Hour</b>	<b>Class 1 Area (07:00–23:00)/ (23:00–07:00)</b>	<b>Class 2 Area (07:00–23:00)/ (23:00–07:00)</b>	<b>Class 3 Area (07:00–19:00)/ (19:00–07:00)</b>	<b>Class 4 Area (07:00–23:00)/ (23:00–07:00)</b>
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

# Class 4 Area

The following considerations apply to new noise sensitive land uses proposed in a Class 4 area:

- ❑ formal confirmation of the classification by the land use planning authority;
- ❑ noise impact assessment should be conducted;
- ❑ noise control measures may be required;
- ❑ noise control measures may include receptor based noise control measures and/or source based noise control measures;
- ❑ source based noise control measures may require an MECP approval;
- ❑ warning clause Type F (Section C8.3) is recommended;
- ❑ agreement for noise mitigation; and
- ❑ existing noise sensitive land uses which may be classified as a Class 1 or Class 2 area would not be reclassified until these existing noise sensitive land uses are replaced, redeveloped or rebuilt.

A large, abstract teal shape that resembles a stylized letter 'C' or a curved arrow, positioned on the right side of the slide. It has a smooth, rounded top and a sharp, pointed bottom.

**Part C**

**Land Use Planning**

- ❑ Provides guidance for land use planning purposes.
- ❑ Provides advice for land use planning authorities, developers and consultants to address environmental noise in the land use planning process.
- ❑ Provides assistance in creating compatibility between noise sensitive land uses and stationary sources with respect to noise.
- ❑ MECP has no authority under the Planning Act regarding the land use planning approval process.
- ❑ Relates to the transportation sources of noise and stationary sources of noise in the land use planning process.
- ❑ References sound level limits, feasibility and detailed noise impact studies and noise control measures.
- ❑ Describes responsibilities for ensuring sound level limits are met.

# Outdoor Road and Rail Traffic Sound Level Limit

**Table C-1**  
**Sound Level Limit for Outdoor Living Areas**  
**Road and Rail**

<b>Time Period</b>	<b><math>L_{eq}</math> (16) (dBA)</b>
16-hour, 07:00 – 23:00	55

# Indoor Road and Rail Traffic Sound Level Limits

**Table C-2**  
**Indoor Sound Level Limits**  
**Road and Rail**

Type of Space	Time Period	L <sub>eq</sub> (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

# Outdoor Air Traffic Sound Level Limit

**Table C-3  
Outdoor Aircraft Noise Limit**

<b>Time Period</b>	<b>NEF/NEP</b>
24-hour	30

# Indoor Air Traffic Sound Level Limits

**Table C-4**  
**Indoor Aircraft Noise Limits**  
**(Applicable over 24-hour period)**

<b>Type of Space</b>	<b>Indoor NEF/NEP*</b>
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, etc.	5
Sleeping quarters	0

\* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

# Supplementary Indoor Sound Level Limits Road and Rail

**Table C-9**  
**Supplementary Indoor Sound Level Limits**  
**Road and Rail**

Type of Space	Time Period	L <sub>eq</sub> (Time Period) (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

# Supplementary Indoor Sound Level Limits Air Traffic

**Table C-10**  
**Supplementary Indoor Aircraft Noise Limits**  
**(Applicable over 24-hour period)**

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

\* The indoor NEF/NEP values listed in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

# Noise Control Measures

- ❑ Outdoor Living Areas
  - Acoustic Barriers
- ❑ Plane of a Window – Ventilation Requirements
  - Provision for central air conditioning
  - Central air conditioning
- ❑ Indoor Living Areas – Building Components
  - Walls
  - Windows
  - Doors

# Warning Clauses

- ❑ Type A (Exceedance of Sound Level Limits)
- ❑ Type B (Noise Control Measures)
- ❑ Type C (Provision for Central Air Conditioning)
- ❑ Type D (Central Air Conditioning)
- ❑ Type E (Stationary Source of Noise)
- ❑ Type F (Class 4 Area)

## **Appendix B – Noise Chart**

# SOUND PRESSURE

# SOUND PRESSURE LEVEL

