407 EAST Environmental Assessment Fact Sheet

Noise

BACKGROUND

MTO follows a joint Noise Protocol, developed in partnership with the Ministry of the Environment (MOE), for investigating and mitigating noise impacts along provincial highways.

For any Noise Sensitive Areas (NSAs) that may experience a significant increase in the level of noise, the joint MTO/MOE Noise Protocol requires MTO to:

- Investigate possible noise control measures on the right-of-way;
- Mitigate existing ambient noise levels as administratively, economically and technically feasible; and
- Achieve a minimum reduction of five decibels averaged over the first row receivers. A change in noise level less than three decibels cannot be perceived.

HOW DO WE IDENTIFY AND MEASURE NOISE?

Noise is considered an undesired or unwanted sound and is measured in decibels (dB). When measuring noise impacts the decibel scale is often weighted using an "A" frequency adjustment factor because it is the frequency best heard by the human ear. Noise is considered an environmental impact if it adversely affects a NSA.

The MTO/MOE Noise Protocol identifies a typical NSA as:

- An outdoor living area of a residence at a height of 1.2 m in the backyard, normally 3 m from the rear facade; or
- A communal living area of an apartment building; or
- Hospitals, nursing homes, etc.

Typical noise levels are:

Sound Level	Area Sound Level Found
Above 75 dBA	Next to Highway 401 in Toronto
70 to 75 dBA	Next to Highway 404 in Toronto
65 to 70 dBA	Next to Highway 400 in Vaughan
60 to 65 dBA	Near a large urban arterial roadway
55 to 60 dBA	Near a King's Highway such as Highway 35
50 to 55 dBA	Background urban sound level
45 to 50 dBA	Background suburban sound level
40 to 45 dBA	Background rural sound level

Projected noise impacts are determined by a qualitative/quantitative analysis or assessment to:

- Identify the Study Area;
- Determine noise sensitive areas based on the number of existing and approved residential developments;
- Calculate ambient sound levels;
- Calculate future "no build" and future "build" sound levels and assess noise impacts;
- Determine noise mitigation requirements; and/or;
- Assess construction noise and vibration impacts.

Highway improvements that increase noise levels by more than 5 decibels above the ambient (existing) noise level require mitigation where feasible.

Where warranted, MTO mitigates highway noise by:

- Shifting the highway alignment, either horizontally or vertically;
- Constructing noise barrier walls, berms; and/or;
- Using quieter highway pavement surfaces.

NOISE BARRIERS

A noise barrier may be a noise wall or noise berm. Noise barriers must meet safety and structural standards, and must be installed in accordance with the MTO Road Side Safety and Clear Zone Policy, to avoid becoming a roadside hazard.

MITIGATION FOLLOWING IMPLEMENTATION OF A PROJECT

Municipalities are responsible for ensuring that MOE and Ministry of Municipal Affairs and Housing policies are followed when developers plan residential subdivisions near provincial highways.

Noise Wall

Noise Berm

A developer who builds a residential subdivision must provide noise mitigation if sound levels are expected to exceed 60 decibels in the outdoor recreational areas within 10 years after development approval.

NOISE BARRIER RETROFIT PROGRAM

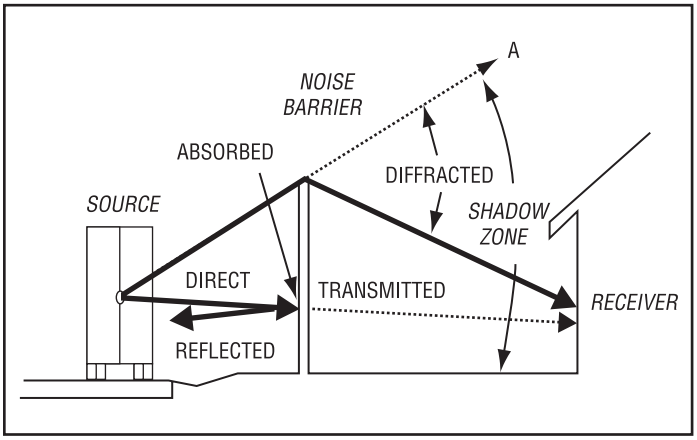
(not applicable to the 407 East Study)

MTO has a Noise Barrier Retrofit Program for **existing provincial freeways**. Eligibility for the Noise Barrier Retrofit Program if a property is along an existing provincial freeway. For a location to be placed on the Candidate Sites for Noise Barrier Retrofit List, it must meet **all** of the following:

- The noise sensitive area must be next to a provincial freeway;
- The average daily noise levels must be more than 60 decibels;
- Noise sensitive areas must be outdoor, ground level, leisure areas of residential properties that were approved for development under the Planning Act before February 8, 1977; and
- Barrier implementation must be on the MTO right-of-way and sufficiently effective to reduce noise by at least five decibels.

HOW A NOISE BARRIER WORKS

The following figure illustrates how a noise barrier works. The barrier is used to alter the path between the noise source and the receiver.



If the noise barrier blocks the line of sight between the source and the receiver there is a 5 dBA reduction. There is an additional 1.5 dBA reduction for each additional metre of wall that is above the line of sight.

FOR FURTHER INFORMATION CONTACT

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