National Highway Institute (NHI) HPMS Workshop Development Efforts

FHWA Highway Information Seminar

Arlington, VA

September 25, 2015

Existing Training Course

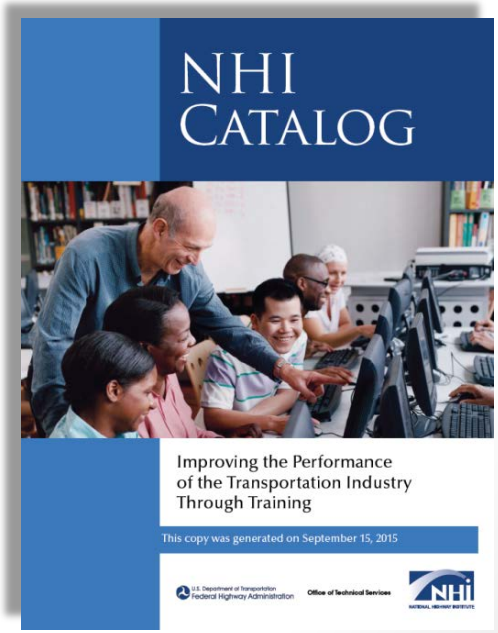
- 2-day non-NHI training course development commenced in early 2011
- Course was piloted in Sept. 2011 (Raleigh, NC)
- Course was revised/finalized in late 2011 and delivered as regional trainings (budget permitting) beginning in 2012

Existing Training Course (cont'd)

- Regional workshops delivered:
  - Salem, OR – 2/2012
  - Lincoln, NE – 9/2012
  - Newark, DE – 1/2013
  - Austin, TX – 3/2013
  - Salt Lake City, UT – 2/2014

Workshop Development Objective

- *To develop a formal HPMS training course/workshop to be offered to State DOTs via FHWA's National Highway Institute (NHI) curriculum*

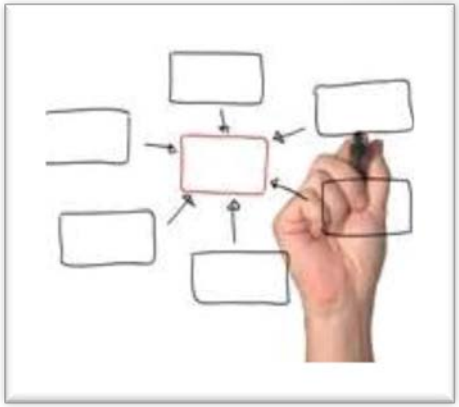


Workshop Development Status

Activity/Task	Date(s)	Status
Project Kick-off	Early May	Completed
Curriculum Development Meetings	Mid-to-late May	Completed
Drafting of Instructor Materials	Early June	Completed
35% Technical Review Meeting	Late July	Completed
Final drafting of Instructor Materials	Mid-to-late August	Completed
Drafting of Instructor Guide (IG) and Participant Workbook (PW)	September	Completed
IG Review	September/October	In Progress
Technical Walkthrough	*TBD*	*Not Yet Started*
Pilot Course Delivery	*TBD*	*Not Yet Started*

Workshop Structure

- Instructor-led (2 total)
- Two days (12 hours)
- Class size: 20-30 participants
- Cost: $450/participant
- Target Audience
  - HPMS Program Coordinators
  - Data Program Managers/Providers (Road Inventory, Traffic, Pavement)
  - IT / GIS Managers/Specialists
  - MPO and Local Agency Staff



Workshop Structure (cont'd)

- Learning Outcomes
- Key Concepts
- Instructional Materials
- Interactive Learning Tools

Workshop Goals/Objectives

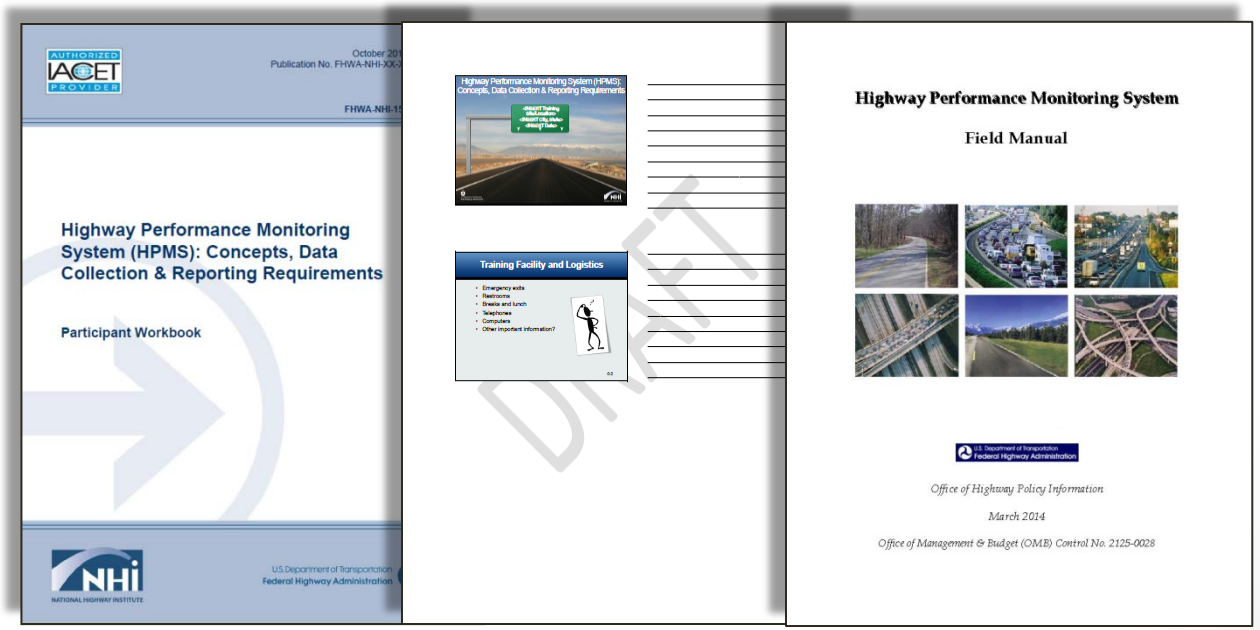
- To provide training on the following HPMS topics:
  - Program Background
  - Data Model
  - Data Collection & Reporting Requirements
  - Submittal Process

Workshop Modules

I. HPMS Background & Core Components
II. Data Model and Required Datasets
III. Data Items to be Collected/Reported
IV. Sampling
V. HPMS Submittal Process
VI. Course Summary

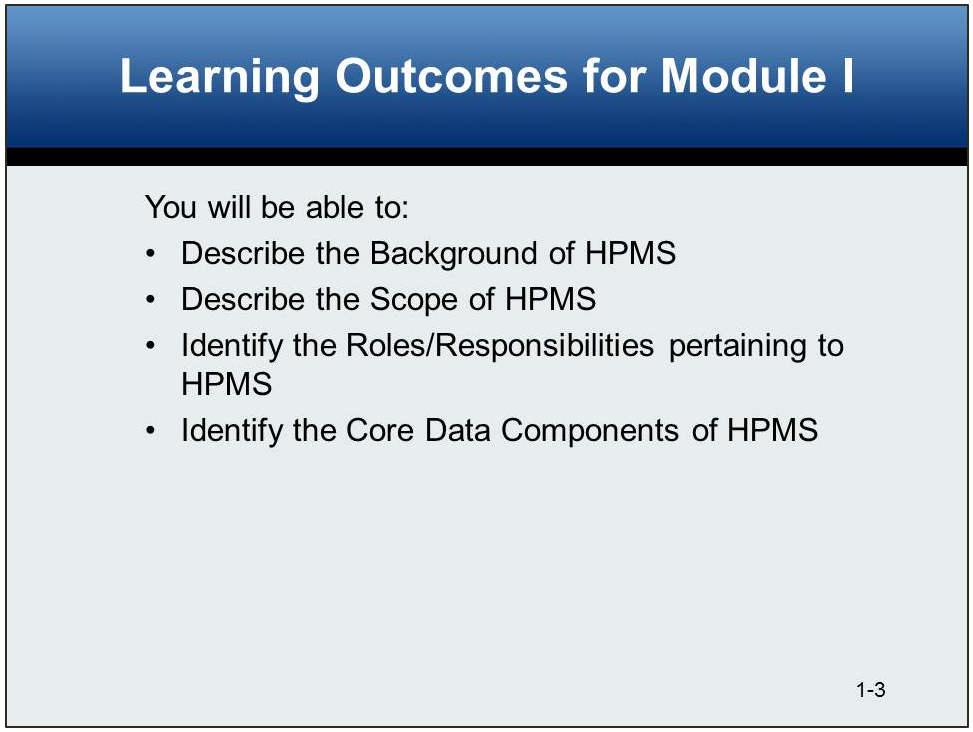
Workshop Reference Material

- Participant Workbook
- *HPMS Field Manual*



Instructional Materials

- Learning Outcomes



Instructional Materials (cont'd)

- Key Concepts

Uses of HPMS Data

- Federal Uses
  - Federal-Aid Funding Apportionment Formula
  - Highway Economic Requirements System (HERS) Model
  - Pavement Deterioration Models
- Non-Federal Uses
  - Statewide Planning Programs
  - Real Estate/Business Sector
  - Transportation Research

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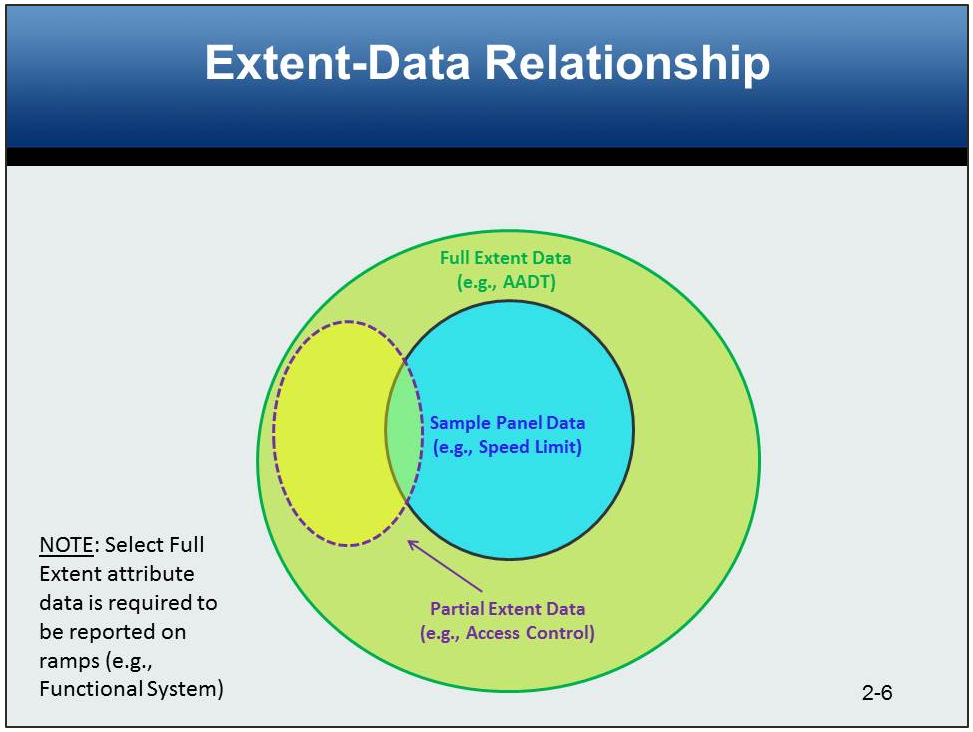
Instructional Materials (cont'd)

- Illustration of Concepts



Instructional Materials (cont'd)

- Data Reporting Requirements

Statewide Summaries Dataset

Field Name	Description
Year _Record	Calendar year for the data
State Code	State FIPS code
RMC_VMT	Travel for Rural Minor Collectors
RL_VMT	Travel for Rural Locals
SU_VMT	Travel for Small Urban Locals
Rural Pop	Rural Population
Rural_Land_Area	Rural Land Area
SU_Pop	Small Urban Population
SU_Land_Area	Small Urban Land Area
Paved_RMC_Length	Paved Rural Minor Collectors
Paved_RL_Length	Paved Rural Locals
Paved_UL_Length	Paved Urban Locals
Unpaved_RMC_Length	Unpaved Rural Minor Collectors
Unpaved_RL_Length	Unpaved Rural Locals
Unpaved_UL_Length	Unpaved Urban Locals

- Non-geospatial dataset
- Developed/submitted by the States
- Contains demographic, system length, and VMT data
- Extent: All urban, small urban, and rural public roads, classified as minor collector or local

2-21

Instructional Materials (cont'd)

- Data Item Requirements

Item 50: Rutting (cont'd)

Guidance:

- Collect on a two-year cycle
- Report for all AC and composite surface types (where AC is the top layer)
- Report average rutting value of both wheel paths
- Report for IRI inventory direction and lane

5-12

Item 6: Ownership (cont'd)

ertinent Fields to be Coded:

- Field 6 = Data Item ("**Ownership**")
- Field 8 = Value Numeric (e.g. '**31**' for State Toll Road)
- Field 9 = Not required; can be used to code Secondary Ownership info
- Field 10 = Not required

xample Record:

2009|41|123A|0|0.75|**Ownership**|0.75|**31**|-----|-----|-----

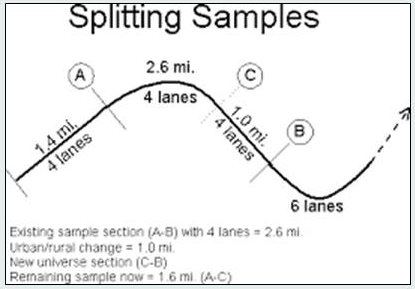
2-16

Instructional Materials (cont'd)

- Sampling Requirements

Sample Maintenance

- Identify excessively short or long samples
- Lengthen short sections where acceptable
- Sub-divide long sections using software-generated TOPS sections



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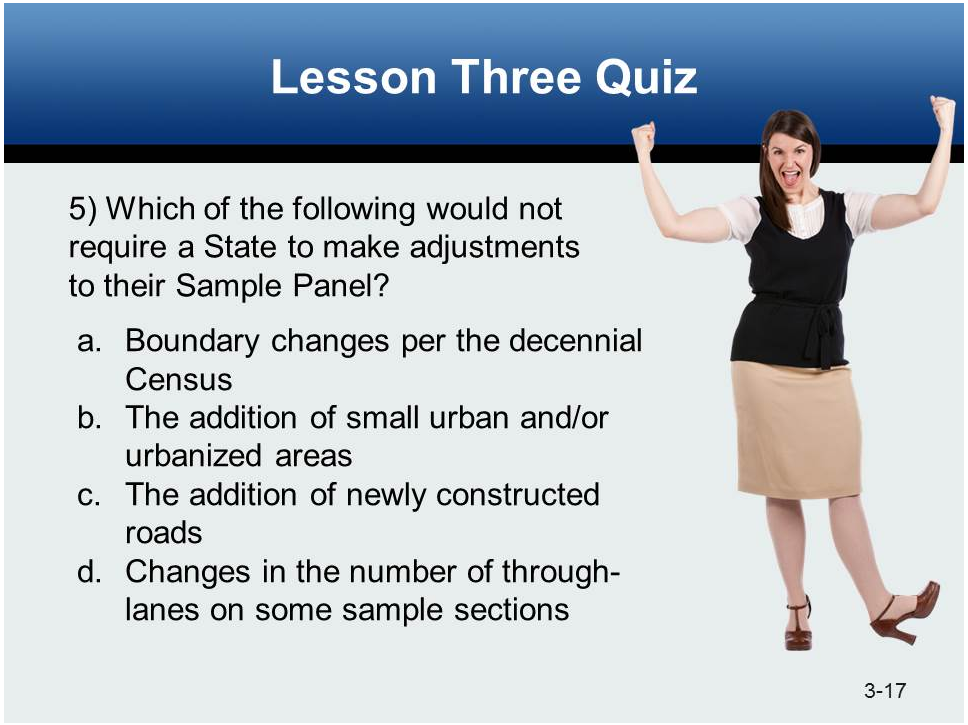
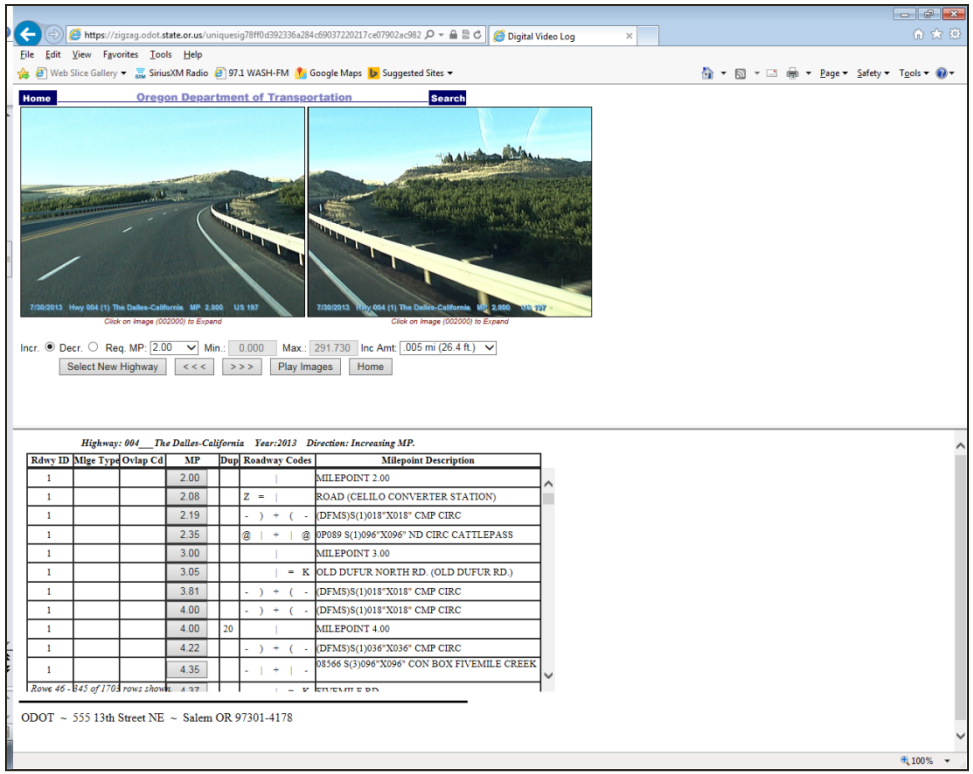
Interactive Learning Tools

- Quiz Questions



Interactive Learning Tools (cont'd)

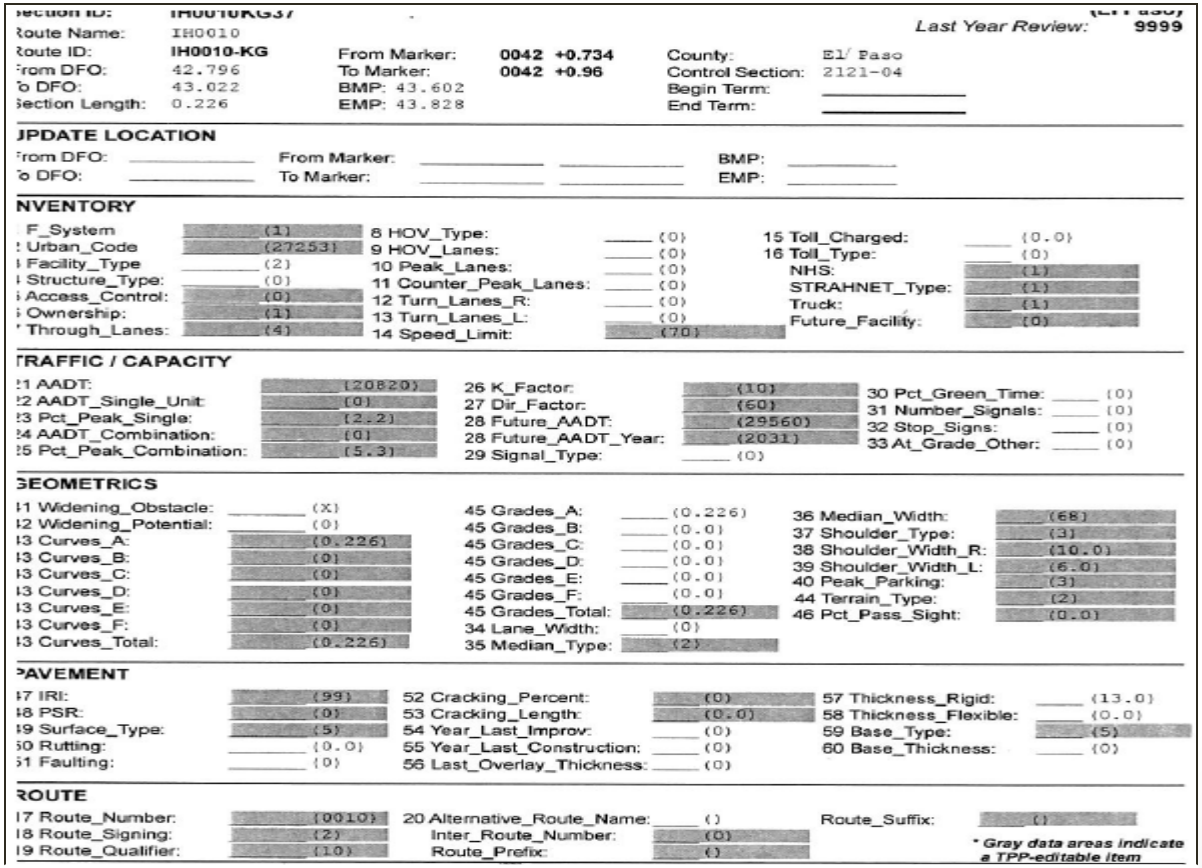
- DVL-based data item coding exercises



Source: Oregon Dept. of Transportation (ODOT)

Interactive Learning Tools (cont'd)

- Data quality review worksheet exercises



Section ID: IH0010KG37 (EP 036)
Route Name: IH0010 — Last Year Review: 9999
Route ID: IH0010-KG — From Marker: 0042 +0.734 — County: El Paso
From DFO: 42.796 — To Marker: 0042 +0.96 — Control Section: 2121-04
To DFO: 43.022 — BMP: 43.602 — Begin Term:
Section Length: 0.226 — EMP: 43.828 — End Term:

UPDATE LOCATION

From DFO: — From Marker: — BMP:
To DFO: — To Marker: — EMP:

INVENTORY

F_System	(1)	8 HOV_Type:	(0)	15 Toll_Charged:	(0.0)		
Urban_Code	(27253)	9 HOV_Lanes:	(0)	16 Toll_Type:	(0)		
Facility_Type	(2)	10 Peak_Lanes:	(0)	NHS:	(1)		
Structure_Type:	(0)	11 Counter_Peak_Lanes:	(0)	STRAHNET_Type:	(1)		
Access_Control:	(0)	12 Turn_Lanes_R:	(0)	Truck:	(1)		
Ownership:	(1)	13 Turn_Lanes_L:	(0)	Future_Facility:	(0)		
Through_Lanes:	(4)	14 Speed_Limit:	(70)				

TRAFFIC / CAPACITY

1 AADT:	(20820)	26 K_Factor:	(10)	30 Pct_Green_Time:	(0)
2 AADT_Single_Unit:	(0)	27 Dir_Factor:	(60)	31 Number_Signals:	(0)
3 Pct_Peak_Single:	(2.2)	28 Future_AADT:	(29560)	32 Stop_Signs:	(0)
4 AADT_Combination:	(0)	28 Future_AADT_Year:	(2031)	33 At_Grade_Other:	(0)
5 Pct_Peak_Combination:	(5.3)	29 Signal_Type:	(0)		

GEOMETRICS

1 Widening_Obstacle:	(X)	45 Grades_A:	(0.226)	36 Median_Width:	(68)
2 Widening_Potential:	(0)	45 Grades_B:	(0.0)	37 Shoulder_Type:	(3)
3 Curves_A:	(0.226)	45 Grades_C:	(0.0)	38 Shoulder_Width_R:	(10.0)
3 Curves_B:	(0)	45 Grades_D:	(0.0)	39 Shoulder_Width_L:	(6.0)
3 Curves_C:	(0)	45 Grades_E:	(0.0)	40 Peak_Parking:	(3)
3 Curves_D:	(0)	45 Grades_F:	(0.0)	44 Terrain_Type:	(2)
3 Curves_E:	(0)	45 Grades_Total:	(0.226)	46 Pct_Pass_Sight:	(0.0)
3 Curves_F:	(0)	34 Lane_Width:	(0)		
3 Curves_Total:	(0.226)	35 Median_Type:	(2)		

PAVEMENT

7 IRI:	(99)	52 Cracking_Percent:	(0)	57 Thickness_Rigid:	(13.0)
8 PSR:	(0)	53 Cracking_Length:	(0.0)	58 Thickness_Flexible:	(0.0)
9 Surface_Type:	(5)	54 Year_Last_Improv:	(0)	59 Base_Type:	(5)
0 Rutting:	(0.0)	55 Year_Last_Construction:	(0)	60 Base_Thickness:	(0)
1 Faulting:	(0)	56 Last_Overlay_Thickness:	(0)		

ROUTE

17 Route_Number:	(0010)	20 Alternative_Route_Name:	()	Route_Suffix:	()
18 Route_Signing:	(2)	Inter_Route_Number:	(0)		
19 Route_Qualifier:	(10)	Route_Prefix:	()		

** Gray data areas indicate a TPP-editable item*

Source: Texas Dept. of Transportation (TxDOT)

Interactive Learning Tools (cont'd)

- Case studies

Scenario:

Travel data for vehicle classes 8-13 was collected roughly 5 years ago for stretch of road functionally classified as Interstate. This data has since been updated to represent to represent current year conditions. This roadway segment has a reported Annual Average Daily Traffic (AADT) value of 150,000 vehicles, a Single-unit Truck AADT value of 12,100 vehicles, and 1,550 single-unit trucks reported for the peak hour.

Questions to be answered:

When should this data be updated or collected again? Why?
What is the Percent Peak Single-unit Truck value for this roadway segment?
Per the sample adequacy report (supplemental reference material to be provided), how many additional samples would this data need to be collected and reported for?
Are there data quality issues to be addressed here? If so, why and what corrective actions are required?

Thoughts / Additional Ideas?

Other HPMS Resources

- Guidance Updates
  - HPMS Field Manual
  - HPMS Software Guide
- Annual HPMS Spring Webinar
- FHWA HQ-provided Technical Assistance
- *Self-paced "Intro to HPMS" Course - TBD*

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Workshop Coordination

- State DOT submits a training request form (i.e., form FHWA-1530) to NHI
- NHI contacts the State DOT to discuss possible dates, location, etc.
- NHI evaluates possible delivery dates per workshop instructor availability
- NHI approves and formally schedules workshop with the State DOT
- State DOT coordinates workshop logistics, materials, equipment, etc.