

## Executive Summary

### Project Objectives

- Brief summary of project
- SR, MP limits
- jurisdiction vicinity
- action triggering Type1 study

### Current Noise Environment

- brief summary of adjacent land uses
- brief summary of current impacts, if any
- Table(s) preferred

### Noise Impacts of Alternatives

- brief comparison of Build vs. No Build impacts
- Table(s) preferred

### Abatement (Recommended/Not Recommended)

- if abatement is recommended - brief summary of wall(s) heights and general alignments
- if not recommended - why abatement is not recommended

## Introduction

### Project Description

- typically provided by the project office, but can be summarized to include only relevant design features
- vicinity map, including project area and state map reference
- maps comparing alternatives (if applicable)
- typically provided by PEO and can be used for Exhibit 1

### Type 1 Trigger for Noise Analysis

- Description of Type 1 activity on this project

### Noise Relevant Project Information

- list of items relevant to traffic noise analysis for existing, No-Build, and Build conditions, including:
  - Type of roadway (elevated, depressed, at-grade)
  - Number of lanes
  - Changes to existing access
  - Travel speeds (existing and posted)
  - Year for Existing and Build/No-Build conditions
  - Project design elements that may reduce future noise levels (e.g. crash barriers vs. guardrail)

## Characteristics of Sound and Noise

### Definition of Sound

- general description of sound and dBA/dB(A) metric

### Definition of Noise

- general description of noise

### Traffic Noise Sources

- general description of traffic noise and noise sources

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### Exhibit 1: Typical Noise Levels

- example of noise sources to understand relative levels of traffic noise

### Sound Propagation

- general description of sound propagation, line-of-sight, and terrain affects\

### Line and Point Sources

- general description of line and point source sound attenuation

### Noise Level Descriptors

- general description of L metrics
- include use of 15-minute Leq to represent 1-hour here or in Methodology chapter

### Noise Regulations and Impact Criteria

- description of NAC and land use categories

## **Traffic Noise Analysis Methodology**

### Determination of the Traffic Noise Study Area

- describe the noise study area
  - o how the study area was established
  - o study area boundaries
- include aerial with noise study area identified
  - o Reference appropriate Exhibit where study area is defined, if included elsewhere

### Traffic Noise Measurement

- include use of 15-minute Leq to represent 1-hour here or in Characteristics chapter
- clarify that measurements are not used to describe Existing conditions
  - o unless Type I activity is a new roadway where none previously existed

### Traffic Noise Model Validation

- describe validation process
  - o any complications with validations
  - o non-traffic noise sources
  - o adjustment factors used and justification
  - o reference table in appendix with traffic counts, speeds and vehicle mix info for validation points
- Provide visual showing validation points
- Describe how validation was within +/- 2.0 dBA for each receiver
  - o Table preferred

### Traffic Noise Modeling – Predicted Traffic Noise Levels

- Aerial showing receiver locations
  - o describe how color/shape/number of symbol distinguishes measured from modeled locations
- describe modeled noise levels for Existing, No Build, and Build conditions
  - o Include information for ALL alternatives
  - o Table(s) comparing condition to each other is/are preferred
- Traffic information including speed, volumes, and vehicle mix referenced to appendix containing this information for each condition and alternative
  - o Decision to use AM or PM peak – same for all conditions and alternatives

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## Traffic Noise Levels

### Operational Traffic Noise

- Clearly describe the number of traffic noise impacts in Existing, No-build, and Build conditions for each alternative

### Existing Noise Levels

- Summary description of Existing conditions, including impacts and other relevant information

### Design Year Traffic Noise Levels – No Build

- Describe the general effect of not building the project on future traffic noise levels and compare design year No Build to existing noise levels.

### Design Year Traffic Noise Levels –Build

- Describe how/why the Type 1 activity effects traffic noise levels in general terms and compare design year Build to existing noise levels.

## Traffic Noise Abatement

### Traffic Noise Abatement - Background

- Briefly state if traffic noise abatement was considered for the project, or why not. Other forms of abatement should be discussed only if they were evaluated and/or recommend for the project.

### Feasibility

- describe what feasibility is
- describe what abatement was evaluated
- if wall, height, length, alignment
- include graphic of wall/abatement evaluated, if appropriate (see Exhibit 10)
- describe the minimum feasible abatement

### Reasonableness

- describe what reasonableness is
- if abatement is feasible - describe reasonableness analysis of min. feasible abatement
- if reasonable, include max reasonable abatement and “optimized” abatement that attempt to meet WSDOT 10 dBA goal
- include graphic of wall/abatement evaluated, if appropriate (see Exhibit 10)
- if abatement was not feasible, describe why reasonableness was not evaluated

### 1. Cost Effectiveness

- describe cost-effectiveness or wall size comparison (allowed to required)
- table is required that includes each receiver per WSDOT reasonableness table

### 2. Design Goal Achievement

- describe if/how abatement is able to achieve WSDOT’s reasonableness design goal

### 3. Desire for Abatement from Public within the Noise Study Area

- If outreach occurs prior to report completion or if report is updated after outreach has occurred,
  - describe public outreach
  - how public opinion was solicited
  - whether outreach was determined that abatement was/was not desired
- if outreach has not occurred, clarify that outreach must occur before the abatement can be constructed

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### Recommendation for Traffic Noise Abatement

- clarify recommendation for/against abatement and clarify reasons why

### **Construction Noise**

#### Construction Noise Background

- describe general information on construction noise

#### Construction Noise Levels Limits

- describe exemptions and restriction on construction noise levels
- include table of max permissible levels and EDNAC

#### Construction Noise Variance for Night Work

- clarify jurisdictions within project area and/or affected by potential night work
- briefly describe night variance/exemption requirements where applicable

#### Construction Noise Abatement

- describe general/standard abatement considerations and any particular abatement requirements for this project
- include description/examples of construction noise (see table below)

### **Appendix B – Traffic Data**

- validation traffic counts, speeds, vehicle mix data
- Existing, No-build, and Build traffic volumes speeds, vehicle mix data
- reference document and/or contact for traffic data

### **Appendix C – TNM Barrier Graphics**

- graphics for all barriers discussed in the analysis

### **Appendix D - TNM Data**

#### TNM Data

- include 2 copies of CD-ROMs with all TNM v2.5 files marked as follows:
  - Project Name\_Build
  - Project Name\_NoBuild
  - Project Name\_Existing
  - Project Name\_BarrierX
  - Project Name\_BarrierX

### **Appendix E – Field Data Sheets**

- include data sheets from the field that describe the validation measurement locations