Arizona Department of Transportation

Instruction on Methodology meeting and Streamlining

UPDATED: NOVEMBER 30, 2017

This document is designed to reflect 2017 ADOT Noise Abatement Requirements and aid in streamlining the noise analyses as an integral part of ADOT's continuous improvement. Document Evaluation of 23 CFR 772 for Opportunities to Streamline the Noise Study Process (FHWA-HEP-17-061) provides appropriate recommendations for noise analysis streamlining.

STREAMLINING – DEFINITION IN CONTEXT OF NOISE ANALYSIS

Streamlining does not mean reducing regulatory requirements. Process streamlining recognizes ways to efficiently meet regulatory requirements by removing waste (in Lean terminology *MUDA - a Japanese word meaning "futility; uselessness; wastefulness"*) from project timeframes.

Three possibilities in streamlining have been identified and explained below:

1. Extent of the noise analysis and scope of work
2. Methodology
3. Report template and format guide

EXTENT OF ANALYSIS

The level of detail and effort for the traffic noise analyses required for each alternative of a proposed project should be corresponding to the type of the project and the associated impacts.

There are Type I projects have very limited potential to generate noise impacts, such as widening of a low-volume road through an agricultural area or where the sensitive land uses are at distances beyond where impacts would be expected. *ADOT EP Noise Screening Analysis Tool* assesses the potential for noise impacts in order to determine if a detailed noise study should be undertaken.

SCOPE OF WORK

One of the major concerns to planners is to properly align noise analysis hours with project intensity; will it be sufficient to provide an analysis of required quality while being financially prudent caretaker of our taxpayers' resources.

Two Excel tools, for small and larger projects, have been developed to assist project managers, environmental planners and consultants in determining if the project steps are properly accounted for hours appropriately allocated for each individual phase. The approach in developing tools is based on Fuzzy logic and Project Management - Fuzzy Critical Path Method (FCPM).

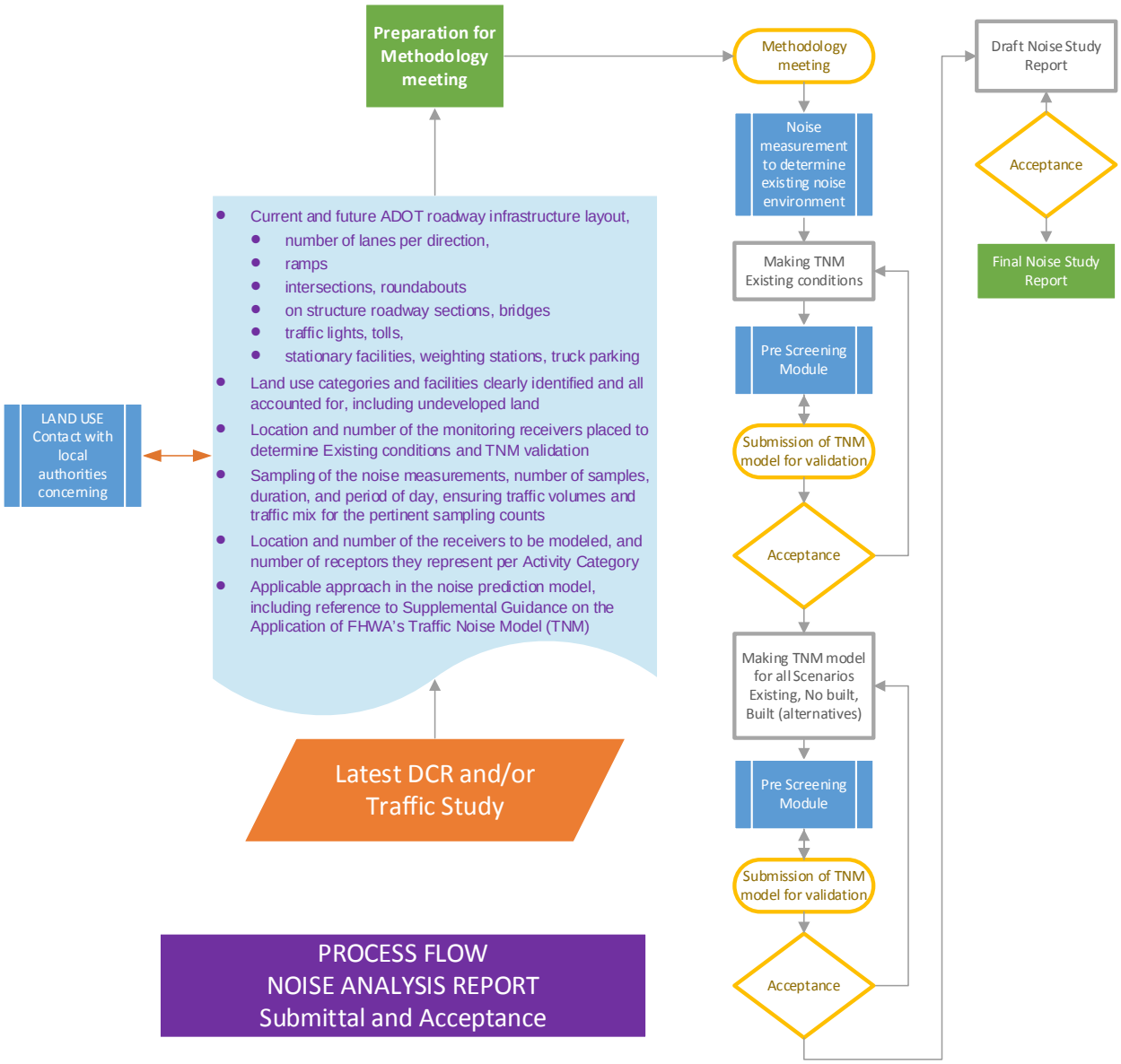
METHODOLOGY MEETING

Once a draft noise report is submitted, and would eventually require corrections in modeling, the corrections would require almost back-to-square-one approach, thus almost doubling the time required for completion of the noise analysis. In many occasions, it may be a result of using older or incomplete project information, miscommunication of the requirements, and possibly assumptions made by the analyst due to being improperly acquainted by the specific noise analysis requirements (*states may have different requirements and if analyst works in multiple states it may be a cause of miscomprehension*).

As per ADOT NAR Preliminary Methodology consultation is required **prior** to commencing any work in the field or drafting the Report. As a minimum, after the methodology meeting, the following information shall be confirmed, and included in the report:

- Most current DCR and/or Traffic Analysis
- Terrain data – Digital Terrain Model
- Current and future ADOT roadway infrastructure layout,
    - number of lanes per direction,
    - ramps
    - intersections, roundabouts
    - on structure roadway sections, bridges
    - traffic lights, tolls,
    - stationary facilities, weighting stations, truck parking
- Land use categories and facilities clearly identified and all accounted for, including undeveloped land, and partially developed land with current permit status clearly determined
- Location and number of the monitoring receivers placed to determine Existing conditions and TNM validation
- Sampling of the noise measures, number of samples, duration, and period of day, ensuring traffic volumes and traffic mix for the pertinent sampling counts
- Location and number of the receivers to be modeled to determine Existing conditions, and number of receptors they represent per Activity Category
- Applicable approach in the noise prediction model, including reference to Supplemental Guidance on the Application of FHWA's Traffic Noise Model (TNM)

Illustration 1 - Noise analysis reporting - Flowchart



Methodology meeting checklist, to be used by both consultant and ADOT EP Noise to determine if sufficient information for noise analysis is available.

Pre-screening module, to be used as a self-assessment tool by the consultant before the model and the Report are submitted to ADOT EP Noise for review.

REPORT TEMPLATE AND FORMAT GUIDE

Noise Analysis Report Template and Format Guide are made available for use. Once all modeling and analyses are completed, all relevant information pertaining to the noise analysis is to be presented in Noise Analysis Report Template.

It is important to follow the appropriate steps before Draft Report is submitted for review.

1. Preparation for Methodology meeting,
   A phase where consultant acquires relevant information for the noise analysis
2. Methodology meeting
   A phase where both consultant and ADOT EP Noise discuss noise analysis requirements in detail
3. Field Measurement, Existing conditions TNM modeling and model calibration
   A phase where consultant prepares TNM model for ADOT EP Noise preliminary review
4. Acceptance of TNM model for Existing conditions by ADOT EP Noise
5. Future prediction TNM modeling, with impact determination and abatement measures consideration, internal review by consultant, following Pre-screening module
6. Acceptance of TNM model for Future conditions, with impact determination and abatement measures consideration, by ADOT EP Noise
7. Submittal Draft Report, and acceptance
8. Acceptance of the Final Report

Once ADOT EP Noise receives TNM models and Reports, those will be reviewed in line with internally adopted standard procedures.