

North Carolina Department of Transportation Traffic Data Management Policy

Traffic data is a basic element in generating information used by officials in planning, designing, operating, maintaining, and evaluating highway systems. Transportation agencies require traffic data to monitor travel demand and evaluate the performance of the highway systems. The character of this data has evolved from basic volume surveys first collected in the 1930's to the real time monitoring systems used to manage travel in urban areas today. As the highway systems become more complex, and funding limited, agencies must optimize the resources they have to meet the growing need for traffic data.

The mission of the North Carolina Department of Transportation is:

Connecting people and places in North Carolina - safely and efficiently, with accountability and environmental sensitivity.

The Department must have the traffic data resources needed to define what highway services are required and to determine how well they are being provided. The systems managed by business units responsible for traffic data must meet the requirements of the planning, design, operating, and maintenance processes used by staff to support the highway system. The information generated from the data must provide an objective means for evaluating how safely and efficiently we are performing our mission.

The intent of this policy is to provide a framework for coordinating the efforts of traffic data providers, to leverage resources for multiple uses, ensure the needs of data users are being met, and provide a platform for improving access to data. Data providers must coordinate their programs to avoid duplication of effort. Data should be collected in a format that can be used in multiple processes when possible. Systems that provide real time or near real time delivery of data be employed when needed. Data must be provided in formats which support users needs and that can be accessed conveniently.

Policy Statement

The North Carolina Department of Transportation applies a traffic data management strategy that promotes new collection technologies, integrates resources, provides data needed to support services, and enhances access to information to optimize efforts in achieving its mission.

Traffic Data Management Goals

The goals of the policy are:

- Employ a team approach to meeting the data needs of the Department
- Promote a commitment to quality traffic data resources
- Ensure mandated data requirements and standards are met
- Minimize the duplication of efforts
- Facilitate the evaluation and deployment of new technologies
- Provide data products which meet the needs of users
- Integrate the use of resources for multiple purposes
- Enhance access to traffic data products

The policy document is organized to define data needs and detail the strategies to be used to meet those needs. Sections provided are:

- Department Traffic Data Needs
- Mandated Requirements and Standards
- Engineering Practice Requirements and Standards
- Data Providers and Users
- Traffic Data Products
- Traffic Data Management Team
- Consistency of Products
- Centralized Data Reporting System
- Interagency Outreach
- Integrating New Data Needs
- Technology Evaluation and Reporting

Appendices are provided for:

- A glossary of traffic data terminology
- An explanation of traffic data concepts
- Specifications for the collection, processing, quality control, and reporting standards for the traffic data types required
- A standard contract for PEF services for traffic data
- Safety specification for portable count data collection

The policy is designed to facilitate participation of both providers and users. It is an open process where units having new requirements can join the team to facilitate implementation of needed data. It will support the changing needs of existing processes also. The team approach will ensure that providers are coordinating their efforts, optimizing use of resources, and providing needed data in an efficient manner. Data users will be assured that data meets their process requirements and delivered in a timely manner.

Section 1 – Department Traffic Data Needs

The implementation of a performance based process for evaluating the effectiveness of delivering transportation services places an emphasis on the need for good quality data. Monitoring performance must be done using objective measures at all levels of the Department. The Performance Dashboard is the agency's measure of how well we are meeting our goals. Traffic data is a resource required to support some of these measures.

Traffic data has traditionally been used to generate information to support the decision making process at the executive level. Additionally, many units use this data in other processes that provide the basis for recommendations to the executive level. All processes developed under this policy must support the resources needed to provide this information.

Performance Dashboard

Crash Rates

Mobility Measures

What are the higher level traffic data needs?

Section 2 – Mandated Requirements and Standards

Traffic data is frequently collected to support a process that meets both State and Federal needs. Frequently, the requirement to provide this data is mandated by statutes and regulations. This provides a specification on what data is to be provided, how it is to be generated, and the frequency it is updated. This provides consistency between the States and allows Federal agencies to aggregate the data in a meaningful manner. The policy must support those mandated requirements to ensure the Department is in compliance.

Specific mandates related to traffic data are:

State Traffic Monitoring System (TMS) – The provisions under ISTEA enacted in 1991 require all States to implement a traffic monitoring system to provide the traffic data needed for monitoring purposes for both State and Federal highway programs. The data types to be collected, data products to be provided, and scope of the monitoring system are specified under 23CFR500 Subpart B in the Code of Federal Regulations. The TMS must provide the traffic data required to meet the Highway Performance Monitoring System (HPMS) traffic data needs. General standards are specified in the regulation but systems must employ practices and techniques that are consistent with the FHWA Traffic Monitoring

Guide, AASHTO Guide for Traffic Data Programs, and the HPMS Field Procedures Manual. Sanctions that can be made by FHWA if a State is found not to be in substantial compliance with the regulation can be withholding up to 10% of funds provided under Title 23. The Traffic Survey Group of the Transportation Planning Branch is responsible for meeting the requirements of this regulation.

Units to provide mandates related to traffic data

Section 3 – Engineering Practice and Standards

Many engineering processes require the input of traffic data. These processes require specific data types that may have a specific level of precision. The traffic data managed under this policy must meet the requirements of these processes. Specific practices that require traffic data are:

Transportation Planning

Urban and Regional Modeling – AADT, Weekday ADT, Peak Hour Volume, Truck Volume, Origin/Destination Data, Travel Time Data

Hand Allocation Modeling - AADT

Air Quality Modeling – VMT, Vehicle Type Distribution

Statewide Truck Modeling – AADTT, Truck Distributions, Origin/Destination Data, Trip Length Data

Traffic Forecasting – AADT, Turning Movements, Design Hourly Volume, Directional Volume, Vehicle Class Distributions

Units to provide details for processes using traffic data

Section 4 – Data Providers and Users

The units that provide data typically collect and process the data into a format required by its customers. Users have specific data needs and coordinate with the provider to ensure products are available when needed at the locations required. Areas of overlap or common need provide opportunities for more efficient use of resources.

Data Providers and Products

Traffic Survey Group			
Process	Type	Amount	Products
Coverage Count Program (28,000 counts per yr)	Volume	40,000 Sta.	AADT
	Class	3,000 Sta. (est.)	AADTT (under dev)
	Speed	Same as Class	85%/Avg PH (planned dev)
Continuous Count Program	Volume	80 Sta.	Factors
	Class	4 Sta.	Factors (under dev)
	Weight	17 Sta.	Load Spectra (under dev)
	Speed	Same as Class and Weight	85%/Avg PH (planned dev)
Project Count Program (1500 – 2000 counts per yr)	TM	350 per yr	TM, PHP, D, T%
	MC	50 per yr	PHP, D, T%
	Volume	1000 per yr	Daily/Hourly
	Class	300 per yr	Hourly/Truck%
	Speed	Same as Class	85%/Avg PH (planned dev)

TESSB
ITS
Rail
Divisions
Others

Data Users and Needs

Transportation Planning
Road Inventory
TESSB
ITS
PMU
Rail
Divisions
Others

Section 5 – Traffic Data Products

It is critical that the products generated by providers meet specific standards for collection and processing of the data. In some cases, detailed analysis is required to provide the level of reliability in the product required by the user. This section provides descriptions of products generated by the NCDOT. Detailed specifications for collection and production of traffic data can be found in Appendix ?.

NCDOT traffic data products are:

Annual Average Daily Traffic (AADT) – An average of daily traffic volumes for all days during the year expressed in vehicles per day. This can be calculated directly for continuous monitoring stations. It is estimated at short-term count monitoring stations by collecting a 48 hour sample count and applying an axle factor and seasonal factor. Traffic Survey performs quality assurance checks by comparing it to the trend from previous AADT estimates at the station (temporal) and comparing it to AADT estimates at neighboring stations (spatial). Deviations from historic trends are validated through investigation or recounting stations.

Units to provide traffic data products detail

Section 6 – Traffic Data Management Team

Who is involved and what do they do?