The Office of Highway Policy Information

Highway Information Seminar
September 2017
Office Organizational Chart

FHWA Office of Highway Policy Information
David Winter, PE

Motor Fuel and Highway Finance
Ralph Davis
Mike Dougherty
Clarissa Smith
Bryant Gross
Brian Lomax
Helen Davidson
Vacant

Highway System Performance
Chris Allen
Rob Rozycki
Tom Roff
Ron Erickson
Ronald Vaughn, PMP
Justin Clarke, AICP
Jeromy Barnes, GISP
Seemeen Hashem¹

Travel Monitoring and Surveys
Dr. Tianjia Tang, PE
Steven Jessberger
Danny Jenkins, PE
Dr. Patrick Zhang, PE
Dr. Wenjing Pu, PE
Mike Slattery
Dawn Edwards
Vacant
Vacant
Apara Banerjee¹

¹ - Indicates contractor
Our Mission

1) To serve as the national source of surface transportation data.
2) Provide the U.S. DOT, Congress, and transportation community with accurate information products in a timely manner.
3) To inform the development and implementation of, and serve as the foundation for decisions, policies, legislation, programs, and performance goals.
4) Constantly strive to improve the quality, efficiency, and effectiveness of highway data collection and analysis on travelers and the physical, operational and financial condition of our transportation system.
Our Data Programs

- National Performance Management Research Data System
- Highway Performance Monitoring System
- National Household Travel Survey
- Certified Public Road Mileage
- Motor Vehicle Registration
- Traffic Monitoring
- Weigh-in-Motion
- Highway Finance
- Licensed Drivers
- Recovery Act
- Toll Facilities
- Tax Evasion
- Motor Fuel
Our Data Systems

• Fuels and Financial Analysis System-Highways (Fuels and FASH)
• Integrated Transportation Information System (ITIP)
• Highway Performance Monitoring System (HPMS)
• Travel Monitoring and Analysis System (TMAS)
• Vehicle Travel Information System (VTRIS)
• National Household Travel Survey (NHTS)
• Recovery Act Data System (RADS)
• Data Portal (Fuels and FASH v4.0)
Key FHWA Business Uses

- Apportionment of Federal-aid Funds
- Performance Measurement
- FHWA Reports
- Development of new programs and initiatives
- Wide variety of information products
Apportionment

- Process for Distributing Highway Trust Fund (HTF) dollars to States
- Legislated by formula
- Driven by data submitted by State data providers, specifically:
  - Lane-miles
  - Annual VMT
  - Highway Trust Fund contributions
Performance Measures

• FHWA program offices are the “goal champions” responsible for determining performance measures
• OHPI role is to help determine availability, quality, and suitability of existing data for use
• For some measures OHPI analyzes the data
• Want to avoid multiple data collections of same data
• Our emphasis is “collect once, use often”
FHWA Reports

• To Congress
• To U.S. DOT
• Office publications
• Monthly trend reports
• Special reports, briefs, and analysis
Reports to Congress

Conditions & Performance Report

• Extent of System
• Roadway Condition
• System Performance
• Funding Sources
  • Federal, State, Local, Other
• Expenditures by:
  • Improvement Type & Funding Source
Office Publications

SUMMARY OF TRAVEL TREND
2009 National Household Travel Survey

HIGHWAY STATISTICS
2011

Our Nation’s Highways

Uses of Our Data
MONTHLY MOTOR FUEL REPORTED BY STATES

MAY 2016

NATIONAL GASOLINE SALES
JANUARY - MAY
2015 vs. 2016

CHANGE FOR U.S. 2.9%

TRAFFIC VOLUME TRENDS

AUGUST 2016

Travel on all roads and streets changed by +3.4% (+9.3 billion vehicle miles) for August 2016 as compared with August 2015. Travel for the month is estimated to be 284.9 billion vehicle miles.

The seasonally adjusted vehicle miles traveled for August 2016 is 284.9 billion miles, a 3.4% or 9.3 billion vehicle miles increase over August 2015. It also represents a 4.9% increase (12.4 billion vehicle miles) compared with July 2016.

Cumulative Travel for 2016 changed by +3.4% (+85.3 billion vehicle miles). The Cumulative estimate for the year is 2,130.4 billion vehicle miles of travel.

Estimated Vehicle-Miles of Travel by Region - August 2016 - (in Billions)

Change in Traffic as compared to same month last year.
Traffic Volume Trends (TVT) Report
TVT Report

- Routinely covers over 6,000 counting sites around the US.
- Thanks to more states reporting on time and states continuing to add locations.
- Over 2,800 people that have subscribed to the TVT page in GovDelivery.
- All subscribers automatically get an e-mail once a new report has been posted.
- In August 2016
  - 2\textsuperscript{nd} highest number of hits (over 125,000)
  - 7\textsuperscript{th} highest number of visitors (almost 10,000)

Of all FHWA web pages, not including FHWA home page and 404 error page.
Focus on Data...

- **Data Quality**
- Open Data
- Data.gov
- National initiatives
  - Performance Measures
  - Safety Data
  - Data Quality
  - Data Integration
- National Data Groups
  - DOT Geospatial Coordination Council
  - DOT Open Data Working Group
  - AASHTO/SCOP Data Subcommittee
  - TRB Data Section
- FHWA Data Governance: [https://www.fhwa.dot.gov/datagov/](https://www.fhwa.dot.gov/datagov/)
Characteristics of Quality Data

• Accurate
• Timely
• Complete
• Meets expectations
• Consistent across States
Why is Timeliness Important?

- Data users require timely data
- Earlier is better
- Commitments to release data and data products:
  - August 15
    - Driver License tables
    - Motor Fuel data (MF-21)
    - Travel data (VM-3)
    - HPMS GIS files
  - October 1
    - ARNOLD network for FMIS
    - Travel data for Safety and NHTSA
    - Remaining tables
How do we improve data quality?

- Provide reporting guidance
  - Guide to Reporting Highway Statistics
  - Traffic Monitoring Guide
  - HPMS Field Manual
  - Notice of Proposed Rule Making
- Provide training and technical support
  - Onsite
  - Regional workshops
  - Remote
  - NHI Courses
- National Data QA Team
- New tools and resources
Data Quality - HPMS Pavement Report Cards

<table>
<thead>
<tr>
<th>FIPS CODE</th>
<th>STATE</th>
<th>DFS</th>
<th>W</th>
</tr>
</thead>
</table>

### HPMS DATA QUANTITY - PAVEMENT

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HM-60 TOTAL INTERSTATE LANE MILES</td>
<td>2192.382</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MIXING CRACKING PERCENT DATA</td>
<td>2176.374</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING FAULTING DATA</td>
<td>0.000</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MIXING IRI DATA</td>
<td>0.000</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES BASED ON FULL EXTENT MISSING IRI DATA</td>
<td>0.442</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING RUTTING DATA</td>
<td>27.892</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES WHERE SURFACE TYPE IS NOT PROPERLY CODED. A CODING OF 1 FOR UNSURFACED OR BLANK IS NOT ACCEPTABLE ON THE INTERSTATE.</td>
<td>0.000</td>
</tr>
<tr>
<td>TOTAL INTERSTATE LANE MILES WHERE THROUGH LANES IS CODED AS A 1, 2, OR 3. ALTHOUGH THIS IS POSSIBLE AT INTERSTATE TERMINAL SECTION OR SOME INTERCHANGES THESE SECTIONS SHOULD BE VERIFIED.</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Focus Areas**

![Cumulative Distribution of Interstate IRI](image1)

![Cumulative Distribution of Interstate Rutting](image2)
Data Quality - HPMS Scorecard

- **Score**: 36.9 out of 50
  - Timeliness: 10 out of 10
  - Completeness: 14.7 out of 20
  - Quality: 12.2 out of 20

**Focus Areas**
- PSR
- Rutting
- Surface_Type

**Data Summary**
- Number of Data Items: 2016 - 77,000, 2015 - 77,000
- Number of Routes: 2,654,000, 2,673,000
- Pct. Unmatched Routes: 1.81%, 2.51%
- Pct. Unmatched Sections: 3.66%, 3.72%
- Total Center Line Miles*: 13,432,186, 13,300,240
- Total Lane Miles*: 17,283,022, 17,981,213

*Data does not reflect any recent edits.
Data Quality - HPMS Scorecard

2016 Summary Statistics

Distributions

Relative Changes at the Section Level

72.4% of all miles changed
0% of all miles stayed the same
27.6% of all miles were not matched
Data Quality - HPMS Scorecard

Focus Areas
Data Quality - HPMS Scorecard
Data Quality - HPMS Scorecard
I-80 (WY-NE-IA)

- IRI
- % Trucks
- AADT
- Combo.
- Single
- Lanes
I-10 (CA-AZ-NM-TX)

- IRI
- % Trucks
- AADT
- Combo.
- Single
- Lanes
I-25 (NM-CO-WY)

- IRI
- % Trucks
- AADT
- Combo.
- Single
- Lanes
I-95(CT-RI-MA-NH-ME)

- IRI
- % Trucks
- AADT
- Combo.
- Single
- Lanes
Major Initiatives

- National Household Travel Survey (NHTS)
- HPMS Reassessment
- Performance Management
- NPMRDS
- Special Tabulations
  - VMT Forecasts
  - Transportation Analysis Framework
  - TMAS Data
  - Performance Network
- Integrated Transportation Information System (ITIP)
- Data Visualization Center
- Factoids
- Knowledge Center
Observed Speed – National Average on Rural and Urban Interstate System

- Rural Posted Speed Limit: 69.6 mph
- Rural Observed Speed: 60.3 mph
- Urban Posted Speed Limit: 63.4 mph
- Urban Observed Speed: 53.8 mph
Observed Speed by Hour of the Day

Focus Areas
Observed Hourly Speed Pattern by Day of the Week - **Urban**
Observed Hourly Speed Pattern by Day of the Week - Rural
Observed Peak Hour Speed by Month

- Rural, AM Peak Hour
- Rural, PM Peak Hour
- Urban, AM Peak Hour
- Urban, PM Peak Hour
Annual Average Speed on Interstate during PM Peak Hour 5:00 pm – 6:00 pm

Annual Average Speed on Interstate during PM Peak Hour 5:00-6:00 PM (Virgina)
Percent of Interstate Miles within Various Speed Bins

**Urban** Interstate in **PM** Peak Hour
VMT Forecasts

- Updated earlier this year
  
  [link](http://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.cfm)

### Table 1. Projected Growth in Vehicle Miles Traveled (VMT): Spring 2017

<table>
<thead>
<tr>
<th>Vehicle Class</th>
<th>Low Economic Growth Outlook*</th>
<th>Baseline Economic Growth Outlook*</th>
<th>High Economic Growth Outlook*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015 - 2035 (20 Year)</td>
<td>2015 - 2035 (30 Year)</td>
<td>2015 - 2045 (20 Year)</td>
</tr>
<tr>
<td>Light-Duty Vehicles</td>
<td>0.89%</td>
<td>0.61%</td>
<td>1.01%</td>
</tr>
<tr>
<td>Single-Unit Trucks</td>
<td>1.43%</td>
<td>1.24%</td>
<td>1.72%</td>
</tr>
<tr>
<td>Combination Trucks</td>
<td>1.04%</td>
<td>1.05%</td>
<td>1.46%</td>
</tr>
<tr>
<td>Total</td>
<td>0.92%</td>
<td>0.66%</td>
<td>1.07%</td>
</tr>
</tbody>
</table>
Long Distance Travel

http://www.fhwa.dot.gov/policyinformation/analysisframework/

Website includes:

• Traffic Analysis Framework – Final Report
• 2008 and 2040 Trip Tables for:
  • Bus
  • Rail
  • Air
  • Auto (business)
  • Auto (non-business)
• Trips greater than 100 miles
• County (or equivalent) to county level
Data Integration

Focus Areas
HIPAT – Highway Infrastructure Performance and Analysis Tool
SAFER PEOPLE, SAFER STREETS
USDOT Pedestrian and Bicycle Safety Initiative

The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.

Focus Areas

Top U.S. Interstates
By Length and Travel

DISTANCE CONTEXT:
If you traveled all the interstate lane miles along the equator, the distance would almost circle the Earth nine times.

TRAFFIC CONTEXT:
To travel the total annual vehicle miles traveled, one person would need to travel to the moon and back 3,808 times.

Case Study: Implementing a Road Diet To Improve Safety for Everyone, Including Pedestrians and Bicyclists

After implementing a road diet that added a turn lane and bike lanes on Lawyers Road in Fairfax County, the Virginia Department of Transportation documented a 69% reduction in overall crashes.

For more information on road diets, visit: http://safety.intves.dot.gov/road_diets.
Source: Virginia Department of Transportation.
Factoids

Going Solar at the Speed of Light: State DOTs turn to solar to save money.

Transportation agencies have high electric bills from lighting routes and operating maintenance shops. Since they also own land along roads that get plenty of sunshine, some state DOTs are using public-private partnerships to install solar panels. The solar panels help to reduce those electric bills while also generating clean energy.

Approximate Highway Solar Energy Capacity

INTERSTATES IN THE PATH OF THE TOTAL SOLAR ECLIPSE 2017

GOATS AHEAD!

At least seven states are currently using goats as part of their roadside vegetation programs. Goats and other livestock can control vegetation in sensitive or steep terrain, help control invasive species and reduce costs for equipment operation and maintenance.

MORE KIDS ARE WALKING TO SCHOOL THANKS TO FHWA SAFE ROUTES TO SCHOOL PROGRAM

Since its creation in 2005, FHWA’s Safe Routes to School program has improved safety for thousands of school children nationwide. Walking to and from school increased significantly between 2007 and 2014.

15.20%
11.90%
18.40%
15.20%

Source: http://www.safeschools.org/

https://www.flickr.com/photos/fhwa/albums/72157649163936650
Knowledge Center

http://www.fhwa.dot.gov/policyinformation/knowledgecenter/

- Staff created reference and training videos
  - Motor Fuel Reporting (1)
  - Vehicle Registrations (3)
  - Highway Travel (6)
  - Heavy Vehicle Use Tax (1)

- Coming Soon
  - Highway Finance
  - Driver Registration
  - HPMS
  - Talking Traffic
Office Website

http://www.fhwa.dot.gov/policyinformation/
Thank You!