

The 2010 Highway Performance Monitoring System

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What is HPMS?

- Highway Performance Monitoring System
- Annual highway data collection
- Includes highway inventory, geometric, traffic, and pavement data
- Used for apportionment, reports to Congress, performance measures, Highway Statistics, etc.

HPMS Reassessment 2010+

- New geospatial data model
- Expanded traffic data
- Additional pavement data
- Functional systems made independent of urban boundaries
- Metadata included

HPMS Vision

- Evolve HPMS to a system which --
 - Builds on the data systems of local, regional, and State governments
 - Is connected by a common geo-referencing system
 - Avoids collecting data not used by the collecting agency, if possible

Geospatial Data Model

- Two key provisions
 - Based on State GIS networks
 - Data provided in independent layers
- Advantages
 - Use updated GIS networks
 - Greater flexibility for integrating data
 - Lower data reporting burden

Functional Systems

- Independent of Urban Boundaries
 - Interstate
 - Principal Arterial – Other Freeways & Expressways (+rural)
 - Principal Arterial – Other
 - Minor Arterial
 - Major Collector
 - Minor Collector (+urban)
 - Local
- FHWA-wide change

AADT

- All Federal-aid highways and ramps
- Short counts factored
 - Day of week, seasonal, axle correction, and growth factors, as necessary
- Minimum 3-year count cycle
 - NHS, Interstate, and Principal Arterials
- Minimum 6-year count cycle
 - Other sections and ramps

Ramp Counts

- Grade-separated ramps only
 - All Federal-aid highways
- Why are ramp counts needed?
 - Many interchange bottlenecks
 - Large amounts of Federal funds spent
 - No Federal data on ramps
- First year: count or estimate

Estimating Ramp AADT

- Factor counts
 - Use nearby ATRs
 - E.g., anchor points for ramp balancing
 - Use factors for either mainline
- Ramps with no counts
 - Traffic matrix estimation
 - Travel demand software

Other Section Traffic Data

- Single-Unit and Combination Trucks
 - AADT: NHS and sample panel
 - Peak Hour Percent: sample panel
- K factors, D factors, and Future AADT
 - Sample panel

Summary Travel Data

- Travel for local and rural minor collectors
 - Each urbanized area
 - Small urban statewide
 - Rural statewide
- Travel by 6 vehicle types
 - 6 functional systems
 - Motorcycles required

Methods to Estimate VMT

- Traffic counts
- AADT level by city size
- Proxies
 - Percentage of total area travel
 - Highway fuel
 - Vehicle registrations
 - Population

Metadata

- Data completeness and processing
- Traffic - 18 Items
 - Volume and Vehicle Class AADT
 - Pct Actual, 24 hr, 48 hr, Factors, Data Type
 - Travel Source, QA
 - Ramp Estimation Method

HPMS Sample Panel

- Table of Potential Samples (TOPS)
 - Samples taken from the TOPS
 - Functional System, Urban Code, Facility Type, Through Lanes, and AADT
- Only AADT sections are a judgment call
 - Trade off section length vs. no. of sections
 - Sample adequacy is the bottom line

HPMS 8.0 Web-based Software

The screenshot displays the HPMS 8.0 web-based software interface. At the top, the U.S. Department of Transportation Federal Highway Administration logo is on the left, and the title "Highway Performance Monitoring System v8.0" is in the center. On the right, there are "Submittal" and "Review" buttons. Below the title bar, a navigation menu on the left lists "DATA EDITORS" (Routes, Sections, Estimates, Metadata), "SUMMARIES" (Statewide, County, Urban, NAAQS), "DATA VALIDATION" (Validation), "SAMPLE MANAGEMENT" (Sample Panel), and "Exit". The "Sections" menu item is highlighted. The main content area shows a map of Connecticut with a green line representing a highway section. Above the map, there are controls for "Year: 2009", "State: Connecticut", and a "Change" button. Below these are buttons for "Switch Base Map", "Identify", "AADT", "Generate Geometry", "Copy Sections", "Import", and "Add". The map itself shows various towns and cities in Connecticut, including Hartford, Waterbury, and New Haven.

Sections and Sample Panel

- Sections Data



- Sample Panel ID Data



- Sample Sections



Sections and Sample Panel

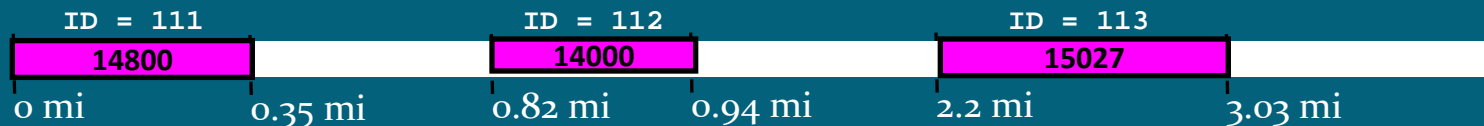
- Sections Data – Truck AADT



- Sample Panel ID Data



- Sample Sections



Aggregation Rules

- Combination
- Minimum Value
- Predominance
- Weighted Averaging

Item Number	Data Item	Rule
21	AADT	No Calculation Required
22	AADT_Single_Unit	Weighted Averaging
23	Pct_Peak_Single	Weighted Averaging
24	AADT_Combination	Weighted Averaging
25	Pct_Peak_Combination	Weighted Averaging
26	K_Factor	Weighted Averaging
27	Dir_Factor	Weighted Averaging
28	Future_AADT	Weighted Averaging

Conclusions

- There are no “HPMS sections”
 - Different data items may go with different sections
- Sections data may go beyond sample limits
 - FHWA will then extract sample panel data
- There is no “HPMS data”
 - It’s all your data!

HPMS 2010+ Implementation

- 2010 -- Transition year
 - Geospatial network from all States
 - May submit in old or new format
 - June 15 for old; August 15 for new
 - Web-based software in August
- 2011 -- New format only
 - Old format will not be an option

Questions?

