

CHAPTER 10 – SYSTEM MANAGEMENT

10.1 Overview

A requirement of the Long Range Transportation Plan (LRTP) is to provide documentation of how the existing transportation system is being maintained by the responsible jurisdiction with the goal of extending the useful life of the roadways, trails, and sidewalks that are in the current inventory. Integral to the process of documenting the system preservation actions is presenting information on “management” of the system including:

- Roadway pavement conditions
- Bridge conditions
- Congestion along roadways in the current network
- Safety along roadways in the current network

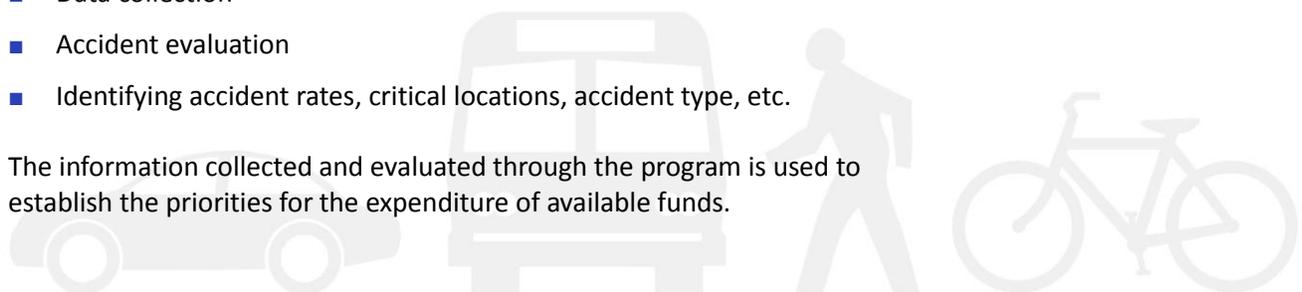
Typically, metropolitan area management plans for each of the listed systems are developed and implemented by the state DOT, the county or the local community. For the greater Morgantown area, the vast majority of the system mileage addressed through the regional transportation plan is under the jurisdiction of the West Virginia Department of Transportation (WVDOT). Thus, management systems employed by the WVDOT were documented and any management program gaps in the applicable systems were addressed.

10.2 Safety Management

The WVDOT developed a Safety Management System and instituted it into the operations of the West Virginia Division of Highways (WVDOH). Through the Safety Management System Priorities for addressing the various items within the recognized purview of roadway facility safety on the system were established. Included were items such as:

- Inter-agency coordination in responding to incidents/crashes and investigating the root cause of the crash
- Data collection
- Accident evaluation
- Identifying accident rates, critical locations, accident type, etc.

The information collected and evaluated through the program is used to establish the priorities for the expenditure of available funds.



This Highway Safety Management (HSM) system is still being used but not in a formal manner. The cross training, the data collection, accident information, etc., are being used by the WVDOH Safety Coordinator to establish a recommended yearly program.

Currently, the WVDOH is developing a Strategic Highway Safety Plan (SHSP) which will incorporate many of the features of the Highway Safety Management plan. The SHSP will be used to emphasize the following areas.

- Involvement of alcohol in an incident
- Occupant protection
- Lane departure
- Emergency medical services
- Aggressive driving
- Highway data improvements
- At-risk drivers
- Commercial motor vehicles
- Other coordinated initiatives

Since WVDOT has responsibility for all roadways other than some municipal streets, this information will be comprehensive for the highways and city streets within the state.

During the transition from the HSM to the SHSP, portions of both systems are being used.

10.3 Pavement Management

The WVDOT-DOH Pavement Management System (PMS) is operational but is continually being updated and revised. Through the system implementation, pavement condition data was collected on all paved interstate, U.S. highway, WV State highway, and county signed routes in 2008-2009. Data has been collected on some portion of the system each year since, at a minimum, to meet the requirements of the Highway Performance Monitoring System routes (HPMS).

The WVDOH uses the International Roughness Index (IRI), which is a measure of ride comfort, and data on pavement rutting, faulting, and cracking. All data is collected with GPS controls, which allow direct measurement of the roadway and roadside features using the GPS data. The GPS controlled pictures are taken at 0.004 mile (~21-foot) intervals. The IRI and indexes calculated on IRI, rutting, faulting, and cracking are summarized on 0.1 mile (528 feet) intervals.



The updated system was placed in operation to provide information necessary for planning, cost estimating, prioritization, budgeting, and programming for the appropriate maintenance/renovation activities.

Other information may be collected with the pavement condition data system such as sign inventory, profile grade, width, offset to signs and obstructions, driveway locations, bridge widths and location, etc. This information is valuable in establishing conditions at the time of the survey and can be used for several functions beyond the pavement management system.

10.4 Bridge Management

There are a total of approximately 6,820 bridges throughout the state, with WVDOT owning approximately 6,700 and cities and counties owning approximately 120.

A Bridge Management System (BMS) that includes all state-owned bridges has been implemented. Through the program, technical data for each bridge was collected, including:

- Structure age
- Type of superstructure
- Span lengths
- Bridge width
- Traffic volume
- Route number on which the bridge was located
- County in which the bridge was located

Each of the bridges is inspected every two years (note new bridges may be on a four-year cycle) and based on the condition, an updated estimate is made regarding repairs or renovations. If appropriate, an estimated cost of replacement is provided. As part of the statewide inspection program, the WVDOH also inspects city and county-owned bridges.

The bridge condition data collected, in combination with the local District Bridge Engineer's knowledge, are used in reviewing and preparing the bridge portion of the annual WVDOH work program. The candidate projects identified are included in the six-year Statewide Transportation Improvement Program (STIP).

The WVDOH is in the process of adding bridge element level inspection data to the condition data (a requirement of MAP-21). After several years of collecting this data, WVDOH plans to begin to add the use of

sophisticated bridge management software components to the work process to help determine candidate bridges for funding.

