CHAPTER II

DEFINITIONS

This chapter contains definitions to be used in preparing HPMS data for FHWA. Specific details addressing summary, universe, standard and donut area sample data, and LRS locational data are contained in Chapters III, IV and V, respectively. Chapter VI contains data updating requirements and Chapter VII contains information on sample selection and maintenance. Collectively, these chapters provide necessary definitions, guidelines, coding instructions, reporting formats, and update specifications necessary to facilitate the reporting of current, consistent, and uniform data on a nationwide basis.

Certification of Public Road Mileage: An annual document furnished by each state to FHWA certifying the total public road length (kilometers or miles) in the state as of December 31st. This document is to be signed by the Governor of the State or by his/her designee and provided to FHWA by June 1st of the year following (23 CFR 460). See the definition of "Public Road".

Combination Truck or Vehicle: Any multi-unit vehicle described by vehicle types 8-13 in Chapter III.

Comment File: A text file that accompanies the HPMS data submittal to FHWA. It explains data issues, problems, deficiencies, unusual conditions, and any significant changes from the previous HPMS submittal. It may be provided as an electronic file attached to the HPMS submittal or as a separate paper submittal.

Confidence Level/Precision Level: The degree of accuracy resulting from the use of a statistical sample. For example, if a sample is designed at the 90-10 confidence (precision) level, the resultant sample estimate will be within ±10 percent of the true value, 90 percent of the time.

Divided Highway: A multi-lane facility with a curbed or positive barrier median or a median that is 1.2 meters (4 feet) or wider.

Donut Area: The area outside of the FHWA-approved adjusted Census boundary of one or more urbanized areas but within the boundary of an NAAQS nonattainment area is defined as the "donut area." In the example shown in Appendix G, the donut area includes six small urban areas and the remaining rural area.

Donut Area Sample Data: These data consist of a combination of existing standard sample data and supplementary sample data taken in the nonurbanized portion (donut area) of EPA designated NAAQS nonattainment areas. This is done to enhance the precision of the estimate of vehicle travel in the donut area to a 90-10 confidence level to meet EPA's travel monitoring requirements. Data are used primarily for establishing regional transportation-related emissions for transportation conformity purposes. Estimated travel based on these data is used for calibration and validation of base-year network travel models when required for nonattainment or maintenance areas. The sample panels consist of two unique sample stratifications within each donut area further stratified by volume group:

(1) combined rural minor arterial and small urban area minor arterial, and
(2) combined rural major collector and small urban area collector.

A discussion of the donut area sample design is included in Appendix G.

Donut Area Sample Sections: The combination of existing standard sample sections and randomly selected supplementary sample sections if needed for the donut area of an NAAQS nonattainment area. Used only to estimate travel in the donut area on the rural and small urban minor arterial, rural major collector, and small urban collector systems. The supplementary samples are chosen from the universe length of these systems. A discussion of the donut area sample design is included in Appendix G.

English Units: The term "English" refers to the United States legislative interpretation of the units as defined in a document prepared by the National Institute of Standards and Technology (NIST), U.S. Department of Commerce, Special Publication 330. Commonly used English units in HPMS are miles, feet, and inches.

Expressway: A divided highway facility with partial control of access and two or more lanes for the exclusive use of through traffic in each direction; includes grade separations at most major intersections.

FHWA-Approved Adjusted Census Urban Boundary: Designated boundaries of a Census urban place or urbanized area as adjusted by responsible State and local officials in cooperation with each other, subject to the approval by FHWA (23 U.S.C. 101). Urban and rural data in HPMS must be reported in accordance with FHWA-approved adjusted boundaries.

Freeway: A divided highway facility with full control of access and two or more lanes for the exclusive use of through traffic in each direction.

Functional Systems: Functional systems result from the grouping of highways by the character of service they provide. The functional systems designated by the States in accordance with 23 CFR 470 are used in the HPMS. Guidance criteria and procedures are provided in the FHWA publication *Highway Functional Classification: Concepts, Criteria, and Procedures*, March 1989. Functional system names and codes are included in Chapter IV.

Geographic Information System (GIS): A system for the management, display, and analysis of spatial information. For HPMS purposes, GIS includes the spatial data defining the highway network and the geographically referenced HPMS section and bridge data.

Highway: The term highway includes roads, streets, and parkways and all their appurtenances (23 U.S.C. 101).

Linear Referencing System (LRS): A set of procedures for determining and retaining a record of specific points along a highway. Typical methods used are kilometerpoint (milepoint), kilometerpost (milepost), reference point, and link-node.

LRS Data: Provides a linear referencing system for the universe and sample data on selected highway functional systems. LRS data are a required part of the annual HPMS data submittal due June 15th of each year. Specific instructions for reporting network control LRS data are contained in Chapter V. For LRS data reporting instructions, see Items 10, 11, and 12 in Chapter IV. Further guidance on updating LRS information is provided in Appendix H.

Metric Units: The term "metric" refers to the modernized metric system known as the International System (SI). Further information is available under NIST's Special Publication 811, titled *Guide for the Use of the International System of Units: The Modernized Metric System*, and the American Society for Testing and Materials (ASTM) Standard E380-89a. Commonly used metric units in the HPMS are

kilometers, meters, and millimeters. HPMS data must be reported in metric units; however, if State inventory systems are maintained in English units, the FHWA data submittal software will convert data inputs to the required metric format.

Metropolitan Planning Organization (MPO): The term MPO is used in HPMS as defined in 23 U.S.C. 134.

National Ambient Air Quality Standards (NAAQS) Nonattainment Area: An area not meeting the NAAQS is designated by EPA as a "nonattainment area" out to boundaries established under the Clean Air Act Amendments (CAAA) of 1990. HPMS data are used for travel tracking for air quality assurance purposes in nonattainment areas as required by EPA under the 1990 CAAA (Section 187) and the Transportation Conformity Rule, 40 CFR parts 51 and 93. More specifically, these data are used primarily for establishing regional transportation-related emissions for transportation conformity purposes. Estimated travel based on these data is used for calibration and validation of base-year network travel models when required for nonattainment or maintenance areas. See Appendix G for additional information.

National Highway System (NHS): The National Highway System is a network of nationally significant highways approved by Congress in the National Highway System Designation Act of 1995. It includes the Interstate System and nearly 114,000 miles of arterial and other roads and connectors to major intermodal terminals. All NHS routes and connectors must be identified in the HPMS.

Public Road: A public road is any road or street owned and maintained by a public authority and open to public travel. [23 U.S.C. 101(a)]. Under this definition, a ferryboat is not a public road.

- The term "maintenance" means the preservation of the entire highway, including surfaces, shoulders, roadsides, structures, and such traffic-control devices as are necessary for safe and efficient utilization of the highway. [23 U.S.C. 101(a)]
- To be open to public travel, a road section must be available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight or class of registration. Toll plazas of public toll roads are not considered restrictive gates. [23 CFR 460.2(c)]
- A public authority is defined as a Federal, State, county, town or township, Indian tribe, municipal or other local government or instrumentality with authority to finance, build, operate, or maintain toll or toll-free facilities. [23 U.S.C. 101(a)]

Roadway: The portion of a highway intended for vehicular use.

Rural Areas: All areas of a State outside of the FHWA-approved adjusted Census boundaries of small urban and urbanized areas.

Single-Unit Truck or Vehicle: Any single-unit vehicle described by vehicle types 3-7 in Chapter III.

Small Urban Areas: Small urban areas are defined by Census as places of 5,000 to 49,999 urban population (except in the case of cities in Maine and New Hampshire) outside of urbanized areas. As a minimum, a small urban area includes any place containing an urban population of at least 5,000 as designated by Census. Designated boundaries of an urban place can be adjusted by responsible State officials subject to approval by FHWA (23 U.S.C. 101). Urban and rural data in HPMS must be reported in accordance with FHWA-approved adjusted boundaries.

Standard Sample Data: These data consist of additional inventory, condition, use, pavement, operational, and improvement data that complement the universe data for those sections of roadway that have been selected as standard samples. When expanded through use of an appropriate expansion factor, the data represents the entire universe from which the sample was drawn, permitting evaluation of highway system performance. The sample sections form nominally "fixed" panels of road segments that are monitored on an established cyclical basis. Samples can be added or deleted from the sample panels as the need arises.

Panels of roadway sections are established using a statistically designed sampling plan based on the random selection of road segments at predetermined precision levels. The sample is stratified by area, by functional system, and by traffic volume group. Sample selection is done randomly within each stratum (a predetermined AADT volume group) for each arterial and major collector functional highway system in rural, and for each arterial and collector functional system in small urban and urbanized areas of the State. A discussion of the HPMS sample selection design is included in Chapter VII.

Unique sampling is required for each urbanized area having ≥200,000 population and smaller urbanized areas that are NAAQS nonattainment areas. Rural and small urban areas (5,000 to 49,999 population) are sampled collectively statewide.

Standard Sample Sections: Sections selected at random from the universe of arterial and collector systems (excluding rural minor collector) for which additional physical and operational data elements are reported along with the universe data. A discussion of the HPMS sample selection design for the arterial and collector systems is included in Chapter VII.

State (Codes): The term "State" refers to any one of the 50 States, the District of Columbia, or the Commonwealth of Puerto Rico. The Federal Information Processing Standard Codes for States (FIPS PUB 5-2) are included in Appendix A.

Strategic Highway Corridor Network (STRAHNET): The STRAHNET includes highways which are important to the United States strategic defense policy and which provide defense access, continuity, and emergency capabilities for the movement of personnel, materials, and equipment in both peacetime and war time.

Summary Data: These data consist of annual summary reports for certain data not included in the HPMS universe and sample data set for the minor collector and local functional systems. Summary data must be coded manually onto the several summary screens contained in the HPMS submittal software. These additional data are derived from State and local sources such as statewide highway databases, management systems, Intelligent Transportation Systems (ITS) and traffic monitoring systems, and data made available from local governments and MPOs. Summary data and data screens are discussed in more detail in Chapter III.

Supplemental Sample Sections (in donut areas): Additional samples needed to obtain a donut area travel estimate at the 90-10-confidence level. A discussion of the donut area sample design is contained in Appendix G.

System Length: The total length of public roads as of December 31st of a data year that is to be reported via HPMS (see definition of public road). System length includes all public roads owned by Federal, State, and local governments, or instrumentality thereof, within the boundaries of the reporting State. Planned, unbuilt facilities on the NHS are also reported in the HPMS system length (see Item 20 in Chapter IV).

Universe Data: Data representing total system length including National Highway System length not yet built or open to traffic. These data consist of a complete inventory of length (kilometers or miles) by functional system, jurisdiction, geographic location, (rural, small urban, urbanized, and NAAQS nonattainment areas) and other selected characteristics. Universe data fully reflect all open-to-traffic public roads in the State and contain basic information for planned, unbuilt future NHS. Universe data can be reported in **either** of the following ways:

- **Section Data**: Data reported for a continuous length of roadway that is homogeneous with respect to the physical, operational, administrative, and jurisdictional characteristics being reported. Interstate System, other freeways and expressways, other principal arterial, rural minor arterial, NHS, and all standard sample and supplementary donut area sample sections must be reported in section data form; or
- **Grouped Data**: Data reported for a group of highway sections, not necessarily contiguous, with length aggregated with respect to the homogeneous administrative, physical, and jurisdictional characteristics being reported. Grouped data can only be reported for lower order, non-NHS functional systems and non-sample road sections.

Urbanized Areas and Codes: Areas with a population of 50,000 or more, as designated by the Census. An FHWA-approved adjusted urbanized area includes the Census urbanized area plus transportation centers, shopping centers, major places of employment, satellite communities, and other major trip generators near the edge of the urbanized area, including those expected to be in place in the near future. FHWA's three-digit urbanized area codes are included in Appendix B. For multi-State urbanized areas, each State must report HPMS information for the portion of the FHWA-approved adjusted urbanized area within its State boundary.

U.S. Territories: The U.S. Territories include American Samoa, Guam, the Commonwealth of the Northern Marianas, and the Virgin Islands. The Federal Information Processing Standard Codes (FIPS PUB 5-2) are included in Appendix A. A reduced HPMS data set is required for U.S. Territories. See Chapter III.