Table of Contents

- Notice, Report Documentation, & Metric Conversion
- ACKNOWLEDGEMENTS.
- LIST OF FIGURES.
- LIST OF TABLES.
- 1.0 INTRODUCTION.
  - 1.1 Background.
  - 1.2 Objectives.
  - 1.3 Handbook and CD-ROM Use.
  - 1.4 Handbook and CD-ROM Organization.
- 2.0 TERMINOLOGY
- 3.0 EFFECTS OF CONSTRUCTION NOISE.
  - 3.1 Introduction.
  - 3.2 Types of Effects.
    - 3.2.1 Physical Effects.
    - 3.2.2 Speech Interference.
    - 3.2.3 Activity Interference.
    - 3.2.4 Annoyance.
    - 3.2.5 Examples of Data from Previous Studies (Effects on Humans)
    - 3.2.6 Effects on Non-Humans.
- 4.0 CONSTRUCTION NOISE CRITERIA AND DESCRIPTORS.
  - 4.1 Criteria.
    - 4.1.1 History of Construction Noise Criteria.
      - 4.1.1.1 United States.
4.2 Descriptors.

5.0 MEASUREMENT OF CONSTRUCTION NOISE.

5.1 History.
5.2 Purpose of Noise Measurements.
5.3 Measuring Existing and Ambient Noise.

- 5.3.1 Establishing Background Levels.
- 5.3.2 Selecting Measurement Sites and Periods.
- 5.3.3 Determining Events/Activities to Include/Exclude.
- 5.3.4 Determining the Appropriate Noise Descriptor.
- 5.3.5 Consideration of Meteorological Factors.

5.4 Measurement of Construction Operations.

- 5.4.1 Establishing Measurement Locations and Periods.
- 5.4.2 Determining Events/Activities to Measure.
  - 5.4.2.1 Measuring Entire Project Construction Noise.
  - 5.4.2.2 Measuring an Entire Operation.
  - 5.4.2.3 Measuring Partial Operations.
  - 5.4.2.4 Measuring Indirect Noise Effects.

5.5 Measurement of Equipment Noise.
5.6 Type of Noise Measurement Equipment and Systems.
5.7 Other Factors to Consider

6.0 PREDICTION OF CONSTRUCTION NOISE.

6.1 Historical Approaches to Predicting Construction Noise.
6.2 Relevant Modeling Issues.
6.3 Types of Analysis Procedures.
  - 6.3.1 Historical Data Related to Similar Conditions.
  - 6.3.2 Manual Calculations Using Historical Data.
  - 6.3.3 Manual Calculations Using Measured Data.
6.3.4 The FHWA Roadway Construction Noise Model (RCNM)

6.3.5 The FHWA Highway Construction Noise Model (HICNOM)

6.3.6 Other Models and Considerations.

6.4 Construction Noise Prediction Methodology.

6.5 Qualifications of the Persons Performing Noise Evaluations.

6.6 Factors Affecting Construction Noise Impact Evaluation.

7.0 MITIGATION OF CONSTRUCTION NOISE.

7.1 Introduction.

7.2 Design Options.

7.2.1 Design Phases.

7.2.2 Sequence of Operation.

7.3 Contract Specifications and Special Provisions.

7.3.1 Construction Noise Criteria Limits.

7.3.2 Time Periods and Duration.

7.3.3 Specified Equipment

7.3.4 Noise Related Incentives/Disincentives.

7.3.5 Training Programs for Contractors.

7.4 Mitigation at the Source.

7.4.1 Equipment - All Types.

7.4.2 Stationary Equipment

7.4.3 Mobile Equipment

7.5 Mitigation along the Path.

7.5.1 Existing Features.

7.5.2 Temporary Abatement.

7.5.3 Early Construction of Permanent Noise Barriers.

7.6 Mitigation at the Receiver.

7.6.1 Building Envelope Improvements.

7.6.2 Noise Masking.

7.6.3 Relocation of Residents.

7.7 Selection of Mitigation Measures.

7.7.1 Identification of Feasible and Reasonable Measures.

7.7.2 Selection of Mitigation Strategies.

7.8 Monitoring Noise Levels During
7.9 Examples of Construction Noise Regulations.

8.0 PUBLIC INVOLVEMENT AND PROJECT COORDINATION.

8.1 Public Involvement

8.1.1 Goals and Objectives.

8.1.1.1 Early Phases.

8.1.1.2 Preliminary Engineering / Environmental Analysis Phase.

8.1.1.3 Final Design Phase.

8.1.1.4 Construction Phase.

8.1.2 Stakeholders.

8.1.3 Outreach Techniques.

8.1.4 Evaluating Comments and Response Process.

8.1.5 Effects on Project Budget and Schedule.

8.1.6 Other Factors.

8.2 Project Coordination.

9.0 CONSTRUCTION EQUIPMENT NOISE LEVELS AND RANGES.

9.1 Equipment Type Inventory and Related Emission Levels.

9.1.1 Stationary Equipment

9.1.2 Mobile Equipment

9.2 Sources of Information.

9.3 Specifics of Construction Equipment and Operation Noise Inventories.

9.4 Summaries of Referenced Inventories.

9.4.1 RCNM Inventory.

9.4.2 FHWA Special Report Inventories.

9.4.3 FTA Noise and Vibration Assessment Procedure.

9.5 Links to Equipment Manufacturers.

10.0 CONSTRUCTION NOISE CONTACTS, POLICIES, AND