

New York State Department of Transportation Annual Average Daily Traffic (AADT) Overview

General Discussion

The New York State Department of Transportation (NYSDOT) is responsible for collecting and reporting New York State's highway data to the United State Department of Transportation (USDOT) Federal Highway Administration (FHWA). One such important data reported is Annual Average Daily Traffic (AADT). AADT is comprised of either an actual, estimated or forecasted value of the average daily traffic along a specific, defined segment of roadway. This dataset contains AADT values from 1977 to the most current year data is available.

Annual Average Daily Traffic data is comprised of passenger vehicle data, commercial vehicle and other vehicle type data. This data is critical to the department for maintaining the safe operation of the State's highway system. The most recent AADT for any given roadway will always be generated based on traffic data collected in the previous year. AADT is an annual reporting that shows the current estimate of the AADT for all state routes and up to three prior counts.

Traffic data collected on the highest volume routes have the most significant impact since these data represent a larger share of total statewide travel. These routes are also often the most difficult locations to monitor. NYSDOT use various strategies to develop effective counting programs at these challenging locations.

Data Collection Methodology

AADT is the average daily traffic along a specific, defined segment of roadway which is calculated and statistically derived from short term traffic counts taken along the same section of highway. Short term traffic counts are then factored to produce the estimate of AADT. The most recent AADT for any given roadway will always be generated based on traffic data collected in the previous year.

AADT uses a configuration format based on software used to process counts such as Traffic Count Editor and software used for traffic projections such as Traffic Data Forecaster. These programs use the last 15 years of data, which is joined to later years, and add station information (i.e. road name) to produce the Historic Traffic Data. AADT values for the past two most recent years include estimates, forecasts and actual counts. For all prior years, only actual counts are shown.

A variety of traffic counting methodologies and technologies are used by NYSDOT. Primarily, the Department utilizes three traffic count collection processes:

1. The majority of the counts are collected using portable traffic counters. These types of counts are also known as 'short' counts. In total, approximately 12,000 counts of 2-7 days duration are taken annually. For example, the State Touring Route System alone is divided into approximately 8,200 traffic control sections. As part of the inventory count program, each section is generally counted once every 3 years as required by FHWA. The annual inventory program consists of 3,000+ counts obtained on the State Touring Route System and another 9,000+ counts taken for other purposes such as sampling of off system Federal Aid eligible and non-Federal Aid eligible local facilities, county roads, off system bridge

counts, at-grade railroad crossing counts, and other samples necessary to support the Federal Highway Performance Monitoring System.

2. A Statewide Traffic Monitoring System currently consisting of 177 permanent continuous count stations that collect volume, speed, vehicle classification and weigh-in-motion data 24 hours per day, 365 days per year. These sites are located throughout the State to monitor overall traffic trends. Information from these counters is used to determine traffic growth and tendencies as well as develop pavement design input, seasonal adjustment factors used in determining estimates of annual average daily traffic (AADT) and directional design hour volumes (DDHV).

3. Weigh-in-Motion (WIM) Stations collect data from permanent detectors located across the state. WIM stations are also located on significant border crossings to monitor the weight of heavy-goods vehicles entering and exiting the state. Data collected from WIM stations, like continuous count stations, collect volume, speed, vehicle classification and weigh-in-motion data 24 hours per day, 365 days per year. There are 13 WIM sites located throughout the State strategically located to monitor overall traffic trends.

Adjustments may be necessary to account for factors such as seasonal adjustment factors and vehicle weight and axle factors.

AADT Count Methodologies and Types

Volume Count – This refers to the collection of traffic volume data only, along a travel way, between the designated limits, stored directionally in 15 minute intervals.

Classification Count – This refers to the collection of vehicle classification data, vehicle speed data, and traffic volume data, along a travel way, between the designated limits, stored by lane for each direction, in 15 minute intervals.

Tube Count – Traffic data collected through the use of road tube(s) affixed to the pavement, and an Automatic Traffic Recorder (ATR).

Loop Count – Short duration traffic data collected through the use of permanently installed induction loops and/or piezoelectric axle sensors.

Manual Count – Traffic data collected by means of a person or persons, at a data collection site, recording data by hand, or with a digital collection board.

Non-Intrusive Count – Traffic data collected by means of video, radar, acoustic sensors, laser, or infrared equipment, typically set up within the right of way, but not on the travel way.

Week Day Count – A count containing the minimum required intervals, as specified in this document, collected during Week Day Periods. The data for one Week Day Count may be collected during consecutive Week Day Periods.

Weekend Count – A count containing the minimum required intervals, as specified, collected during Weekend Periods. If collected in multiple Weekend Periods, the data must be collected in consecutive weekend Periods.

Statistical and Analytical Issues

The most recent AADT for any given roadway will always be generated based on traffic data collected in the previous year.

The major purpose of AADT data is to support a data-driven decision making process within NYSDOT and FHWA. The data are used extensively in the analysis of highway system condition, performance, and investment needs that make up the biennial Condition and Performance Reports. These Reports are used by State DOT's and by Congress for establishing funding levels and authorization and appropriation legislation, activities that ultimately determine the scope and size of the Federal-aid Highway Program which determine the level of Federal Highway support to State Departments of Transportation.

AADT data are used to identify growth trends and tendencies in the volume of various weights of vehicles. This information is used to develop pavement and bridge designs and is a factor for helping to determine current and future capital programming needs. Counts at WIM stations are also used to develop adjustment factors for three-day or seven-day traffic counts taken throughout the state. Thousands of these short-duration counts are taken each year to meet the traffic monitoring needs of the State as well as to satisfy the requirements of the Federal Highway Performance Monitoring System.

These data are also used for assessing changes in highway system performance brought about by implementing funded highway system improvement programs and for apportioning Federal-aid Highway Funds to individual States under TEA-21. HPMS is a nationally unique source of highway system information that is made available to those in the transportation community for highway and transportation planning and other purposes through the annual Highway Statistics and other data dissemination media.

The data are used to help transportation planners, operators and managers to identify, determine and assess the numbers of vehicles, the kinds of vehicles and in what direction they are traveling. The data are also used to determine programming needs for future transportation projects as well as provide input for developing more effective and reliable pavement design based on AADT context and conditions. In addition, the data is used to help determine maintenance planning and requirements and preventive maintenance strategies.

Limitations of Data Use

AADT is heavily reliant on statistical applications to determine valid forecast and estimates and as such, actual daily volumes encountered on a particular day on a given segment of highway may vary from the AADT reported. Considerably higher or lower values often result in areas of seasonal activities and when comparing weekend versus weekday traffic. The most recent AADT for any given roadway will always be generated based on traffic data collected in the previous year.