Fact Sheet
Noise Tools

U.S. Department of Transportation
Federal Highway Administration

FHWA-HEP-22-017

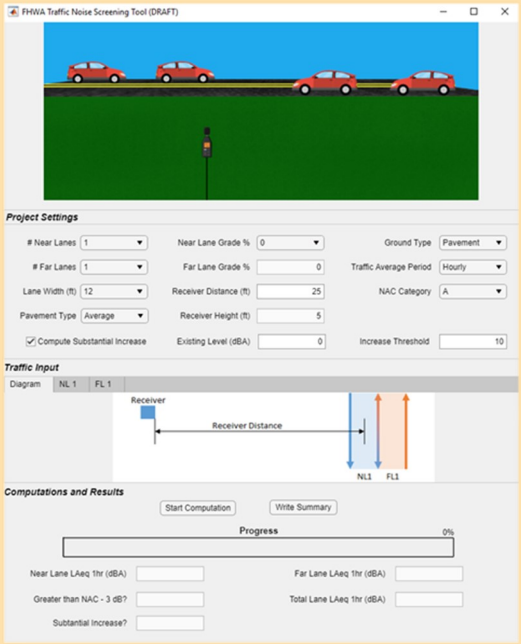
The FHWA has developed multiple tools to assist policymakers, noise modelers, and the general public. We updated or developed four new tools in 2021: The **Traffic Noise Screening Tool** (TNST), the **TNMAide** spreadsheet tool, the **Automated Consistency Test Suite** (ACTS), and the **Sound Sample Demonstration Tool** (SSDT). All of the tools, except the SSDT, are based on the acoustics found in the Traffic Noise Model version 3 series (TNM 3).

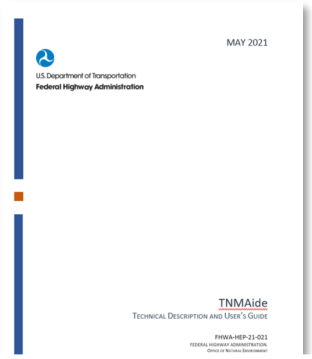
Traffic Noise Screening Tool (TNST)

The TNST is an update and replacement for the existing **Low Volume Road Tool** (LVRT). It serves a similar purpose but with expanded capabilities, a user guide, and a better user interface (UI).

The TNST can be used to quickly evaluate whether a project is likely to cause a noise impact at nearby noise sensitive areas. The tool relies on worst-case assumptions and alerts the user when a more detailed analysis using TNM 3 will be required. If levels are not near the impact criteria then this analysis can be completed and documented.

Details on which projects are good candidates and on the limitations of the tool are available in a separate report, soon to be available online.

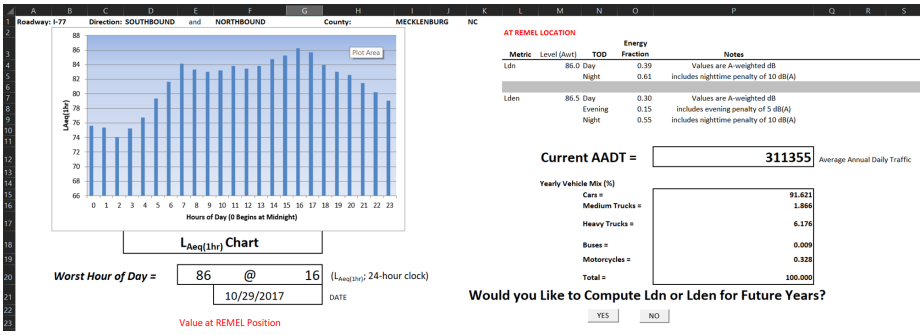




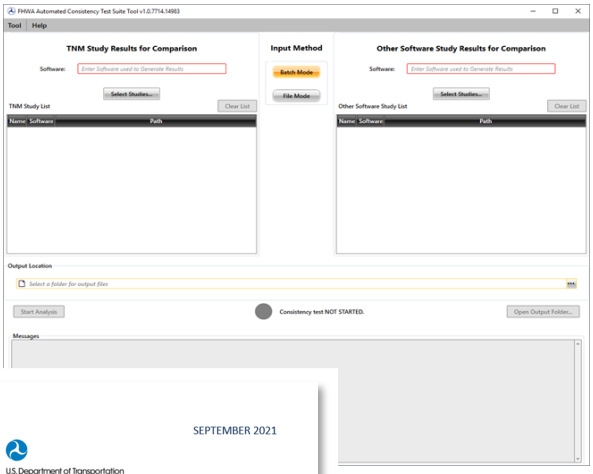
TNMAide

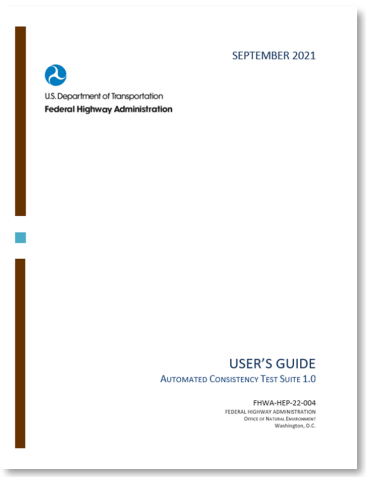
TNMAide is a spreadsheet-based tool that uses real-world traffic data processed in the associated Database for Air Quality and Noise Analysis (DANA) Tool to provide users with a true worst noise hour for a given past year. The tool can output results in L_{EQ}, L_{DN}, or L_{DEN}. In addition, it can provide a good estimate for the future year levels for that moment in time if the user has data on how traffic percentages are expected to change.

TNMAide can be used to find the existing worst noise hour to use the traffic for that hour in TNM 3 modeling for project-specific applications. TNM 3 must still be used for future year cases and for any mitigation analysis.



For more information see the DANA Tool: Dana - Methodologies - Air Quality - Environment - FHWA (dot.gov) and TNM webpages: Traffic Noise Model - Noise - Environment - FHWA (dot.gov)





Automated Consistency Test Suite (ACTS)

This tool supplements the existing Consistency Test Suite (CTS). Both tools were created to assist in evaluating whether other tools or models are consistent with the FHWA's Traffic Noise Model (TNM) as described in 23 CFR 772. If these are found consistent they are eligible for use on project-level noise analyses.

Unlike the existing CTS, the new ACTS tool has a file selection user interface. The ACTS includes error checking of the files a user selects and compares the inputs and outputs itself. If the software being tested against TNM 3 is found consistent, the tool lets the user know. Alternately, if it is not found consistent, the tool will point out the areas that are causing the issue to the user can concentrate their efforts appropriately and minimize time spent trying to find what may have gone wrong. The ACTS also includes a user guide that goes into more detail on how to make best use of the tool.

The ACTS tool still relies on the scenarios described in the existing CTS report, which has been available online for many years.

Sound Sample Demonstration Tool (SSDT)

The SSDT is an audio tool. Depending on user selections it will play a variety of sounds and display the associated numerical data on-screen. This tool can be used during training or public meetings to demonstrate how loud or quiet a given sound, or set of sounds, is likely to be.

The tool can be used with calibration to output the true sound level; or in a relative manner where sounds are compared to each other, rather than to an absolute level. User instructions are provided in a presentation format.

The SSDT is organized by topic, including: Introduction to the tool, Calibration options, Typical Levels, Combining Levels, Frequency Content, Metrics, Sound Propagation, Vehicle Levels, Construction Noise, and Interior/Exterior Levels.

We plan to continue to add features to this tool over time to improve utility and expand capabilities.