

Noise and Vibration Assessment Sample for Highway Expansion

1. Introduction

This sample document outlines the procedures, findings, and recommendations of a noise and vibration assessment conducted in relation to the proposed expansion of Highway 45. The assessment is developed following national guidelines and local regulations.

2. Project Overview

- Project:** Highway 45 Expansion
- Extent:** Mile Marker 12 to Mile Marker 28
- Primary Activities:** Road widening, new interchanges, and repaving

3. Methodology

The assessment included baseline measurements, predictive modeling, and evaluation of potential impacts using standard equipment and procedures:

- Baseline noise measurements using Class 1 sound level meters
- Vibration assessments via tri-axial geophones
- Predictive modeling using the FHWA Traffic Noise Model
- Comparison with national allowable limits

4. Baseline Noise and Vibration Levels

Location	Noise Level (dBA, Leq)	Vibration (PPV, mm/s)
Residential Area North	56	0.12
School Zone East	52	0.10
Community Park South	53	0.11

5. Predicted Future Impacts

- Noise levels may increase by approximately 4–7 dBA in adjacent residential areas during peak construction phases.
- Vibration is expected to remain below thresholds for cosmetic damage but may be perceptible during pile driving activities.

6. Mitigation Measures

- Temporary noise barriers to be installed along sensitive receptors
- Restriction of high-vibration construction activities to daylight hours
- Community notification and engagement prior to major construction milestones

7. Conclusions

With mitigation measures in place, noise and vibration impacts are expected to comply with regulatory standards. Ongoing monitoring is recommended throughout the project duration.

References

- Federal Highway Administration (FHWA) Noise Model Documentation
- Local Environmental Noise Regulations