



## TRAFFIC NOISE EVALUATION PHASES

### PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) PHASE

FDOT begins the noise evaluation process during the PD&E study phase. The Department developed this engineering and environmental process, which includes a preliminary analysis of alternatives developed for a project. FDOT presents the alternatives at a public information workshop. After the workshop, the Department selects a preferred build alternative and performs a detailed noise analysis on the alternative. This analysis includes an evaluation of noise abatement measures with results presented at a public hearing.

### DESIGN PHASE

During the design phase of a project, FDOT develops detailed highway plans, right-of-way requirements are determined, and the right-of-way acquisition process begins. When plans are approximately 60 percent complete, engineering details are sufficient to allow for a reassessment of any abatement measures determined to be potentially feasible and reasonable during the PD&E phase. Following public coordination, the department will incorporate all feasible and reasonable measures into the final design plans.

### CONSTRUCTION PHASE

FDOT includes feasible and reasonable traffic noise abatement measures as part of the construction project.

## EXAMPLES OF NOISE BARRIER WALLS



DISTRICT ONE

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# TRAFFIC NOISE EVALUATION PROCESS

## WHEN IS A NOISE STUDY NEEDED?

The Florida Department of Transportation (FDOT) performs traffic noise impact evaluations using Federal Highway Administration (FHWA) approved methodology. Highway projects are evaluated for traffic noise impacts when:

- a new highway alignment is built;
- an alteration to an existing highway substantially changes its horizontal or vertical alignment; or
- the number of through traffic lanes is increased.

# STEPS OF EVALUATING TRAFFIC NOISE

## STEP 1:

### Identification of noise sensitive sites

FDOT gives primary consideration to exterior areas where frequent human use occurs. Seven categories of activity/land use are used to assess the potential impacts of noise. Some examples of noise sensitive sites include exterior areas of residences, schools, churches and recreational facilities.

## STEP 2:

### Determination of traffic noise impacts

The Department determines future traffic noise levels that are attributed to the proposed highway project and compares the levels to FHWA noise abatement criteria (NAC). Typical noise sensitive sites with predicted noise levels that reach or exceed 66 decibels [dB(A)] or experience an increase of 15 db(A) above existing noise levels (for NAC B/C) require abatement consideration.

## STEP 3:

### Consideration of abatement measures

Federal regulation requires consideration of a noise barrier as a traffic noise abatement measure. A noise barrier is a concrete wall constructed on public right-of-way between the proposed highway improvements and the noise sensitive site.

Feasibility factors involve both noise reduction and engineering considerations. The barrier must provide a reduction of at least 5 dB(A) to a minimum of 2 impacted receptors. The barrier is reviewed to consider if it can be constructed using standard construction methods and techniques. Safety also plays a critical factor in determining if a barrier is feasible. Other feasibility factors include access, right of way, maintenance, drainage, and utilities.

The Department also gives consideration to cost effectiveness (\$42,000 per benefited receptor) and viewpoints of property owners and residents.

## STEP 4:

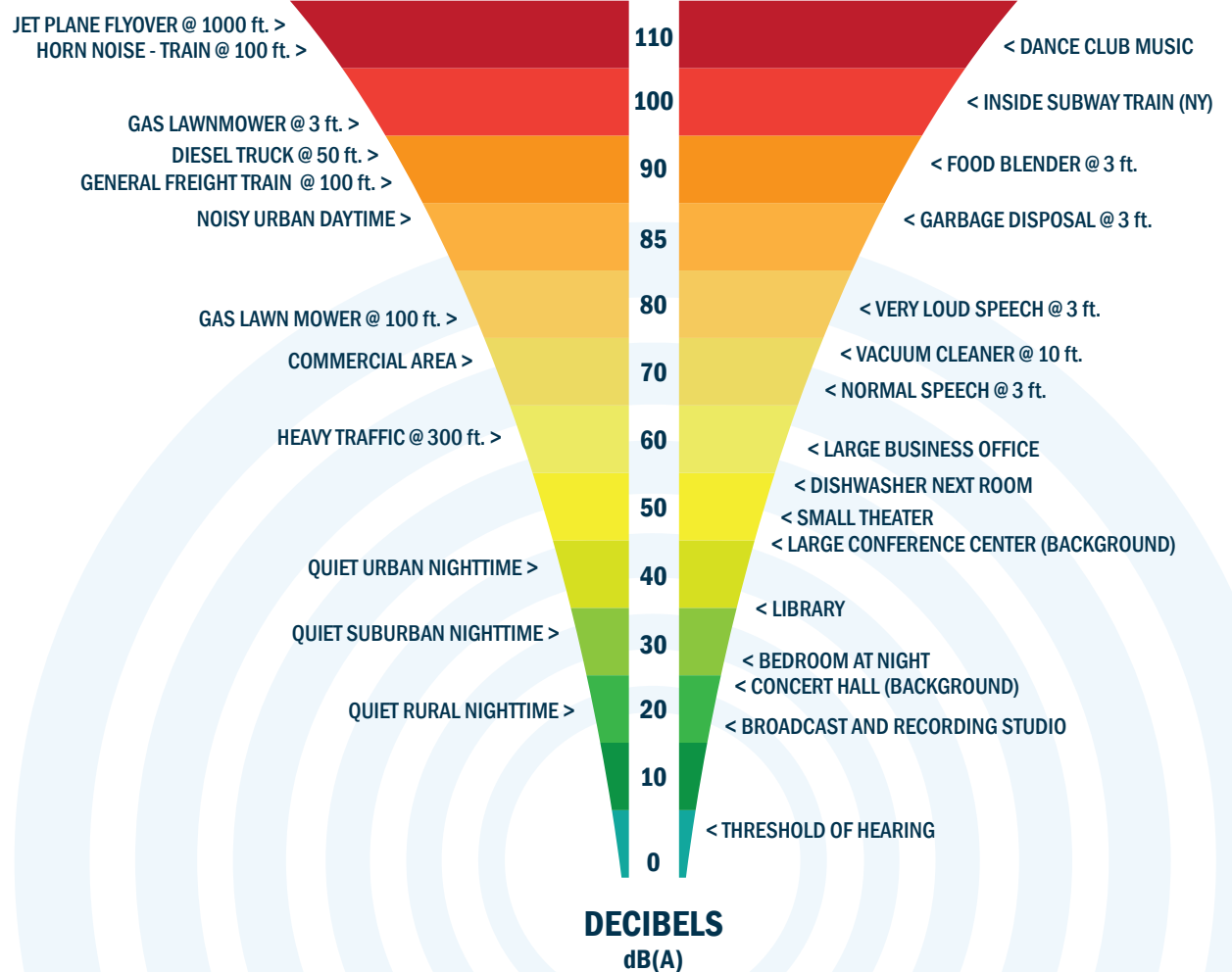
### Commitments to abatement measures

Following completion of the noise impact evaluation, the methodology and results are documented in the project's Noise Study Report.

If the Department determines an abatement measure is potentially feasible and reasonable, a commitment is made to further evaluate the measure during the design phase of the project.

## COMMON OUTDOOR SOUND LEVELS

## COMMON INDOOR SOUND LEVELS



## What will a Noise Barrier do?

- The goal is to reduce traffic noise by at least 5 decibels (dB)
- The amount of noise reduction depends on:
  - Distance of the receptor from the barrier
  - Distance of the noise source from the barrier
  - Length and height of the barrier
  - Elevation differences among the road, barrier and receptor