

CENAC Backgrounder Noise Monitoring Terminals

Background:

- The goal of noise monitoring is to obtain objective data and assess aircraft noise levels at certain locations in the community. Noise Monitoring Terminals (NMT) are tools to assist with the analysis and correlation of a noise complaint with an aircraft operation.

What is a noise event?

- A noise event is what is captured when the sound level and duration exceeds a predefined threshold.
- The sound thresholds at NMTs are set according to the ambient background noise level at each location; the lower threshold at night accounts for the lower ambient background noise.
- In the case of the measurements at any NMT, the sound level threshold is set at:
 - 65 dBA during the day (6:30am to 11:59pm)
 - 60 dBA during the night (12:00am to 6:29am)
 - The event time duration is set at 5 seconds

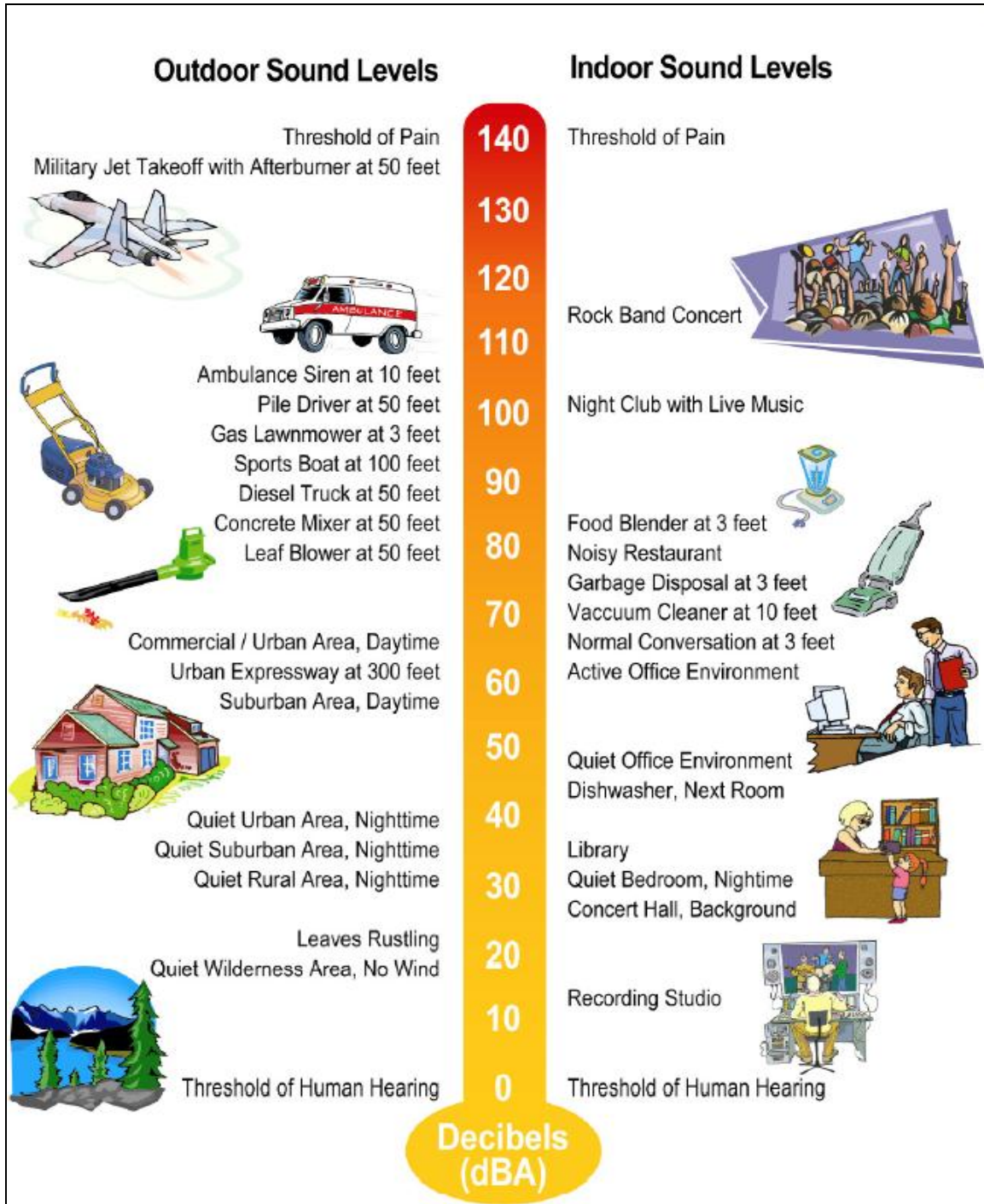
What do Noise Monitoring Terminals Do?

- NMT's indicate the maximum sound level – or noise event – measured.
 - In a single day, for a specific time, there could be several noise events and this value is not cumulative.
 - Noise events get correlated to aircraft.

What do we do with this data?

- The Noise Office team uses NMT data to assist in analysing complaints. In instances when there is a complaint, GTAA staff can pull the data to determine if the aircraft noise was the dominant noise.
- Noise events believed to be caused by an aircraft are then correlated using radar data supplied by Nav Canada to confirm that it was in fact aircraft noise.
- Toronto Pearson is federally regulated, and not bound to any municipal noise by-laws. There is no maximum noise limit set in federal regulations or laws.

Typical Indoor and Outdoor Sound Levels



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Objective:

To provide the CENAC committee with information on the criteria used by the noise office when determining permanent placement of Noise Monitoring Terminals.

Background

The GTAA Noise and Flight Track Monitoring System is currently equipped with 17 permanent noise monitoring terminals (NMT) and two portable NMTs. The goal is to maintain an up-to-date noise monitoring and flight tracking system that provides an accurate history of measurable aircraft noise events. NMTs are tools to assist with the analysis and correlation of a noise complaint with an aircraft operation. Below is a list of criteria required when selecting NMT locations. A CENAC sub-committee was critical in the determination and review of the locations for these new noise monitors.

- a) **Proximity of NMT to Aircraft Flightpaths:** The NMT should be located in an area which will have frequent flyovers of arriving or departing aircraft at altitudes below 6,000 feet Above Sea Level (ASL) if noise events are to be properly recorded and correlated with aircraft operations. Locations up to 4 nautical miles along the final approach path will be exposed to both arriving and departing aircraft. At greater distances, up to 8 nautical miles along the final approach path, arriving aircraft will be monitored as they approach on the localizer and glidepath signals of the instrument landing system. Departing jet aircraft initiate enroute turns generally from 3 to 7 nautical miles from the runway end and will be dispersed over a broad area as they turn towards their designated airway.
- b) **Proximity of NMT to Existing Noise Monitors:** To provide significantly different noise exposure, potential sites should be located a minimum of 1 nautical mile from any existing NMT. Where two existing NMTs are located on the final approach, no additional NMTs should be added between them.
- c) **Proximity of NMT to Noise Sensitive Land Use:** Locations in the vicinity of noise sensitive residential, institutional or recreational land uses will provide for the quantification of aircraft noise impact and aid in addressing noise complaints.
- d) **Background Noise Level:** Background noise levels at potential sites should be relatively low to improve the accuracy of correlating aircraft noise events. A minimum of 10 decibels below expected aircraft noise levels is required with no exposure to other sources or intermittent high noise levels.
- e) **Utility Sources, Site Access and Security:** Potential locations should be within 100 metres of existing hydro and telephone service to avoid high installation costs. The NMT should be easily accessible for maintenance that is required at least once per year. The NMT should be located in either a secured area or an area that is well exposed to observation by the public to avoid vandalism or theft.
- f) **Terrain and Building Interference:** NMT sites should be located where there is a direct line of sight (sound) to the area of the sky where aircraft normally fly. No large buildings or other large solid surfaces should be within 25 to 50 ft of the NMT to avoid sound reflections. Trees or other sources of wind noise should be at least 15-25 ft from the NMT.

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