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Data Needs for Completing a Traffic Noise Analysis

This list can be used as a guide for data that is typically required to complete a TNR or DNR analysis. The list below is not comprehensive but should be used as a reference for the common types of data that will be needed over the course of a traffic noise analysis.

Data	Reason	Notes
Existing Condition Modeling		
Approved NAWP		Per 2022 Manual Section 7.6
Addresses for noise sensitive land uses	To respond to citizen inquiries	May also be used for future balloting (if abatement is F&R)
Proposed Design Limits	Establish project study area to be modeled	Typically use Table 7.1 from the 2022 Manual as a starting point
Existing Aerial Imagery	Identify noise sensitive receptors, develop X-Y coordinates for all TNM elements, and assist with many other TNM inputs (pavement width, flow control devices, ground zone types, etc.)	Data on NCOneMap usually sufficient
Final Survey (if available)		Can be done with aerials alone but generally easier with both
Existing-Condition Surface File/Contour Map(s)	Z-Coordinates	Surface accompanying final survey typically insufficient for area to be modeled in TNM. Need supplemental data, such as LIDAR, to be merged with surface from final survey.
Existing barrier heights (both acoustically significant buildings a roadway safety barriers)	Barrier height input	Can require field reconnaissance if available Google StreetView is insufficient
Alignments, heights, and vertical profiles for any existing noise walls		Can be difficult to acquire if envelope and/or as-built drawings not available May need additional survey data.
Base Year for the Analysis	Traffic volume input	Can wait until after validation
Base Year No-Build Traffic Forecast Diagrams	Traffic volume input, truck %'s, LOS C comparison, etc.	Can wait until after validation. Traffic Operations Tech Memo may be needed if forecast is insufficient (for complex roadway geometry).
Available traffic data for any acoustically significant roadways that need to be modeled but weren't included in the forecast		Can wait until after validation
Existing posted speeds (and design speeds if available)	Traffic speed input	Can wait until after validation

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Data	Reason	Notes
Date of Public Knowledge (DPK)	Helps in deciding whether new development should be included in the DNR.	Required only for DNR
List of recent building permits issued (prior to DPK if known)	Identifying all noise-sensitive receptors	Can wait until after validation unless it would warrant additional noise monitoring location(s)
Site plans and contour maps for any recent/ongoing construction not covered in final survey and/or the most recent aerial imagery available	Modeling noise-sensitive receptors and nearby acoustically significant features (buildings, terrain lines, barriers, etc.)	Applicable only if building permits issued prior to DPK (for DNR) or reasonably likely to be issued prior to TNR
Build Condition Modeling		
Number of study alternatives		Generally TNR-only
Design Year for the Analysis	Traffic volume input	
Proposed surface files for all roadways in the project design plans	Z-coordinates	
Design Year Build (and No-Build if applicable) Traffic Forecast Diagrams	Traffic volume input, truck %'s, LOS C comparison, etc.	Traffic Operations Tech Memo may be needed if forecast is insufficient (for complex roadway geometry)
Available traffic data for any acoustically significant roadways that need to be modeled but weren't included in the forecast		
Project Design Plans (including proposed horizontal alignments, EOT, EOP, SS, ROW, Lane Lines, Conc Barrier, Curb and Gutter, Islands, Driveways, Bridges, Retaining Walls, Signals, Existing Pavement Removal, etc.) for each alternative	Develop X-Y coordinates for all TNM elements within the Prop SS	Preliminary for TNRs, Reasonably Complete for DNRs
Design Criteria	Design speed	
Anticipated posted and design speeds for all roadways modeled with traffic	Traffic speed input	
List of Anticipated Relocations	Remove corresponding receptors from the Build model(s) and analysis	
Proposed roadway safety barrier heights	Barrier height input	
Proposed utilities	Determine appropriate alignments for noise abatement measures	Can wait until modeling of Build with-barrier Condition

Data	Reason	Notes
Potential Additional Data (on Project-by-Project Basis)		
Usage data for non-residential land uses requiring ER calculation	Proper reporting of impacts and reasonableness of noise abatement	Only necessary if impacted and/or benefited
Window condition data for all buildings with NAC D receptors	To determine appropriate Building Noise Reduction Factors for NAC D receptors	
Names and locations of historic properties/lands protected under Section 4(f) and Section 106	Provide necessary information for the investigation of additional use (4f) or effects (106) in consultation with FHWA and SHPO	Design Year No-Build analysis may be needed for the DNR
Usage data for any major non-traffic noise sources (rail, airport, etc.)	To ensure that any degradation in noise barrier performance is properly accounted for	
Bridge clearance spreadsheet (if available)	Horizontal and vertical clearance under bridges	