



United States Department of Transportation

Bureau of Transportation Statistics

National Transportation Noise Map Documentation

Version 3

Release Year: 2026

Prepared for:
United States Department of Transportation
Office of the Assistance Secretary for Research and Technology
Bureau of Transportation Statistics
Washington, DC 20590

Prepared by:
United States Department of Transportation
Office of the Assistance Secretary for Research and Technology
Volpe National Transportation Systems Center
Environmental Measurement and Modeling Division,
Environmental Science and Engineering Division
Cambridge, MA 02142

Notice

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof. The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.

Table of Contents

1	Introduction	1
2	Intended Use.....	1
3	Noise Metric.....	2
4	Aviation Noise	2
5	Road Noise	3
6	Railway Noise	5
7	Layers	7
8	Assumptions Summary	7
9	Validation	9
10	Contextual Notes on Data Sources for NTN M Releases	9
10.1	Aviation.....	9
10.1.1	2022 Aviation Data	9
10.1.2	2020 Aviation Data	9
10.1.3	2016 Aviation Data	9
10.2	Road.....	10
10.2.1	2023 Road Data.....	10
10.2.2	2018 Road Data.....	10
10.2.3	2014 Road Data.....	10
10.3	Rail	10
10.3.1	2022 Rail Data	10
10.3.2	2020 Rail Data	10
	Appendix A Acronyms.....	12

1 Introduction

By most forecasts, the U.S. population is projected to grow by over 100 million by 2050. As demand for transportation increases and our methods of transportation change and evolve, so too will transportation-related noise. The Bureau of Transportation Statistics (BTS) has started a national, multi-modal transportation noise mapping initiative to facilitate the tracking of trends in transportation-related noise over time.

This document describes the methodology and assumptions included in the National Transportation Noise Map (NTNM) which consists of noise inventory layers for aviation, roadway, passenger and freight rail transportation sources. Future versions are envisioned to include additional transportation noise sources as transportation modes and trends evolve and data sources mature. Table 1-1 summarizes the available data layers for each year estimated.

Table 1-1. Summary of Available Layers

Release Version	Data Year	Layers included	Notes
Alpha	2014	Aviation (prototype) Highway (prototype)	Not directly comparable to future years. Released in 2017
1	2016/2018	Aviation Highway Passenger Rail (2018 data only, prototype)	Released in 2020
2	2020	Aviation Highway Passenger and Freight Rail combined (prototype)	Released in 2022
3	2022/2023	Aviation (2022) Highway (2022/2023) Passenger and Freight Rail (2022) combined	Released in 2026

2 Intended Use

Data within the National Transportation Noise Map represent estimated noise levels across the nation for an average day for the specified year. These data are intended to facilitate the tracking of trends in transportation-related noise by mode and collectively over time, as additional maps are released. It can also be used to identify areas for more detailed research.

These maps are based on simplified noise modeling and should not be used to evaluate noise levels in individual locations or at specific times and may not be used for regulatory compliance purposes. Section 10 in this document should always be reviewed for the datasets of interest to aid in appropriate interpretation of the noise layers.

3 Noise Metric

The national transportation noise map is developed using a 24-hr equivalent A-weighted sound level (denoted by L_{Aeq}) noise metric. The results represent the approximate average noise energy due to transportation noise sources over a 24-hour period at the receptor locations where noise is computed.

4 Aviation Noise

This section describes the aviation noise modeling inputs and assumptions for the Aviation Environmental Design Tool (AEDT) version 3e (version 174.0.15670.1) used in developing NTN data. See the AEDT documentation¹ for acoustic computation details. The Federal Aviation Administration provides aviation noise levels used in the NTN.

Sources

Yearly airport arrival and departure operations and aircraft movements data come from FAA Office of Environment and Energy (AEE), and from FAA tower counts, as reported by the FAA-ATADS system or Terminal Area Forecast system² and are used to derive an operations total for an average annual day. Airports with an average of 1 or more jet departures per day are included in the analysis (note: airports with exclusively military operations were excluded; however, military operations at joint-use or commercial airports were included). Helicopter operations are not included in this effort.

This procedure resulted in the modeling of operations at the following number of airports for each year.

Table 4-1 Number of Airports Included by Data Year

Data Year	Number of Airports
2016	685
2018	747
2020	735
2022	773

Receptors

Noise levels are calculated at receptor locations in AEDT. For each airport, the dynamic gridding approach was used to define the receptor set. The starting grid for each airport was 4-point box, spaced 0.1 nautical miles apart, and centered on the airport reference point. The grid refinement level (using the linear INM approach), varied per airport; the exact refinement level was determined through a manual process of contour review and intensifying the refinement level until a smooth 45 dB contour was produced. For more information on dynamic grids in AEDT, see the AEDT documentation³.

¹ AEDT documentation is available on the AEDT Support website: <https://aedt.faa.gov>

² 2016 aircraft flight operation data are derived from the schedule data in the Traffic Flow Management System (TFMS), while 2018 aircraft flight operation data come from an aircraft movements dataset directly from the Federal Aviation Administration Office of Environment and Energy (FAA AEE). Air traffic counts from the Air Traffic Activity Data System (ATADS) are also considered for both 2016 and 2018. By combining data from the Air Traffic Control System Command Center (ATCSCC), the Air Route Traffic Control Centers (ARTCCs), and major Terminal Radar Approach Control (TRACON) facilities, TFMS, the FAA AEE movements dataset, and air traffic counts from the Air Traffic Activity System (ATADS) enable an accurate representation of all Instrument Flight Rules (IFR), Visual Flight Rules (VFR), and local flights in US airspace (note: helicopter operations are not included in this effort). Departure and arrival procedures are determined from detailed radar track data in the terminal area. For 2018, this radar data came directly from the FAA AEE movements dataset; 2016 leveraged the Performance Data Analysis and Reporting System (PDARS).

Assumptions

The following assumptions apply to the aircraft noise modeling used for this effort:

- Weather: The Global Surface Summary of the Day (GGOD) from NOAA was used to compute average atmospheric conditions, specific to the year (2022) and to each airport. Atmospheric absorption is computed based on SAE-ARP-5534 methods.
- Ground type: Acoustically soft ground was assumed for the computation of ground effects. Sound levels for large areas with acoustically hard ground (e.g., water or pavement) may be under-predicted.
- Terrain: Shielding due to terrain features and man-made structures is not included. Noise levels may be over-predicted in urban areas or those with natural shielding features such as mountains.
- Noise level cutoff: Noise level results below 45 dB(A) $L_{Aeq,24}$ are not included.
- Additional assumptions that apply to the AEDT modeling software can be found in the AEDT Technical Manual³.
- Additional assumptions related to the TFMS dataset can be found in the TFMS Reference Manual⁴

AEDT models aviation noise based on measured source data from actual aircraft. The uncertainty in the modeled noise on the ground increases as the noise level decreases due to increasing distance between the aircraft and the receptor. As distance increases, effects not included in the simplified noise modeling used to produce these maps such as shielding, variation in ground type, as well as absorption, refraction and scattering resulting from non-homogenous atmosphere will also increase.

Known discrepancies in source data are described in Section 10, however this should not be considered a fully comprehensive list.

5 Road Noise

This section describes the road noise modeling inputs and assumptions for the acoustical algorithms from the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM) version 2.5 used to create NTNM data.

Sources

Average Annual Daily Traffic (AADT) values are used in conjunction with vehicle types and speed to compute road noise using TNM's acoustical algorithms. AADTs are obtained from FHWA's Highway Performance Monitoring System (HPMS)⁵, which also describes the road types included in the National Transportation Noise Map. Because of observed data quality issues during the transition to HPMS version 9.0, the decision was made to use 2023 HPMS and ARNOLD data rather than the 2022 version.

When valid speed information⁶ is included in the HPMS data, it is used in the road noise modeling. If valid speed information is not included in the HPMS data, average speeds are assigned based on road

³ FAA's AEDT Technical Manual: <https://aedt.faa.gov/>

⁴ Volpe National Transportation Systems Center, "Traffic Flow Management System (TFMS), Reference Manual TSD Version 8.9," August 2003.

⁵ For more information on FHWA's HPMS, visit: <https://www.fhwa.dot.gov/policyinformation/hpms.cfm>

⁶ Valid speed information is defined as ≥ 20 mph, or ≤ 80 mph.

type and area type (urban or rural). Roads which do not have valid existing speeds, and are also missing road or area type information are assigned a default speed of 35 mph.

The road types and their average speed limits that are included in the National Transportation Noise Map are described in Table 5-1.

Table 5-1: National Transportation Noise Map Road Types and Average Speeds

Road Type	Area Type	Average Speed (mph)
Interstate	Rural	69
Principal Arterial - Other Freeways and Expressways	Rural	55
Principal Arterial - Other	Rural	55
Minor Arterial	Rural	45
Major Collector	Rural	44
Interstate	Urban	59
Principal Arterial - Other Freeways and Expressways	Urban	61
Principal Arterial - Other	Urban	21
Minor Arterial	Urban	20
Major Collector	Urban	29

The vehicle types that are included in the National Transportation Noise Map are described in FHWA’s TNM Technical Manual⁷ and listed below:

- Automobiles
- Medium trucks
- Heavy trucks

The noise levels are determined using the FHWA’s Traffic Noise Model’s acoustical algorithms described by equations 1 through 8 in the TNM Technical Manual.

Receptors

Road noise is calculated at receptor locations. The road noise receptors are defined by a uniform grid with a resolution of 98.4 feet (30 m). Each receptor is modeled at a height of 4.92 feet (1.5 m) above ground level. Noise levels are adjusted to account for ground effects and free-field divergence differences between the source reference location⁸ and the receptor location.

Assumptions

The following assumptions apply to the road noise modeling in the National Transportation Noise Map:

- Weather: TNM’s default temperature and humidity levels are used (68 degrees F, 50% relative humidity).
- Ground type: Acoustically soft ground was assumed for the computation of ground effects. Sound levels for large areas with acoustically hard ground (e.g., water or pavement) may be under-predicted.
- Average pavement is used for noise computations. Specific pavements may be quieter or louder depending on the age, material and texture of the road.

⁷ FHWA’s TNM Technical Manual Chapter 2:

https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/tech_manual/

⁸ The source reference location is a point that is 50 feet from the road along a perpendicular line that intersects the midpoint of the road segment.

- Terrain: Shielding due to terrain features and man-made structures is not included. Noise levels may be over-predicted in urban areas, areas near noise barriers, or areas near natural shielding features such as mountains.
- Noise level cutoff: Noise level results below 45 dB(A) $L_{Aeq,24}$ are not included. Additional assumptions that apply to the acoustical algorithms themselves can be found in FHWA's TNM Technical Manual.
- Additional assumptions related to the HPMS dataset can be found on the HPMS webpage⁵.

Pre-calculated TNM results are used as source data in the road noise modeling. The uncertainty in the calculated noise increases as the noise level decreases due to increasing distance between the vehicle and the receptor. As distance increases, effects not included in the simplified noise modeling used to produce these maps such as shielding, variation in ground type, as well as absorption, refraction and scattering resulting from non-homogenous atmosphere will also increase.

Since the HPMS dataset is dependent on input from the states, variations in reported data could appear as a change in noise. Known discrepancies in source data are described in Section 10, however this should not be considered a fully comprehensive list.

6 Railway Noise

Freight, commuter and rapid transit passenger rail noise is computed within the NTNM using source data described below and computational procedures as outlined in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual⁹ for equipment and horns on railway lines, and the Federal Railroad Administration (FRA) High Speed Ground Transportation Noise and Vibration Impact Assessment Manual¹⁰ for high-speed operations (> 90 mph). The rail noise source types that are included in the NTNM are as follows:

- Freight rail mainline
- Passenger rail mainline, including high-speed trains (90-160 mph)
- Transit systems – Heavy rail, light rail and street cars¹¹
- Freight and commuter rail horns
 - Horn noise is included for track segments within ¼ mile of each grade crossing, unless a quiet zone is identified.

For mainline passenger and transit systems, General Transit Feed Specification (GTFS)¹² data are used in conjunction with the North American Rail Network (NARN)¹³, and FRA's Highway-Rail Crossing Inventory¹⁴ to obtain operational data, route information and locations of grade crossings, tunnels, and quiet zones. The GTFS data provides information on the representative daily traffic and is obtained by counting the number of trips that each train line makes on a representative weekday in the fall. The traffic count is used in conjunction with train speed to compute the overall rail noise produced by each

⁹ FTA's Transit Noise and Vibration Impact Assessment Manual: <https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123>

¹⁰ <https://www.fra.dot.gov/eLib/Details/L04090>

¹¹ Note that rail systems that have street car components that are included in the GTFS data as light rail systems are included, but systems that are exclusively for street cars are not currently included.

¹² For more information on GTFS, visit: <https://gtfs.org/>

¹³ For more information on the NARN, visit: <https://www.bts.dot.gov/newsroom/rail-network-spatial-dataset>

¹⁴ <https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/DownloadCrossingInventoryData.aspx>

transit system. Train speed is determined from operation times with a low-speed cutoff of 10 m/s¹⁵ for diesel-powered commuter trains and 0.5 m/s for electrically-powered passenger trains and rapid transit trains. Trains operating at speeds below the low-speed cutoffs are assigned a speed of 10 m/s or 0.5 m/s according to train type. Data on the time trains are idling is not available and is not computed. Train speed during acceleration and deceleration periods is accounted for by using a rate of 2 mph/s over the period of time it takes to reach full speed.

For freight railways, average daily train counts and average train speed from the FRA Highway-Rail Crossing Inventory are used in conjunction with route information from the North American Rail Network (NARN)¹⁶ to compute railway noise based on FTA/FRA methods. The default motive power type for freight rail operations is diesel-electric. Trains are assumed to consist of two locomotives and 84 freight cars for operations east of the Mississippi River; three locomotives and 105 cars for operations west of the Mississippi River. A low-speed cutoff of 10 mph, consistent with the maximum timetable speed for Class I track, was implemented.

Known discrepancies in source data are described in Section 10, however this should not be considered a fully comprehensive list.

Receptors

Rail noise is calculated at receptor locations. The receptors are defined by a uniform grid with a resolution of 98.4 feet (30 m). Each receptor is modeled at a height of 4.92 feet (1.5 m) above ground level. Noise levels are adjusted to account for ground effects and free-field line source divergence differences between the source reference location¹⁷ and the receptor location.

Assumptions

The following assumptions apply to the rail noise modeling in the National Transportation Noise Map:

- Weather: Atmospheric effects are not taken into account in rail noise modeling.
- Ground type: Acoustically soft ground effects computed based on general, rule-of-thumb assumptions, which will result in increased uncertainty as source-receptor distance increases. Sound levels for large areas with acoustically hard ground (e.g., water or pavement) may be under-predicted.
- Noise level cutoff: Noise level results below 45 dB(A) $L_{Aeq,24}$ are not included.
- Terrain: Shielding due to terrain features and made-made structures is not included. Noise levels may be over-predicted in urban areas, areas near noise barriers, or areas near natural shielding features such as mountains.
- Underground sections: The noise contribution from underground operations is assumed to be 0 dB.
- Idling equipment: Noise from idling time at station stops is not considered.
- Additional assumptions that apply to the acoustical algorithms themselves can be found in FTA's Transit Noise and Vibration Impact Assessment Manual.
- Additional assumptions related to the GTFS and NARN can be found on their respective webpages^{12,13}.
- Classification Yards and Intermodal Terminals are not included.

¹⁵ FRA CREATE Freight Noise and Vibration Model: <https://www.fra.dot.gov/Page/P0216>

¹⁶ For more information on the NARN, visit: <https://www.bts.dot.gov/newsroom/rail-network-spatial-dataset>

¹⁷ The source reference location is a point that is 50 feet from the track along a perpendicular line that intersects the midpoint of the track segment.

- Military bases and private facilities are not included.

Noise source reference data is based on measured source data from rail equipment. The uncertainty in the calculated noise increases as the noise level decreases due to increasing distance between the vehicle and the receptor. As distance increases, effects not included in the simplified noise modeling used to produce these maps such as shielding, variation in ground type, as well as absorption, refraction and scattering resulting from non-homogenous atmosphere will also increase.

7 Layers

The transportation noise inventory data are provided as Geographic Information System (GIS) image service layers for the United States by state for the following years:

Active Layers:

- 2022 – Aviation, road, rail separately and combined
- 2020 – Aviation, road, rail* separately and combined
- 2018 – Aviation, road, rail* separately and combined
- 2016 – Aviation, road separately and combined

Deprecated Layers:

- 2014 - Aviation*, road* separately and combined

The first release of the National Transportation Noise Map with data from the year 2014 should be considered a prototype and should not be compared to the 2020 release with data from the years 2016 and 2018. The 2018 and 2020 rail layers should also be considered prototypes.

Aircraft, road and rail noise inventories are provided both separately and as combined GIS image service layers. The combined aircraft, road, and rail noise inventories are acoustically summed to produce the composite layers.

For the 2022 version 3 release, the image / raster layers were stored within a Esri file geodatabase format. In previous releases the raster layers were stored using the tif file format. For each raster layer, the GIS generates a pyramid of down sampled raster layers that aid in display performances. For example, when viewing at the scale of the contiguous United States, the pyramid shows a lower resolution raster since the detail will not be needed at this scale. The GIS generates slightly different pyramid resolutions for file geodatabases than the tif file format. For consistency, previous releases now use a file geodatabase raster storage. This does not affect the underlying data.

8 Assumptions Summary

The multi-modal, national transportation noise map is intended to facilitate the tracking of trends in transportation-related noise, by mode and collectively. These maps include simplified noise modeling and should not be used to evaluate noise levels in individual locations or at specific times.

A summary of the assumptions on aircraft and road noise modeling listed in Sections 4 and 5 is provided below. In addition, it should be noted that these layers only represent noise from aircraft and road transportation noise sources, non-transportation sources are not reflected in these data.

* Should be considered a prototype.

Weather

- Aviation: The Global Surface Summary of the Day (GGOD) from NOAA was used to compute average atmospheric conditions, specific to the year (2020) and to each airport.
- Road: TNM's default temperature and humidity levels are used (68 degrees F, 50% relative humidity) to compute atmospheric absorption.
- Rail: Atmospheric absorption is not computed.

Ground Type

- Aviation: Acoustically soft ground effects are computed based on AIR-5562 methods.
- Road: Acoustically soft ground effects are computed using frequency-based data and procedures outline in the FHWA TNM Technical Manual
- Rail: Acoustically soft ground effects are incorporated based on a simplified adjustment factor.

In all cases, sound levels for large areas with acoustically hard ground (e.g., water or pavement) may be under-predicted.

Barrier, Building and Terrain Shielding

For all sources, noise level attenuation is considered to be due only to ground effects (assumes all soft ground) and free-field divergence. Shielding is not considered (i.e. attenuation due to barriers, buildings and terrain are not considered). Noise levels may be over-predicted in areas near highway barriers or natural shielding features such as mountains. Sound levels for large areas with acoustically hard ground (e.g., water or pavement) may be under-predicted.

Noise Level Cutoff

Noise level results below 45 dB(A) $L_{Aeq,24}$ are not included.

Noise Models

- Road: Pre-calculated TNM results are used as source data in the road noise modeling. The pre-calculated results are based on measured source data from roadway traffic. Additional assumptions that apply to the acoustical algorithms used in road noise modeling can be found in FHWA's TNM Technical Manual [on the TNM website](#) or in the [National Transportation Library](#).
- Aviation: AEDT models aviation noise based on measured source data (noise-power-distance) from actual aircraft. Additional assumptions that apply to the AEDT modeling software can be found in the AEDT Technical Manual on the [AEDT website](#) or in the [National Transportation Library](#).
- Rail: Noise source reference data is based on measured source data from rail equipment.

In all cases, the uncertainty in the calculated noise increases as the noise level decreases due to increasing distance between the vehicle and the receptor.

Data

- Aviation: Aviation modeling leveraged detailed aircraft schedule and movements provided by the FAA Office of Environment and Energy (AEE), with operations scaled to the official tower

count provided by FAA Air Traffic Activity System (ATADS), where available, or the Terminal Area Forecast (if ATADS is not available for the applicable airport).

- Road: The source of Average Annual Daily Traffic (AADT) for road noise modeling is provided by FHWA’s Highway Performance Monitoring System (HPMS).
- Rail: Operational data, route information, and locations of grade crossings and quiet zones are provided by the General Transit Feed Specification (GTFS), North American Rail Network (NARN), and FRA’s Highway-Rail Crossing Inventory.

Additional Road Noise Assumptions

- Average pavement is used for noise computations. Specific pavements may be quieter or louder depending on the material and texture of the road.
- Average Annual Daily Traffic (AADT) are distributed evenly across 24 hours.

9 Validation

The National Transportation Noise Map is being evaluated in multiple stages. For the first tier, noise levels are evaluated by subject matter experts for confirmation that levels are within a reasonable order of magnitude. Subsequent tiers will increase levels of scrutiny via comparison to existing data sets on regions of overlap. In the future, measured data may be collected by field campaign on major corridors and/or regions of high impact and compared to the output of the National Transportation Noise Map.

10 Contextual Notes on Data Sources for NTNM Releases

The noise levels shown in the NTNM are dependent on the availability of source data. When there are known data gaps and inconsistencies, or the same data coverage is not available between years, it could appear as though there has been an increase or decrease in transportation noise that is not real. Known differences in data are described in this section.

Note that any discrepancies that are found through this effort are reported to the appropriate agency to inform where gaps exist and encourage more consistent coverage for future years.

10.1 Aviation

10.1.1 2022 Aviation Data

Operations data are scaled to match the true tower count. ATADS is considered the true operational count for this analysis.

10.1.2 2020 Aviation Data

Operations data are scaled to match the true tower count. ATADS is considered the true operational count for this analysis.

10.1.3 2016 Aviation Data

The 2016 aviation modeling leveraged the Performance Data Analysis Reporting System (PDARS). PDARS did not provide radar track data for the listed in the table below, therefore these airports were excluded from the 2016 aviation noise modeling.

Table 10-1: National Transportation Noise Map Excluded Airports in 2016 Aviation Noise Modeling

Airport Code	Airport Name
--------------	--------------

07FA	Ocean Reef Club
KHII	Lake Havasu City
KHLN	Helena Regional
KIFP	Laughlin/Bullhead International
KMMH	Mammoth Yosemite
PAFA	Fairbanks International
PAJN	Juneau International
PAKT	Ketchikan International
PASI	Sitka Rocky Gutierrez
PHKO	Kona International
PHLI	Lihue
PHOG	Kahului

10.2 Road

10.2.1 2023 Road Data

Because of observed data quality issues (e.g. missing roads) during the transition to HPMS version 9.0, the decision was made to use 2023 HPMS and ARNOLD data rather than the 2022 version.

10.2.2 2018 Road Data

The 2018 California HPMS submission did not correctly link to their submitted GIS ARNOLD geometry. Due to this issue, HPMS data from the year 2017 was used for the state of California in the 2018 road layer.

10.2.3 2014 Road Data

Data from the year 2013 were used for the state of New York due to HPMS data issues for the year 2014.

10.3 Rail

10.3.1 2022 Rail Data

The same known issues as in 2020 apply. Certain passenger rail lines were not active on the selected representative date in 2020 but may be more active in 2022.

10.3.2 2020 Rail Data

For freight operations, daily train counts were estimated based on FRA's Highway-Rail Crossing Inventory. Because FRA relies on individual operators to report crossing data, there can, in some instances be missing and errant data, particularly in the case of reporting trains per day separately for passenger and freight operations. In other words, there may be cases where passenger operations were counted as freight. To prevent this occurrence, crossings with more than 96 freight trains/day (4/hour) were flagged for further inspection and cross-checked with information from the GTFS to determine if all or some were improperly classified as freight operations.

Additionally, there are noise 'gaps' in rail lines where train count data are unavailable. Assigning train count data to rail line segment information in the NARN was accomplished through a spatial join. Information from at-grade, public crossings was used first, followed by grade-separated crossings if no other data were present. For rail segments where information from more than one crossing was available, the median train count value was used. Through this process, 95% of rail miles in the NARN could be tagged with grade crossing data for operations. Rail lines left unfilled were typically in urban and industrial areas where there numerous branching and spur lines.

There are differences in the rail systems included in this iteration of the National Transportation Noise Map compared to the previous version. Certain passenger rail lines were not active on the selected representative date and thus were not included. Amtrak's Southwest Chief reduced operations to Monday and Thursdays due to the pandemic. San Francisco's Municipal rapid rail system was suspended for long portions of 2020 because of the pandemic. The Alaska Railroad Corporation was only available during the summer months. Additionally, a new commuter line (TexRail) was added in Texas near Dallas \ Fort Worth in 2019.

Appendix A Acronyms

This section defines acronyms commonly used in discussing the NTNM.

Acronym	Definition
AEDT	Aviation Environmental Design Tool
ARNOLD	All Roads Network of Linear Referenced Data
ATADS	Air Traffic Activity Data System
AADT	Average Annual Daily Traffic
dB(A)	A-weighted decibels
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GIS	Geographic Information System
GSOD	Global Summary of the Day
GTFS	General Transit Feed Specification
HPMS	Highway Performance Monitoring System
$L_{Aeq,24hr}$	24-hour equivalent A-weighted sound level that represents the approximate average noise energy due to transportation sources over a 24-hour period at the receptor locations
LRT	Light Rail Transit
NARN	North American Rail Network
NOAA	National Oceanic and Atmospheric Administration
NTNM	National Transportation Noise Map
PDARS	Performance Data Analysis and Reporting System
RRT	Rapid Rail Transit
TNM	Traffic Noise Model