



PART IV

Recommendations for HPMS Changes

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Recommendations for HPMS Changes

Section 52003 of the Moving Ahead for Progress in the 21st Century Act (MAP-21) added a requirement for this report to include recommendations on changes to the Highway Performance Monitoring System (HPMS) that address: “(i) improvements to the quality and standardization of data collection on all functional classifications of Federal-aid highways for accurate system length, lane length, and vehicle-mile of travel; and (ii) changes to the reporting requirements authorized under section 315 to reflect recommendations under this paragraph for collection, storage, analysis, reporting, and display of data for Federal-aid highways and, to the maximum extent practical, all public roads.” Part IV of this report is intended to begin to address this requirement; future editions of the C&P report will contain updates as progress is made in implementing improvements to the HPMS and as other potential changes are identified.

The HPMS is a major data source for the analyses presented in Chapters 2, 3, 7, 8, 9, and 10 of this report; the HPMS is also discussed in Appendices A and D.

Background

The Highway Performance Monitoring System (HPMS) is an annual collection of information on the extent, condition, performance, use, and operating characteristics of the Nation’s highways. It was first developed in 1978 to replace numerous uncoordinated annual State data reports and special studies. HPMS includes key data on all public roads, more detailed data for a sample of the arterial and collector functional systems, complete (full extent) coverage of the Interstate and other principle arterials, and other statewide summary data.

HPMS provides essential information for apportioning Federal-aid funds to the States and for assessing highway system performance under the Federal Highway Administration’s (FHWA’s) strategic planning process. Pavement condition data, congestion-related data, and traffic data are used extensively to measure progress in meeting the objectives embodied in the FHWA’s Performance Plan and other strategic goals. It also supports the biennial C&P Reports to Congress.

In addition, the HPMS serves needs of the States, metropolitan planning organizations, and local governments in assessing highway condition, performance, air quality trends, and future investment requirements. Data from HPMS are the source of a large portion of the information included in FHWA’s annual Highway Statistics report and other publications.

HPMS is a collaborative effort between FHWA and the States. The States are responsible for collecting and reporting the data, and FHWA reviews the data for quality and consistency, provides guidance on data collection, and offers technical support on improving data quality. As much as possible, States employ common practices, such as American Association of State Highway and Transportation Officials and American Society for Testing and Materials standards, to enable consistency among the States. There is a National Cooperative Highway Research Program study currently underway (20-24[82]), “Increasing Consistency in the Highway Performance Monitoring System for Pavement Reporting,” that will identify and prioritize measures that might be taken to further reduce any inconsistencies on pavement performance information.

Periodically, there is a reassessment of the HPMS to ensure that it is still fulfilling its role as the repository for national highway performance data and to recommend changes to improve it. The most recent reassessment began in 2006 and led to the elimination of data items no longer needed and the inclusion of additional

data items required by its users. It also introduced a new geospatial data model to allow more efficient data processing and geospatial analysis. After a series of intensive outreach workshops and webinars, the HPMS Reassessment 2010+ Final Report was issued in September 2008.

The new HPMS requirements have been in effect starting with the submittal of data collected in 2009. This led to the development of a new geospatial database management system that incorporates State linear referencing systems to locate highway sections. In other words, the HPMS data are attached to the State's highway map, which allows the HPMS data to be mapped and spatially analyzed.

The forthcoming 2012 edition of the Traffic Monitoring Guide (TMG) will be the basis for travel data collected by the States and reported to FHWA. This new edition will provide improved guidance on the methods for properly collecting, analyzing, and reporting travel data. One of the new data areas in HPMS that will benefit from the forthcoming TMG will be traffic counts on ramps. The new HPMS requires States to submit basic information for all ramps including: ramp length, functional class, number of lanes, and annual average daily traffic.

Changes to HPMS

MAP-21 indirectly made two changes to HPMS by expanding the National Highway System (NHS) to include all principal arterials. This leads to increased data collection for truck travel data in HPMS, which must cover the NHS while being sampled elsewhere, and International Roughness Index (IRI) data, which must be collected annually on the NHS in contrast to biennially elsewhere.

HPMS will serve as the foundation for linking FHWA data systems, which will enable more comprehensive analyses thanks to the combining of the financial and bridge data with the highway information in HPMS. On August 7, 2012, FHWA notified the States that, starting with data submitted in 2014, it is asking States to provide geospatial information for their road network on all public roads. This information will allow FHWA to build a national basemap for an integrated system of highway attributes for analysis of safety, bridge, freight, and planning data. Also included is a requirement for States to provide dual networks for all divided highways. This will enable the States to provide FHWA their highway attribute data by roadway direction, which is more convenient for many States.

FHWA is considering a possible change to the reporting requirements of the IRI data that are used for performance measurement of pavement condition. This change would standardize the section length required for reporting IRI so that comparisons are consistent. Currently, States use different IRI section lengths, although the most common is one-tenth of a mile.

What does the term “dual network” mean?



The geospatial networks, or maps, that States currently submit in HPMS are considered a single centerline network, which means that the networks use only single lines to represent all roads regardless of whether the roads are two-lane collectors or divided Interstate. To contrast, the dual network is two lines for all divided highways, one for each of the directional roadways. This allows for a more accurate spatial representation of divided highways, improves data quality for these roads, and enhances analysis capabilities.

