

## NOISE ANALYSIS AND ABATEMENT PROCESS

### 1. Purpose

This work instruction describes the process for noise analysis and abatement on MDT highway projects, in compliance with 23 CFR 772 "Procedures for abatement of highway traffic noise and construction noise," the MDT Noise Policy and the MDT Noise Manual.

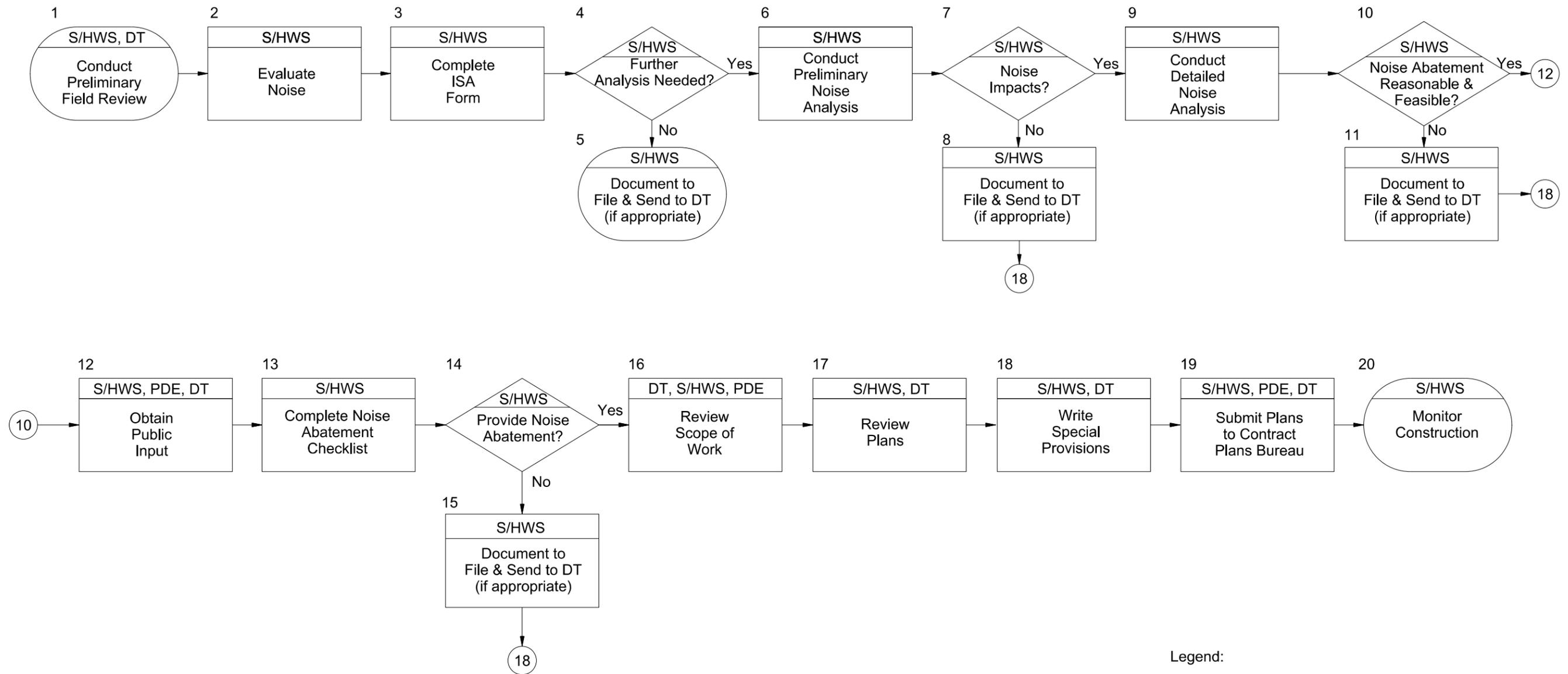
### 2. Scope

The noise analysis and abatement process for proposed MDT highway projects is administered by the Solid/Hazardous Waste Specialists (S/HWS) within the MDT Environmental Services Bureau (ESB) in cooperation with the Design Team (DT) and Project Development Engineer (PDE). The noise analysis and abatement process begins with the Preliminary Field Review and ends with one of the following determinations by the S/HWS:

- Further investigations for potential noise impacts are not warranted;
- Based on the results of a preliminary noise analysis, the project will not cause noise impacts;
- Based on the results of a detailed noise analysis, the project will cause a noise impact but there are no reasonable and feasible abatement measures for addressing the noise impacts;
- There are reasonable and feasible abatement measures for addressing the project's noise impacts but, based on public input, the abatement measures are not considered acceptable for implementation; or
- Reasonable and feasible abatement measures are implemented for highway traffic noise impacts and construction noise impacts associated with the project.

### 3. Process

[Figure 1](#) presents a flowchart that illustrates the MDT noise analysis and abatement process for proposed highway projects. Following the Figure is a description of each process task included within the flowchart.



Legend:

PDE = Project Development Engineer  
 S/HWS = Solid/Hazardous Waste Specialist  
 DT = Design Team

Figure 1 — NOISE ANALYSIS AND ABATEMENT PROCESS

**PROCESS TASK**

Task Title: Conduct Preliminary Field Review

Task No.: 1

Task Description

The Preliminary Field Review (PFR) is the initial step that begins the noise analysis and abatement process for a proposed project. The PFR includes preliminary evaluation of the scope of work and the potential for social, economic and environmental impacts. The DT ensures that appropriate MDT personnel are notified and invited to participate in the field review.

As appropriate, the S/HWS participates in the PFR to make a preliminary evaluation of available information on the project scope and the potential for traffic noise impacts and/or construction noise impacts associated with the project location.

Following the field review, the DT prepares a PFR Report summarizing the issues discussed during the PFR, including potential noise impacts. The DT distributes the final PFR Report for review and comment. Within ESB, the PDE serves as the document champion to collect and coordinate comments from the other sections. The PDE compiles the comments into a PFR review memorandum for signature by the Environmental Services Bureau Chief (ESBC).

Regulations and Guidance

*MDT Road Design Manual*, Chapter One, "Road Design Process"

**PROCESS TASK**

Task Title: Evaluate Noise

Task No.: 2

Task Description

The S/HWS determines if the project is a Type I project as defined in 23 CFR 772 (e.g., a proposed Federal or Federal-aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes) or if it may otherwise involve potential noise issues. If the proposed action is not a Type I project, and does not involve potential noise issues, the S/HWS proceeds to [Task 3](#).

If the proposed action is a Type I project, or if it is not a Type I project but involves potential noise issues, the S/HWS uses the FHWA Traffic Noise Model Version 2.5 Look-Up Tables to conduct a preliminary screening of the project for potential noise levels and proceeds to [Task 3](#).

**PROCESS TASK**

Task Title: Complete ISA Form

Task No.: 3

Task Description

The S/HWS documents the results of the initial evaluations for noise, air quality and hazardous materials/substances on the MDT Initial Site Assessment (ISA) Form and attaches appropriate supporting information.

The S/HWS indicates whether further evaluation is needed for noise, air quality or hazardous materials in the “Conclusions” section of the ISA Form.

For the noise analysis and abatement process, the S/HWS proceeds to [Task 4](#).

For air quality and hazardous materials, the S/HWS addresses further decisions and analyses, as needed, separate from the noise analysis and abatement process.

**PROCESS TASK**

Task Title: Further Analysis Needed?

Task No.: 4

Task Description

If completion of the ISA Form results in the determination that the proposed action is not a Type I project and does not otherwise involve potential noise issues, the S/HWS proceeds to [Task 5](#).

If the proposed action is determined to be a Type I project or involves potential noise issues, the S/HWS proceeds to [Task 6](#).

*Note: There may be instances in which the results of the initial noise evaluation clearly indicate a noise impact and the need for a detailed noise analysis. When this occurs, the S/HWS proceeds to [Task 9](#).*

**PROCESS TASK**

Task Title: Document to File & Send to DT (if appropriate)

Task No.: 5

Task Description

The S/HWS includes the completed ISA Form in the project file to document the determination that the proposed action is not a Type I project, does not involve noise impact issues and, therefore, does not require further noise analysis. The S/HWS may provide a copy of the completed ISA Form to the DT if the S/HWS believes the information would be useful.

This completes the noise analysis and abatement process for the project.

**PROCESS TASK**

Task Title: Conduct Preliminary Noise Analysis

Task No.: 6

Task Description

For a Type I project or a project determined to involve potential noise impact issues, the S/HWS completes a preliminary screening of the project to determine if a detailed noise analysis, including preliminary design of noise abatement, is necessary. The S/HWS conducts the preliminary screening and document the results in accordance with the *MDT Noise Manual*.

After completing the preliminary noise analysis, the S/HWS proceeds to [Task 7](#).

Regulations and Guidance

*MDT Noise Manual*

**PROCESS TASK**

Task Title: Noise Impacts?

Task No.: 7

Task Description

Based on the results of the preliminary noise screening procedure conducted in [Task 6](#), the S/HWS determines if the proposed project involves sufficient potential for noise impacts to affected receptors to warrant a detailed noise analysis.

If the preliminary noise screening procedure indicates a detailed noise analysis is not needed, the S/HWS proceeds to [Task 8](#).

If a detailed noise analysis is necessary for the proposed project, the S/HWS proceeds to [Task 9](#).

**PROCESS TASK**

Task Title: Document to File and Send to DT (if appropriate)

Task No.: 8

Task Description

The S/HWS prepares documentation of the basis for determining that a detailed noise analysis is not required and includes the documentation in the project files. The S/HWS also provides the information for inclusion in the environmental documentation for the project and provides a copy to the DT if the S/HWS believes it will be useful.

This completes the traffic noise analysis and abatement process for the project. However, the S/HWS also evaluates the project's potential for construction noise impacts. If Special Provisions for control of construction noise are required, the S/HWS proceeds to [Task 18](#).

## PROCESS TASK

Task Title: Conduct Detailed Noise Analysis

Task No.: 9

### Task Description

For projects determined to involve noise impacts, the S/HWS conducts a detailed noise analysis in accordance with the *MDT Noise Manual*.

The detailed noise analysis involves measuring ambient noise levels at selected receivers, verifying the noise analysis computer model, and modeling design year noise levels using projected traffic volumes for all alignments considered in the environmental document. The detailed noise analysis also includes evaluation of project modifications to minimize and avoid traffic noise impacts and evaluation of the reasonableness and feasibility of noise abatement measures. This may require modeling the use of noise abatement measures.

The S/HWS compiles a report of the results of the detailed noise analysis. The report includes the following:

- identification of traffic noise impacts;
- discussion of impact avoidance and minimization measures and the reasonableness and feasibility of abatement measures considered; and
- description of proposed noise abatement measures, if applicable.

The S/HWS provides the detailed noise analysis report for incorporation in the environmental documentation for the project (i.e., a summary of the results included in the documentation with the report contained in an appendix) and provides a copy to the DT, PDE, District and Right-of-Way Bureau. For projects involving proposed noise abatement measures, the report is used for the final noise abatement process decision. After completing the detailed noise analysis report, the S/HWS proceeds to [Task 10](#).

### Regulations and Guidance

*MDT Noise Manual*

**PROCESS TASK**

Task Title: Noise Abatement Reasonable and Feasible?

Task No.: 10

Task Description

Based on the results of the detailed noise analysis, the S/HWS determines if there are reasonable and feasible measures that could be implemented to address the project's traffic noise impacts.

If there are no reasonable and feasible noise abatement measures, the S/HWS proceeds to [Task 11](#).

If there are reasonable and feasible noise abatement measures, the S/HWS proceeds to [Task 12](#).

**PROCESS TASK**

Task Title: Document to File and Send to DT (if appropriate)

Task No.: 11

Task Description

The S/HWS documents in the project file the determination that there are no reasonable and feasible noise abatement measures for the project. The S/HWS also provides the information for incorporation in the environmental documentation for the project and provides a copy to the DT, PDE, District and Right-of-Way Bureau if the S/HWS believes it will be useful.

The S/HWS coordinates with the PDE throughout the remainder of the design process to ensure the noise analysis matches the project design.

This completes the traffic noise analysis and abatement process for the project. However, if the S/HWS evaluates the project's potential for construction noise and determines Special Provisions are needed for control of construction noise, the S/HWS proceeds to [Task 18](#).

**PROCESS TASK**

Task Title: Obtain Public Input

Task No.: 12

Task Description

The S/HWS coordinates with the PDE and the DT to develop information for obtaining public input on the reasonable and feasible noise abatement measures for the project. The information typically includes descriptions of the abatement measures, visual simulations showing the appearance of the measures in place along the project, depictions of available surface textures and colors, if applicable, and a written survey form for obtaining the views of affected residents and other entities.

The DT and PDE accomplish the actions for obtaining public input on the reasonable and feasible noise abatement measures in conjunction with other public involvement activities for the project and provide the results to the S/HWS.

**PROCESS TASK**

Task Title: Complete Noise Abatement Checklist

Task No.: 13

Task Description

The S/HWS completes the Noise Abatement Recommendation Worksheet to document the basis for the Feasibility Determination, the basis for the Reasonableness Determination and to document the Abatement Decision. The S/HWS includes the completed checklist in the project file, provides it to the PDE for incorporation in the environmental documentation for the project and provides a copy to the DT.

Regulations and Guidance

*MDT Noise Manual*

**PROCESS TASK**

Task Title: Provide Noise Abatement?

Task No.: 14

Task Description

When the completed Noise Abatement Recommendation Worksheet indicates noise abatement measures will not be pursued for implementation, the S/HWS proceeds to [Task 15](#).

When the completed Noise Abatement Recommendation Worksheet indicates noise abatement measures will be pursued for implementation, the S/HWS proceeds to [Task 16](#).

**PROCESS TASK**

Task Title: Document to File and Send to DT (if appropriate)

Task No.: 15

Task Description

The S/HWS prepares documentation of the basis for determining that the affected public did not find the reasonable and feasible noise abatement measures to be acceptable. The S/HWS includes the information in the project file, provides it to the PDE for incorporation in the environmental documentation for the project and provides a copy to the DT for documentation in the Scope of Work Report.

This completes the traffic noise analysis and abatement process for the project. However, if the S/HWS evaluates the project's potential for construction noise and determines Special Provisions are needed for control of construction noise, the S/HWS proceeds to [Task 18](#).

## PROCESS TASK

Task Title: Review Scope of Work

Task No.: 16

### Task Description

As soon as appropriate data is available, the DT prepares the Scope of Work (SOW) Report, which identifies the major design features of the project and provides an overview of the project improvements. In addition to information on various engineering aspects of the proposed project, the SOW Report includes discussion of environmental considerations, including traffic noise impacts and associated impact avoidance, minimization and abatement measures. The SOW Report cannot be finalized until the environmental document is approved.

The DT distributes the SOW Report for review and comment by affected MDT bureaus. Within ESB, the PDE serves as the document champion to collect and coordinate comments from the other sections. The S/HWS reviews the SOW Report, provides written comments to the PDE and coordinates with the DT to ensure that noise abatement measures are accurately reflected in the Report. The PDE compiles the comments into an SOW review memorandum for signature by the ESBC.

### Regulations and Guidance

*MDT Road Design Manual*, Chapter One, "Road Design Process"

**PROCESS TASK**

Task Title: Review Plans

Task No.: 17

Task Description

The S/HWS coordinates with the DT to review the final project plans and ensures that measures for noise impact avoidance, minimization and abatement are accurately reflected.

**PROCESS TASK**

Task Title: Write Special Provisions

Task No.: 18

Task Description

The S/HWS coordinates with the DT to prepare Special Provisions associated with the proposed noise abatement measures (e.g., for constructing the abatement measures prior to highway construction).

Based on the evaluation of the project's potential for construction noise impacts, the S/HWS may prepare special provisions for inclusion in the project plan documents for control of noise impacts during project construction (e.g., use of adequate mufflers on construction equipment, limiting work to daylight hours in residential or other noise-sensitive areas, responding to noise complaints). The S/HWS coordinates with the DT and MDT Contract Plans Bureau to ensure the special provisions associated with noise are accurately reflected in the final engineering plan documents.

The S/HWS will also review the approved Environmental Document to ensure any specifications or special provisions necessary for fulfilling any commitments with this document are prepared and submitted.

**PROCESS TASK**

Task Title: Submit Plans to Contract Plans Bureau

Task No.: 19

Task Description

The DT submits the final project plans to the MDT Contract Plans Bureau.

**PROCESS TASK**

Task Title: Monitor Construction

Task No.: 20

Task Description

The S/HWS monitors construction noise for compliance with contract special provisions, based on specific project commitments. The S/HWS also may conduct post-construction noise measurements to determine the effectiveness of constructed noise abatement measures.

Completion of any required construction-stage noise monitoring and post-construction noise measurements ends the noise analysis and abatement process for the project.