

Approved:

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TRAFFIC MONITORING

PURPOSE:

The Department conducts traffic surveys to determine the volumes and types of vehicles and the weight of the trucks using the highway network of Florida. Traffic surveys provide information essential to the general administration of highway programs. Traffic data are fundamental to determining vehicle-miles of travel, project design parameters, highway classification, and the level of service provided by a highway facility. This procedure will guide users in regards to the Department's traffic monitoring practices on State Roads.

AUTHORITY:

Sections 334.03(25), 334.044 (1), (10), (12), (13), (19), (20), and (21); 334.046; 334.063; 334.17; 334.24; and 338.001, Florida Statutes (F.S.).

SCOPE:

This procedure defines the traffic data that are used in transportation planning, design and maintenance of Florida's transportation system throughout the Department as well as the general public and assigns the responsibility for its collection, processing, editing, reporting and distribution. This procedure is used by the Central and District Offices as well as their consultants and contractors taking traffic surveys for FDOT use. Traffic data collected through implementation of this procedure are used by the District and Central Offices of Environmental Management, Project Management, Roadway Design, Traffic Engineering, Pavement Design, Safety Office, Office of Motor Carrier Compliance, Consultant Management, Planning, and various other entities within and outside of the Department.

REVISIONS:

A Traffic Monitoring Committee, appointed by the Central Office Transportation Statistics Office Manager and approved by the State Transportation Planner, consisting of personnel from each District Office and Central Office Transportation Statistics, will review and update this procedure in two-year cycles.

REFERENCES:

Guidelines for Traffic Data Programs, American Association of State Highway and Transportation Officials (AASHTO).

Highway Capacity Manual (HCM), Transportation Research Board.

Highway Performance Monitoring System Field Manual, Federal Highway Administration.

Manual on Uniform Traffic Studies, Florida Department of Transportation, Traffic Engineering Office, Topic No. 750-020-007.

Project Traffic Forecasting, Florida Department of Transportation, Transportation Statistics Office, Topic No. 525-030-120.

Project Traffic Forecasting Handbook, Florida Department of Transportation, Transportation Statistics Office.

Traffic Monitoring Handbook, Florida Department of Transportation, Transportation Statistics Office.

Traffic Monitoring Guide, Federal Highway Administration.

BACKGROUND:

Automated Surveys. Traffic data are collected with fixed telemetered sites operated by the Central Office and fixed or portable equipment operated by the Districts. The telemetered system of traffic data collection sites is operated full-time to develop highway system statistics on vehicle counts, classes, speeds, and weights, and to produce adjustment factors (seasonal and axle) for short-term surveys conducted by the Districts. Those short-term surveys of 24 or 48-hour duration using portable automated equipment are conducted to measure traffic volume flow on segments of urban and rural highways. Each segment, known as a traffic break, defines the limits of applicability for the survey location that is assigned to that traffic break.

Manual Surveys. In addition to automated surveys, a number of manual surveys may be required to support the functions of planning and project design. Such surveys include turning movement counts, intersection delay surveys, travel time studies, and bridge closing studies (two week duration). In contrast to the short-term surveys that

may cover 24- or 48-hours, these manual surveys may be conducted for only one or two peak hours. Manual surveys are covered in the ***Manual on Uniform Traffic Studies*** issued by the State Traffic Operations Engineer, Traffic Engineering Office.

1. TRAFFIC MONITORING HANDBOOK

The Traffic Monitoring Committee will be charged with development and maintenance of the ***Traffic Monitoring Handbook***. This handbook will guide users of this procedure in regards to the Department's best practices as it relates to traffic monitoring in the State of Florida and provide guidance in the techniques of traffic monitoring.

2. CONTINUOUS COUNTS PROGRAM

2.1 TELEMETERED TRAFFIC MONITORING SYSTEM

A system of telemetered traffic monitoring sites is operated and maintained by the Central Office. The extent, type, and distribution of such sites will meet the ongoing needs of the Department for system statistics. They will be used to develop adjustment factors, which are used to estimate Annual Average Daily Traffic (AADT) from short-term surveys. The types of sites that are maintained include those for vehicle counts (total and by class, as defined in FHWA's ***Traffic Monitoring Guide***), speeds, and weights. The Central Office will consult with District Office staff when locating new telemetered sites in order to select locations that will be the most representative of local traffic conditions, particularly seasonal variations, and to avoid conflicts with planned construction projects

2.2 RECONSTRUCTION OF SITES IN ROADWAY PROJECTS

District Offices will monitor the work program and ensure that any telemetered traffic monitoring site or short-term count site eliminated or rendered ineffective by road construction is replaced as a part of the construction project. Replacement is mandated for all construction projects unless specifically exempted by the Central Office. The Central Office maintains an Approved Products List, Standard Specifications and Standard Indexes for the construction of telemetered traffic monitoring sites. It is the responsibility of the District Office and the Design Engineer of each project to ensure that the repair or replacement of any affected traffic monitoring site is included in the project plans.

2.3 CONSTRUCTION OF NEW SITES

In addition to the replacement of existing telemetered traffic monitoring sites, planned projects may include installation of new sites (telemetered traffic monitoring sites or

short-term count sites). All telemetered traffic monitoring sites that are to be operated and maintained by the Central Office must be constructed with the specific written approval and support, and in conformance with the specifications, of that office.

2.4 TRAFFIC DATA FROM OTHER SOURCES

Each District may install, operate, and maintain other telemetered sites that will be the sole and complete responsibility of the District. The annual statistics will be provided by the District Office at the end of each calendar year to the Central Office for all sites operated by or for the District Office under the provisions of this paragraph. The District may coordinate with the Central Office on the use of the traffic data from the sites operated by local governments.

3. SHORT-TERM COUNTS PROGRAM

3.1 SURVEY TYPES AND RESPONSIBILITY

The District Office is responsible for conducting short-term traffic surveys taken with automated equipment, whether by their own staff, personnel from other District Offices, or an independent contractor. The District Offices are responsible for selecting locations and maintaining an Information Management System (IMS) database, for short-term counts.

The types of surveys covered under this topic include simple counts for estimating AADT and vehicle classification counts. A simple count produces a 24-hour total number of vehicles of all types in intervals of 15 minutes and/or one hour. A vehicle classification count categorizes vehicles by type into 13 vehicle classes (e.g., motorcycles, passenger cars, busses, single-unit heavy trucks, semi-trailer trucks, and tandem trucks). For urban areas, a minimum simple count of 24-hours is required. For rural areas, a minimum simple count of 48-hours is required.

Site-specific short-term traffic surveys can be used to estimate directional distribution (D30) and truck percentages. Classification surveys may be conducted at existing telemetered sites that do not collect classification data. For detailed guidance, refer to the *Project Traffic Forecasting Handbook*.

3.2 TRAFFIC BREAK AND COUNT SITE ASSIGNMENTS

A traffic break, by definition, represents a segment of highway with uniform traffic volume and vehicle mix. Only one traffic count site is required and will be used in any

traffic break for estimating AADT. The official record of traffic break beginning and ending mile posts will be verified and updated in the Traffic Characteristics Inventory (TCI) database by District Office staff.

District Office staff is responsible for properly identifying and recording the traffic break locations and the survey site assignments within each traffic break. District Office staff should consider related needs of the District Traffic Operations Office and other customers when choosing traffic break and count site locations. For detailed guidance, refer to the *Traffic Monitoring Handbook*.

The Central Office will provide the software and technical guidance needed to maintain traffic break data and process individual traffic surveys. In addition, the Central Office will provide quality control reports to help District Office staff eliminate gaps and overlaps in the traffic breaks on all state highways. The Central Office in concurrence with the District Offices will estimate an AADT for traffic breaks not surveyed in any given year.

3.3 TRAFFIC DATA ACCURACY

To accurately collect traffic data, the Districts will ensure that each survey instrument is tested annually. Prior to starting data collection, the Districts will ensure that the equipment is performing properly and furnish an annual statement of equipment certification to the Central Office before January 31st.

3.4 TRAFFIC DATA COLLECTION SCHEDULE

The District Offices will develop a District Data Collection Schedule and provide it to the Central Office before January 31st.

3.5 ASSIGNMENT OF ADJUSTMENT FACTORS

The Central Office will produce Seasonal and Axle Adjustment Factor Category Assignment Reports by January 31st for coordination with the Districts for review and updates. Seasonal adjustment factors are derived from the continuous counts program conducted by the Central Office. The axle adjustment factors are derived from classification surveys. The assignment of an adjustment factor category for each short-term count site is the responsibility of the Districts. For detailed guidance, refer to the *Traffic Monitoring Handbook*.

3.6 PROCESSING SURVEY DATA

The District Office will process collected data, check data validity, and upload accepted data into the mainframe (Traffic Characteristics Inventory (TCI)) within 30 days of the date of data collection or within 20 days of receipt of data collected by private contractors or others. Data collection must be completed by November 15th and the final weekly load made into the TCI database by December 31st.

The Central Office will produce Seasonal and Axle Adjustment Factor Category Assignment Reports by January 31st for the Districts' review and changes, if warranted. The Central Office will produce AADTs for all sites and send them to the District Offices for their concurrence/approval prior to adoption of the AADTs by March 15th. The detailed collaborative process to meet the March 15th AADT production date is included in **Section 8, Traffic Monitoring Handbook**.

3.7 TRAFFIC DATA STORAGE

The Central Office will be responsible for loading finalized traffic information into the Roadway Characteristics Inventory (RCI) database for roads on the State Highway System. These data will also be stored in TCI. The District Offices will be responsible for inputting AADT and traffic factor estimates for off-system roads into RCI. Traffic data for Highway Performance Monitoring System (HPMS) samples on off-system roads will be retained in RCI and the District Office will update on an as needed basis. For detailed guidance, refer to the **Highway Performance Monitoring System Field Manual**.

4. SPECIAL USE LANES MONITORING PROTOCOL

Special use lanes (such as High Occupancy Vehicle lanes) currently in operation and being enforced must be monitored and evaluated every two years by the District Planning/Traffic Operations/ Modal Development Offices. The following performance measures will be used to evaluate the operation of the lanes: Level of Service, Vehicle Occupancy, Hours of Enforcement, Travel Times, Travel Speeds, Travel Reliability, Person Throughput and Levels of Enforcement. If changes to operating conditions are warranted based on the analysis, recommendations should be made to all District Directors.

5. MAINTENANCE OF TRAFFIC SURVEY SITES BY CENTRAL OFFICE

The Central Office will maintain sites constructed under **Section 2.1**. The District Offices shall inform the Central Office of any malfunction of sites constructed for short-

term traffic volume surveys within their District. The Central Office shall have those sites fixed within 60 days.

6. TRAFFIC REPORTS AND DISTRIBUTION

The Central Office will be responsible for production of the Florida Traffic Information CD-Rom and maintain the traffic users list. The Central Office will distribute the CD-Roms to the Districts for their use and distribution.

7. TRAINING

Training is provided for this procedure upon request to the Central Office.

8. FORMS

No forms are required by this procedure.