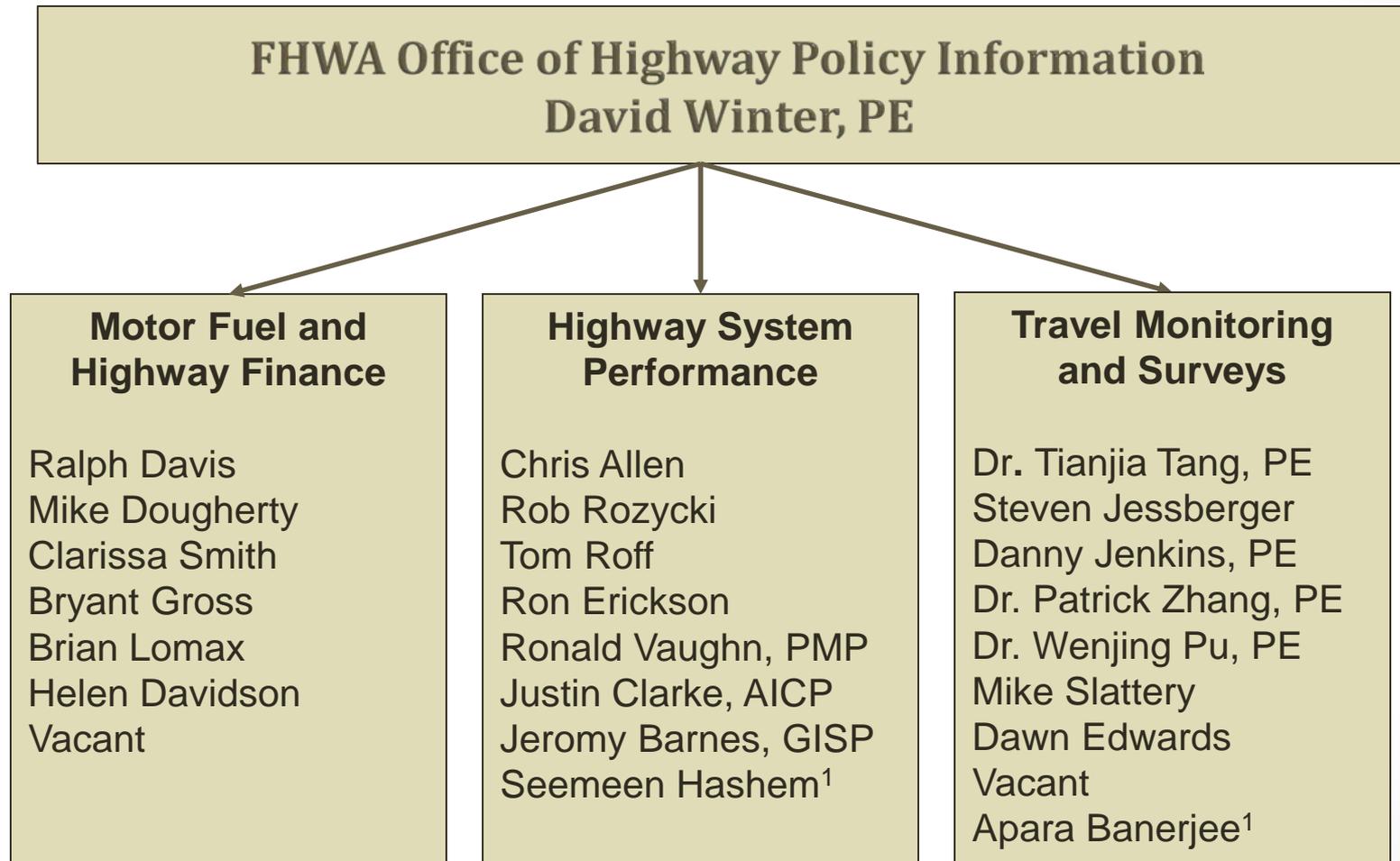


The Office of Highway Policy Information

Highway Information Seminar

September 2017

Office Organizational Chart



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”

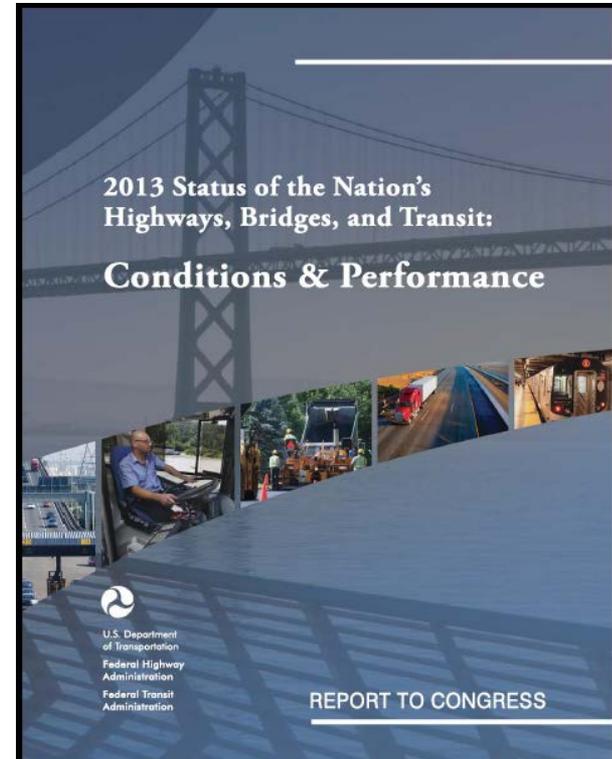
FHWA Reports

- 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



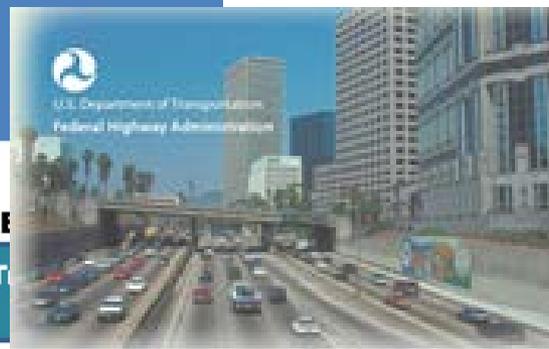
Office Publications



SUMMARY OF TRAVEL TRENDS
2009 National Household Travel
Survey



U.S. Department of
Transportation
Federal Highway Administration

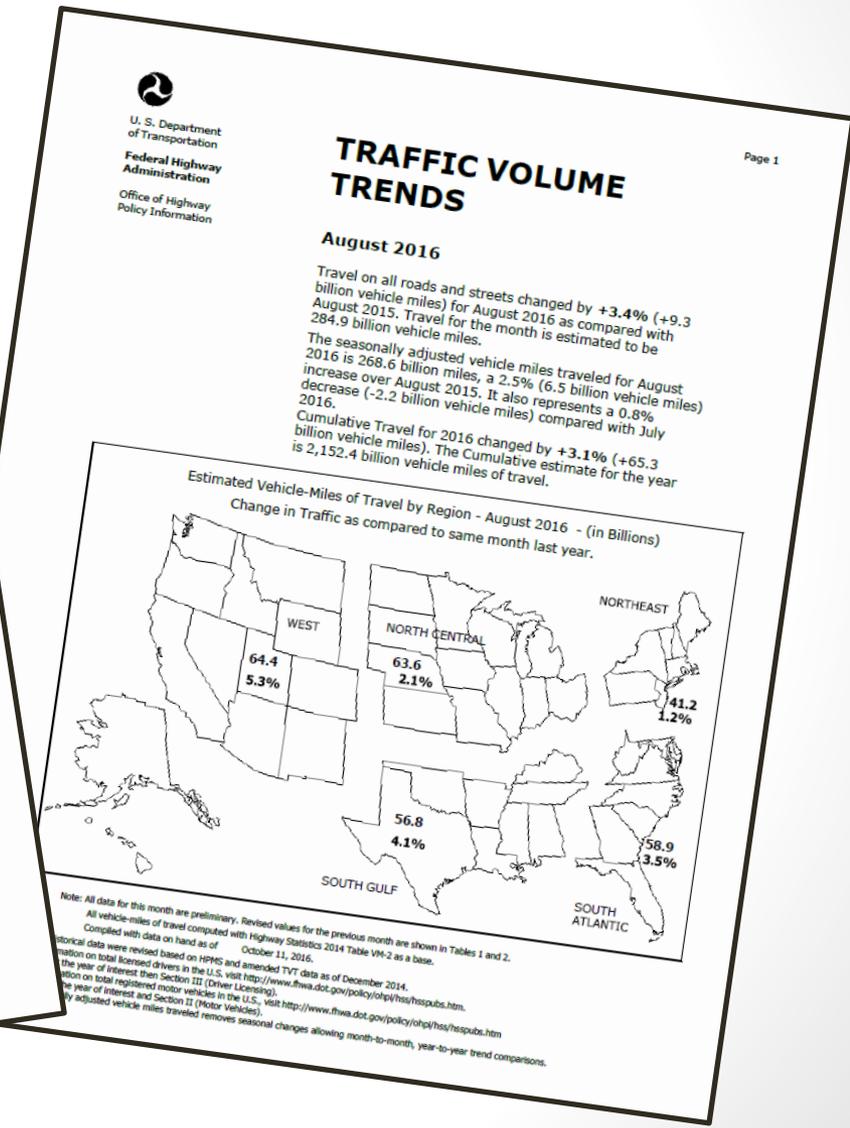
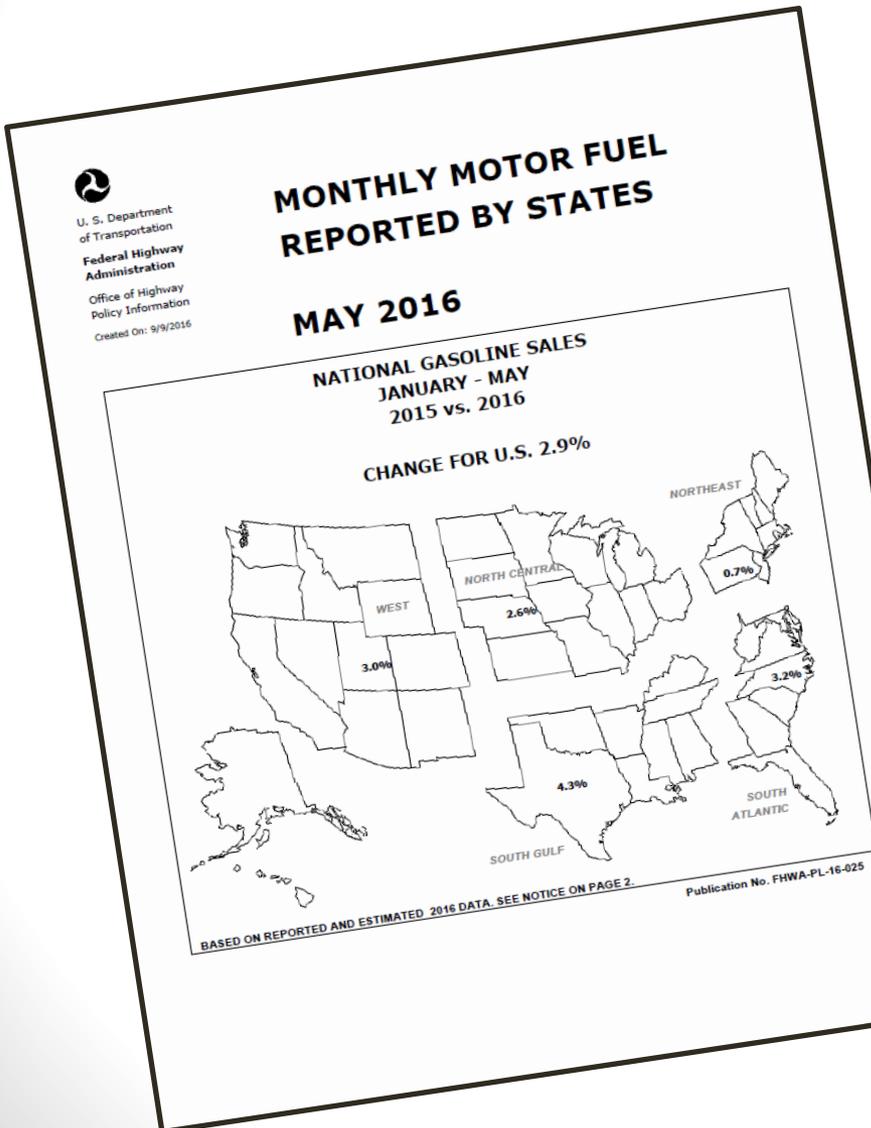


HIGHWAY STATISTICS

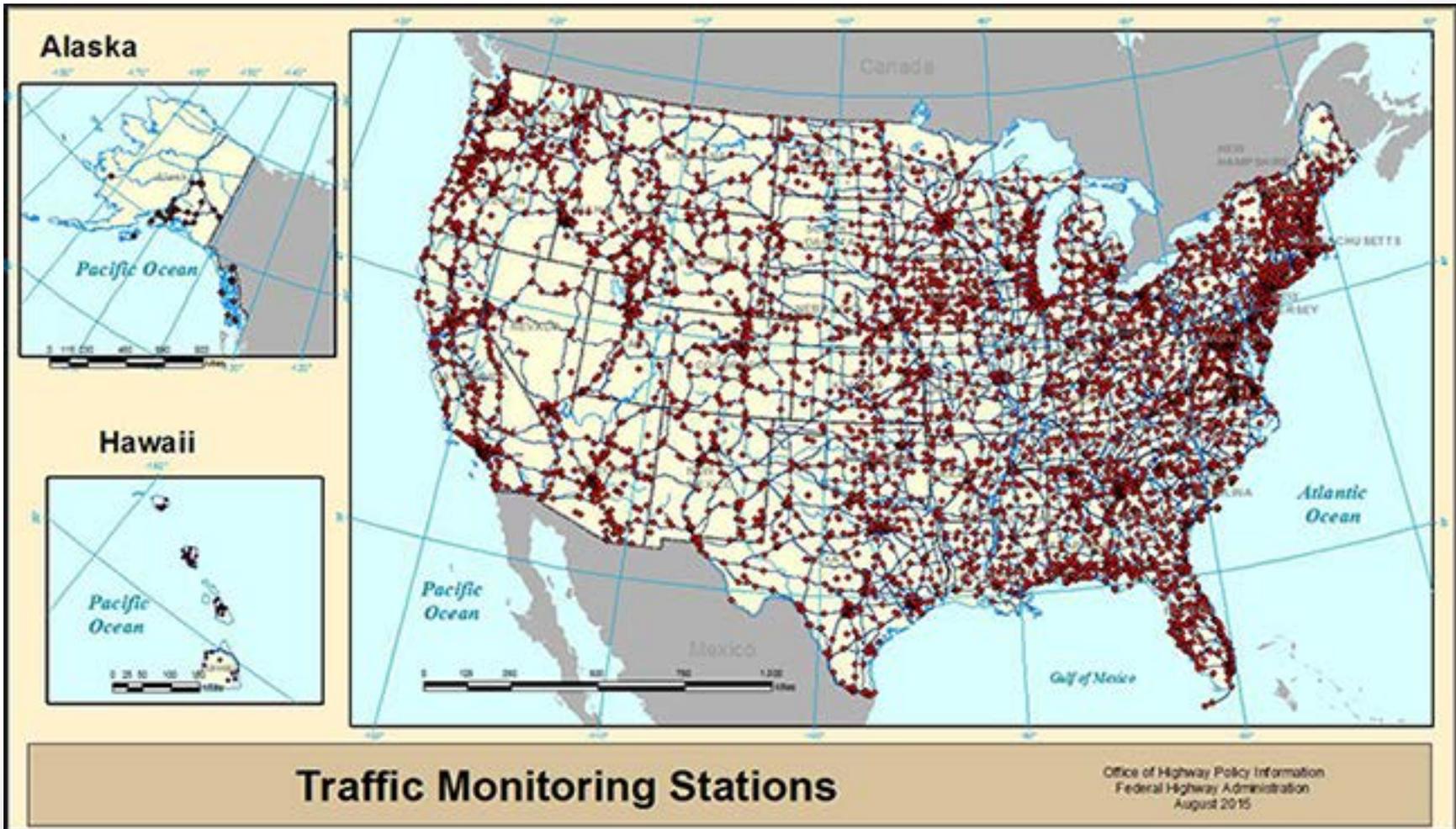


**OUR
NATION'S
HIGHWAYS
2011**

Monthly Reports



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
 - 2nd highest number of hits (over 125,000)
 - 7th 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/>

Characteristics of Quality Data

- Accurate
- Timely
- Complete
- Meets expectations
- Consistent across States

Why is Timeliness Important?

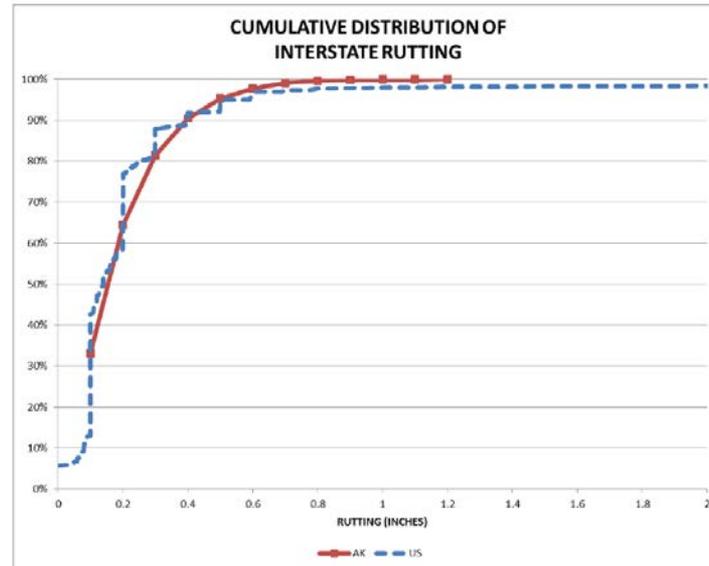
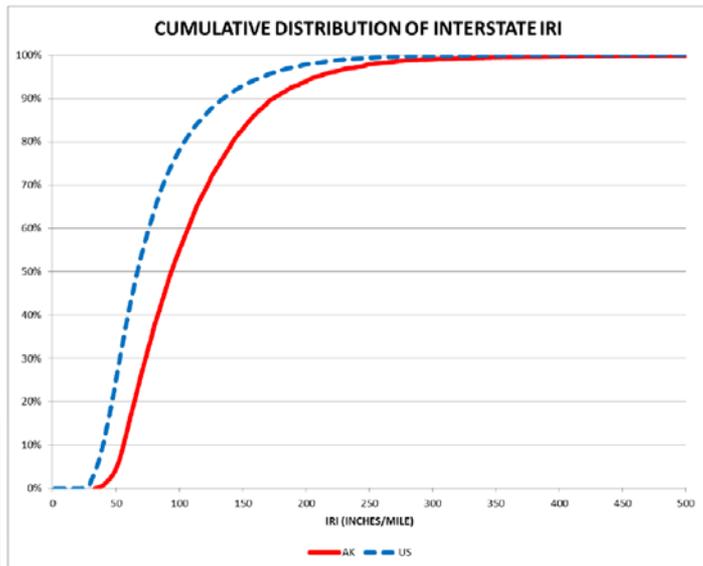
- Data users require timely data
- Earlier is better
- Commitments to release data and data products: *New*
- August 15
 - Driver License tables
 - Motor Fuel data (MF-21)
 - Travel data (VM-3)
 - HPMS GIS files
- October 1
 - ARNOLD network for FMIS
 - Travel data for Safety and NHTSA
 - Remaining tables

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*
- New tools and resources

Data Quality - HPMS Pavement Report Cards

	FIPS CODE
	STATE
	DFS
	W
HPMS DATA QUANTITY - PAVEMENT	
HM-60 TOTAL INTERSTATE LANE MILES	2192.382
TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING CRACKING PERCENT DATA	2176.374
TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING FAULTING DATA	0.000
TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING IRI DATA	0.000
TOTAL INTERSTATE LANE MILES BASED ON FULL EXTENT MISSING IRI DATA	0.442
TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES MISSING RUTTING DATA	27.892
TOTAL INTERSTATE LANE MILES BASED ON EXPANDED SAMPLES WHERE SURFACE TYPE IS NOT PROPERLY CODED. A CODING OF 1 FOR UNSURFACED OR BLANK IS NOT ACCEPTABLE ON THE INTERSTATE.	0.000
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.	0.000



Data Quality - HPMS Scorecard



Score



The Score is the sum of points received from timeliness, completeness, and quality.



Data Summary

	2016	2015
Number of Data Items	77.00	77.00
Number of Routes	2,654.00	2,673.00
Pct. Unmatched Routes	1.81	2.51
Number of Sections	3,669.00	3,724.00
Pct. Unmatched Sections	2.21	2.51
Total Center Line Miles*	13,432.18	13,300.24
Total Lane Miles*	17,283.02	17,981.21

*Does not include non-NHS locals.

HPMS



- FACILITY_TYPE
- HOV_LANES
- HOV_TYPE
- RELATIONS
- OWNERSHIP
- PEAK_LANES
- SPEED_LIMIT
- STRUCTURE_TYPE
- THROUGH_LANES
- TOLL_CHARGED
- TOLL_TYPE
- TURN_LANES_L
- TURN_LANES_R
- URBAN_CODE
- PSR
- RUTTING
- SURFACE_TYPE
- THICKNESS_FLEXIBLE
- THICKNESS_RIGID
- YEAR_LAST_CONSTRUCTION
- YEAR_LAST_IMPROV

PSR

RUTTING

SURFACE_TYPE

The Scorecard is intended to highlight areas of concern, but is not an exhaustive error finding. The Scorecard reflects data from 1) the 'Analysis Year', which is typically the most recent data year and 2) a previous 'Comparison Year', which is required to accommodate many of the Scorecard's temporal calculations. The Scorecard also evaluates the National patterns for the year prior to the Analysis Year. Elements of the Scorecard are 1) statewide data timeliness, quality and completeness summary, 2) information on the interpretation of scorecard elements, 3) pavement and travel items detailed reviews, 4) ramp data details and 5) HPMS Data Item statistical review.

route

- ROUTE_NUMBER
- ROUTE_QUALIFIER
- ROUTE_SIGNING

special networks

- FUTURE_FACILITY
- NHS
- STRAHNET_TYPE
- TRUCK

Key to data item status and completeness: Submitted and Complete Submitted and Incomplete Not Submitted

Key to data item quality: High Medium Low

Data Quality - HPMS Scorecard

2016 Summary Statistics

Current year summaries by Functional System

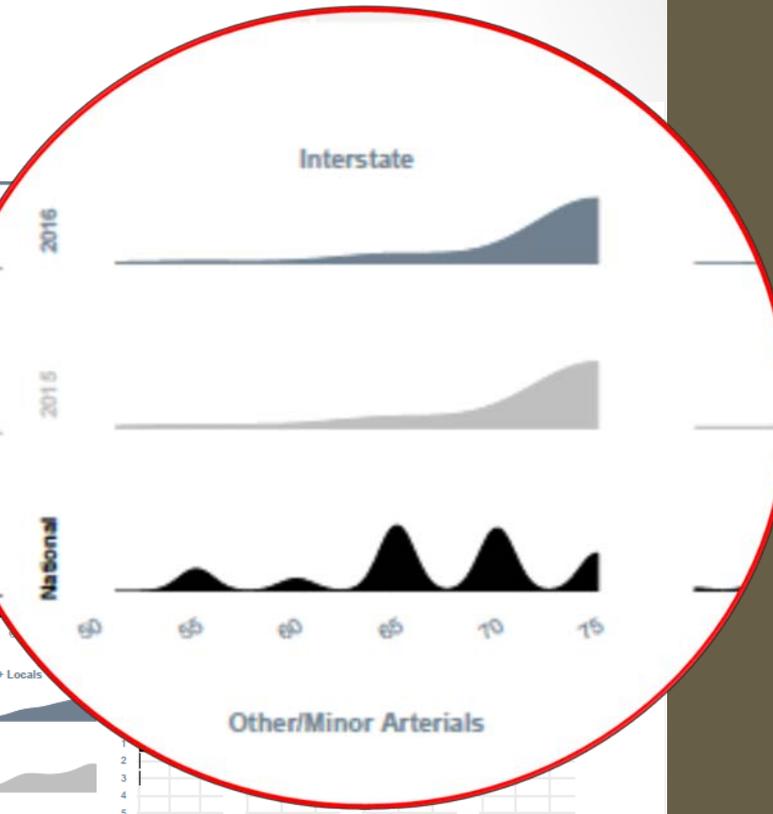
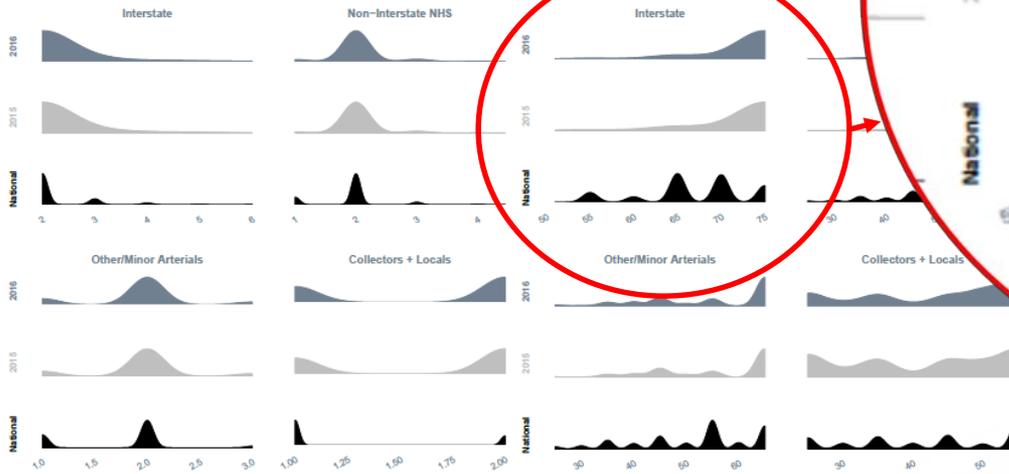
Functional System	10 - Peak Lanes (SP)				N	Min	Median	Max
	Total Centerline MI	Tot. Expanded Centerline MI	Total Lane MI	Tot. Expanded Lane MI				
Interstate	1,103.92	0.00	909.23	0.00	46	1	4	7
Non-Interstate NHS	1,321.96	101.85	1,990.17	511.98	252	1	2	6
Other/Minor Arterials	2,851.32	951.92	5,477.87	3,738.42	917	1	2	6
Collectors + Locals	2,067.16	1,271.42	3,991.20	2,856.67	706	1	1	4

Functional System	14 - Speed Limit (SP)				N	Min	Median	Max
	Total Centerline MI	Tot. Expanded Centerline MI	Total Lane MI	Tot. Expanded Lane MI				
Interstate	1,168.51	0.00	2,623.79	0.00	46	1	4	7
Non-Interstate NHS	1,671.82	77.33	2,567.03	426.5	252	1	2	6
Other/Minor Arterials	3,723.99	882.52	6,693.24	3,520	917	1	2	6
Collectors + Locals	3,053.69	1,338.68	5,615.85	2,949	706	1	1	4

Distributions

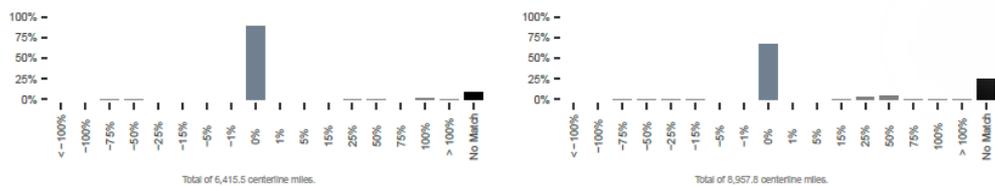
Plotting data distributions for current year, previous year, and national

2016
2015
National (2015)
Sample panel data are unexpanded.
National is scaled to state data.

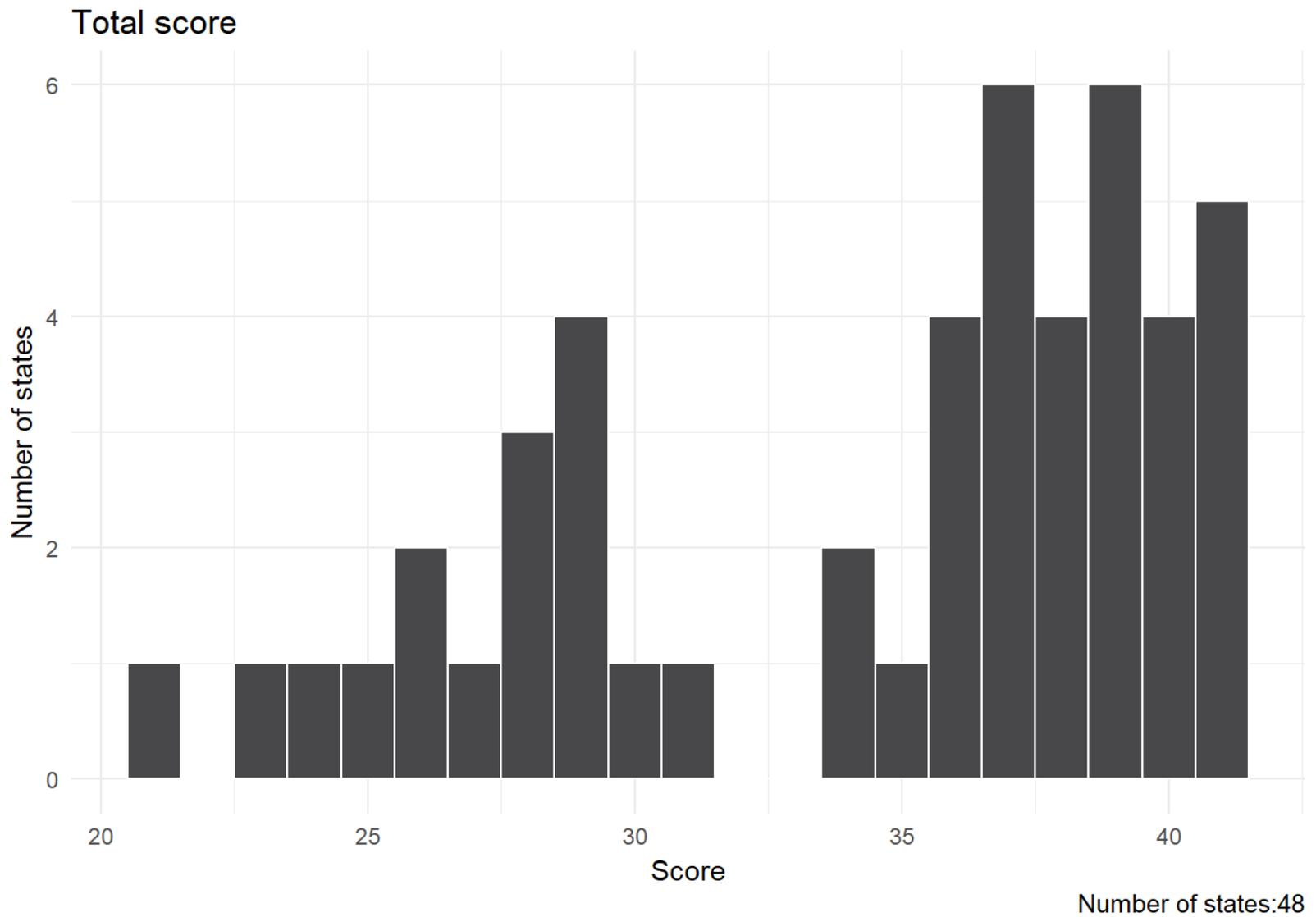


Relative Changes at the Section Level

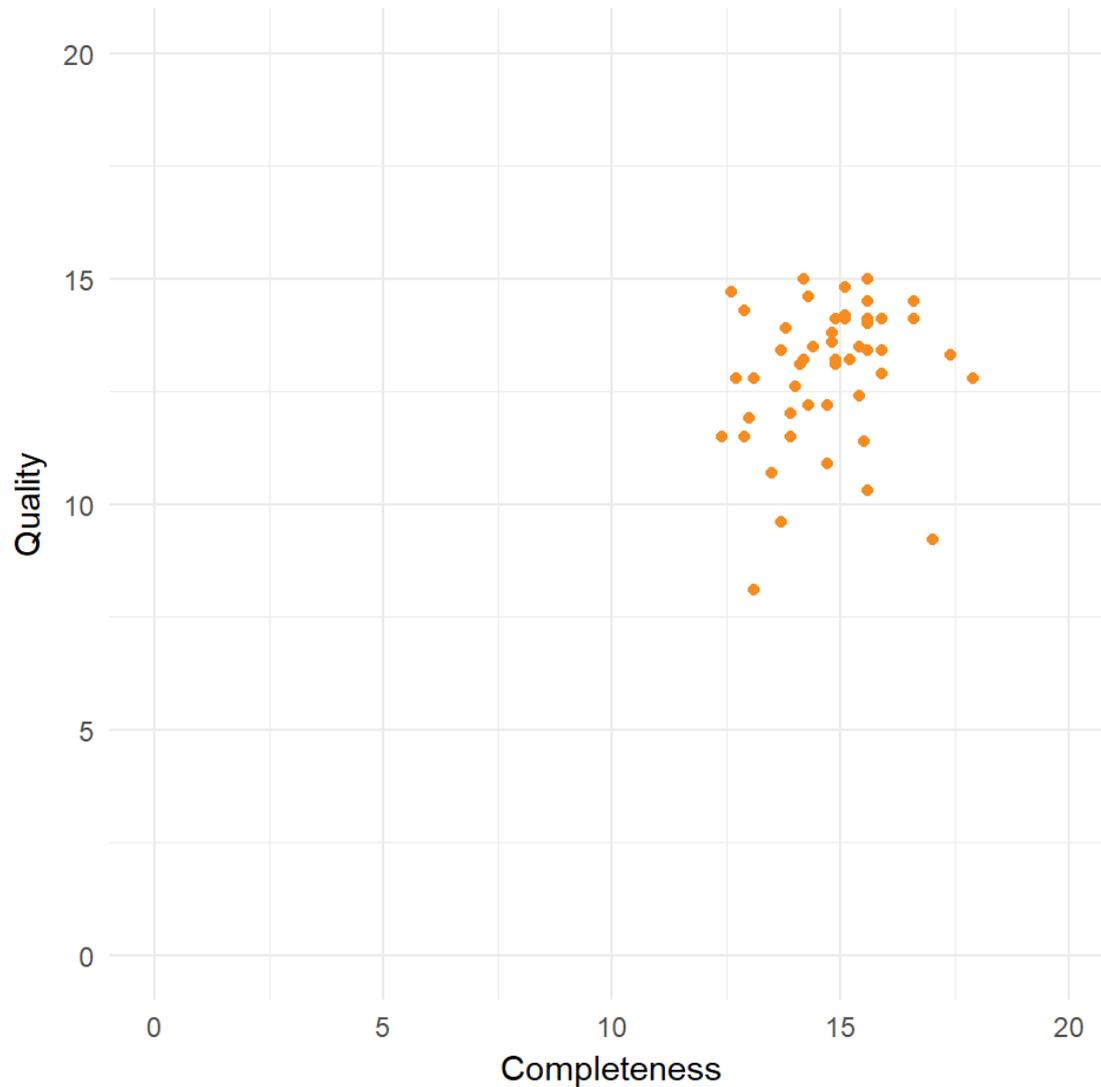
Summarize how data changed year over year at the section level. *Indicates where a low % is expected



Data Quality - HPMS Scorecard



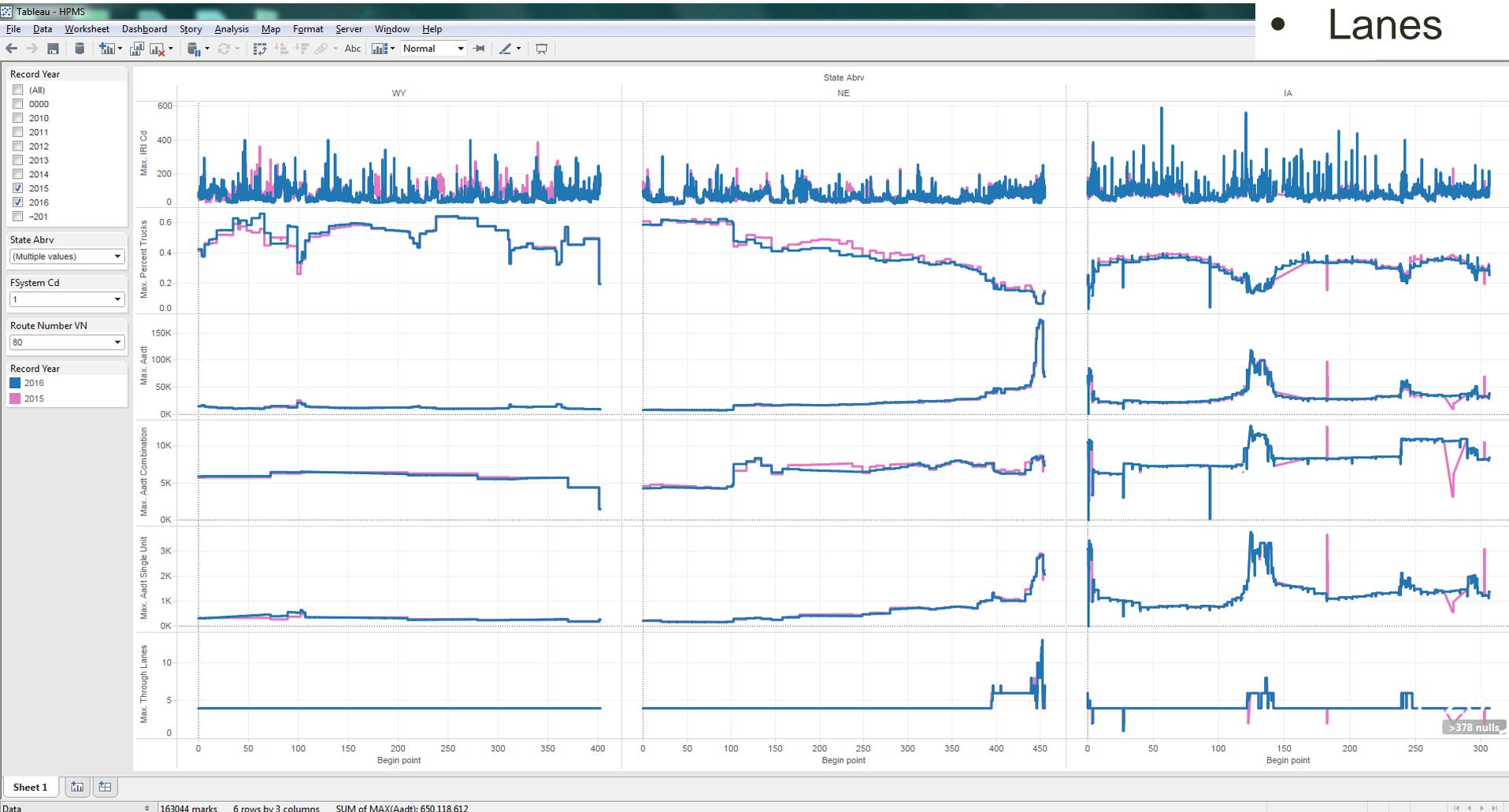
Data Quality - HPMS Scorecard



Focus Areas

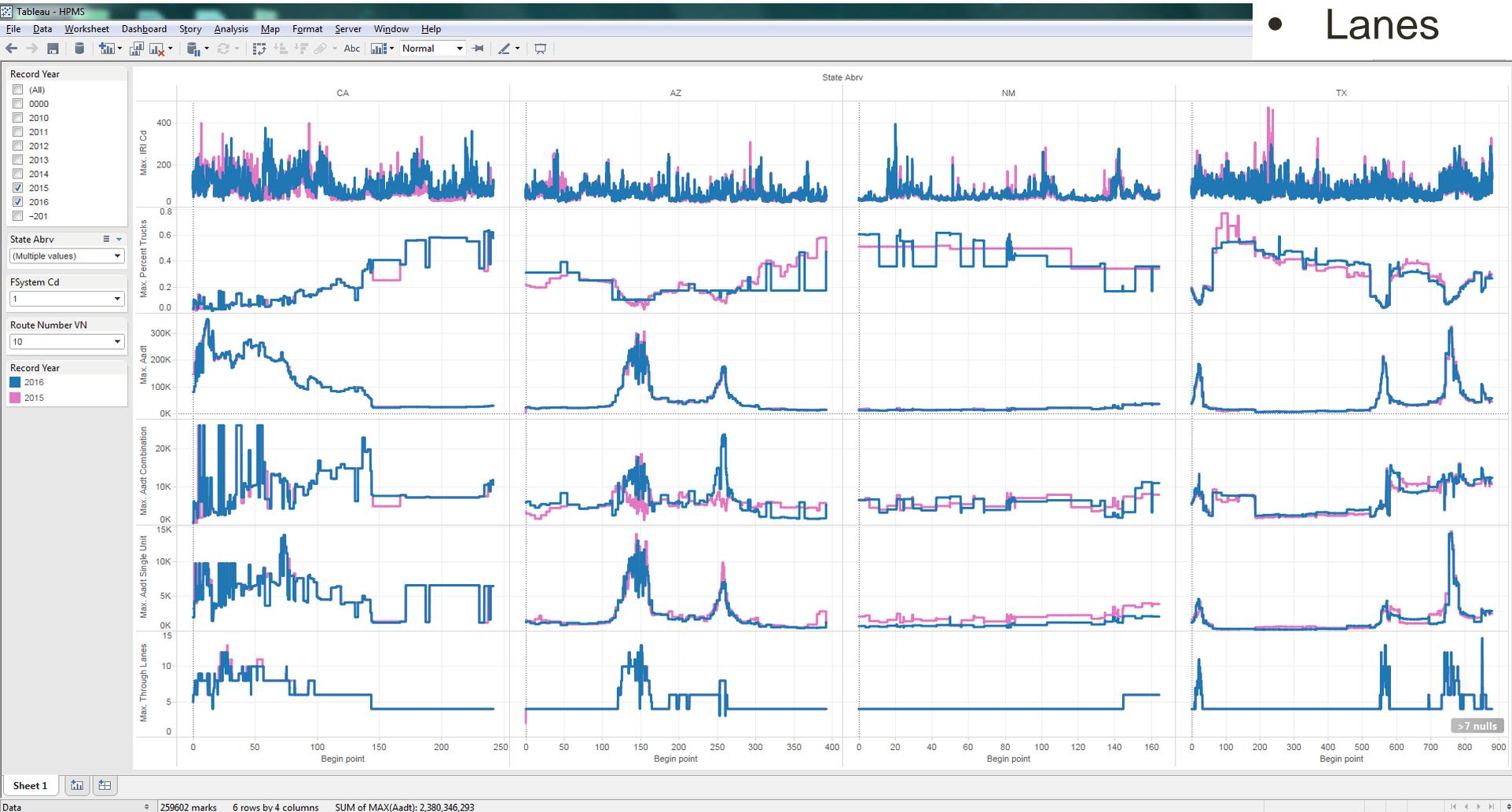
I-80 (WY-NE-IA)

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



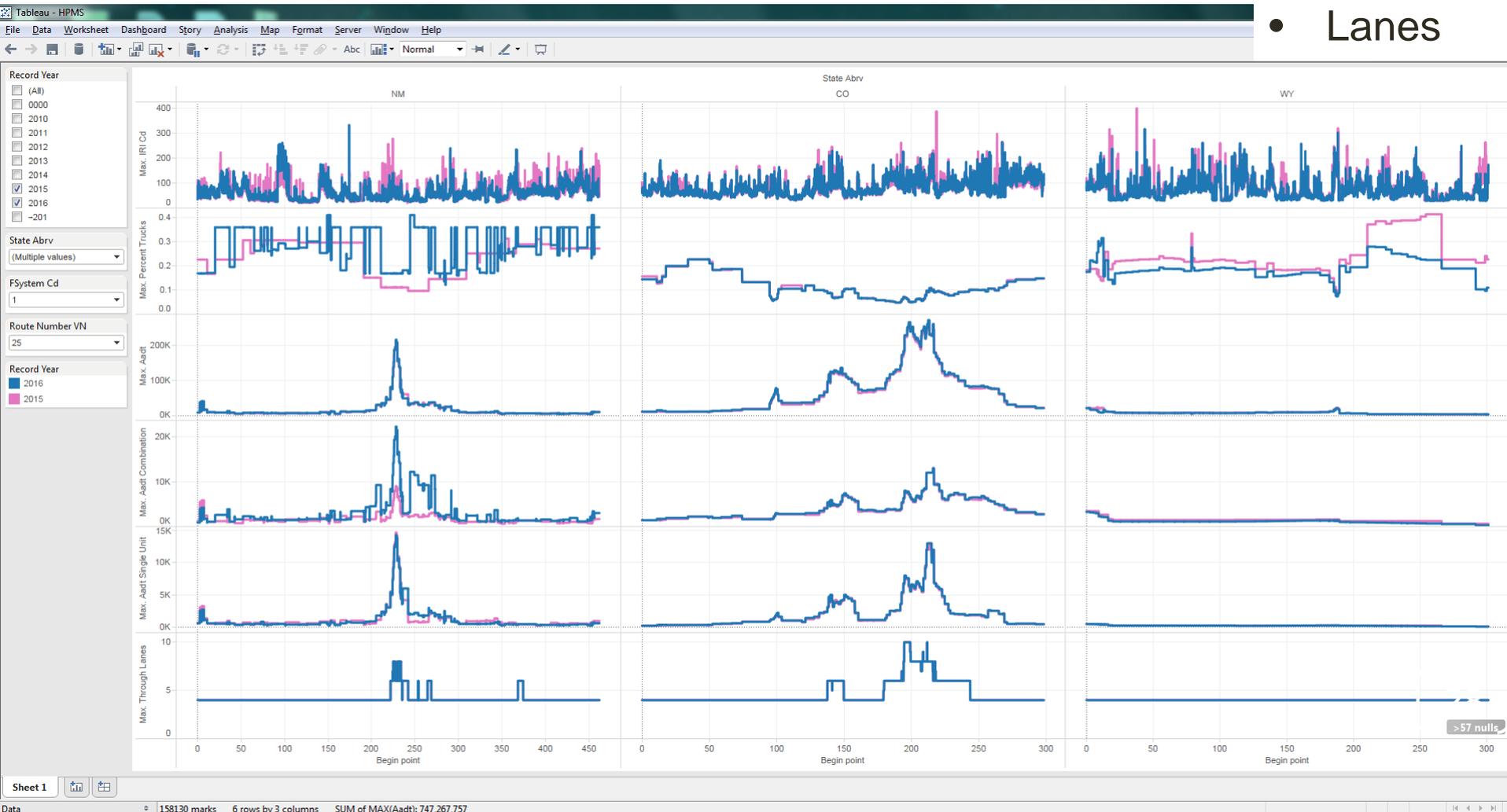
I-10 (CA-AZ-NM-TX)

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



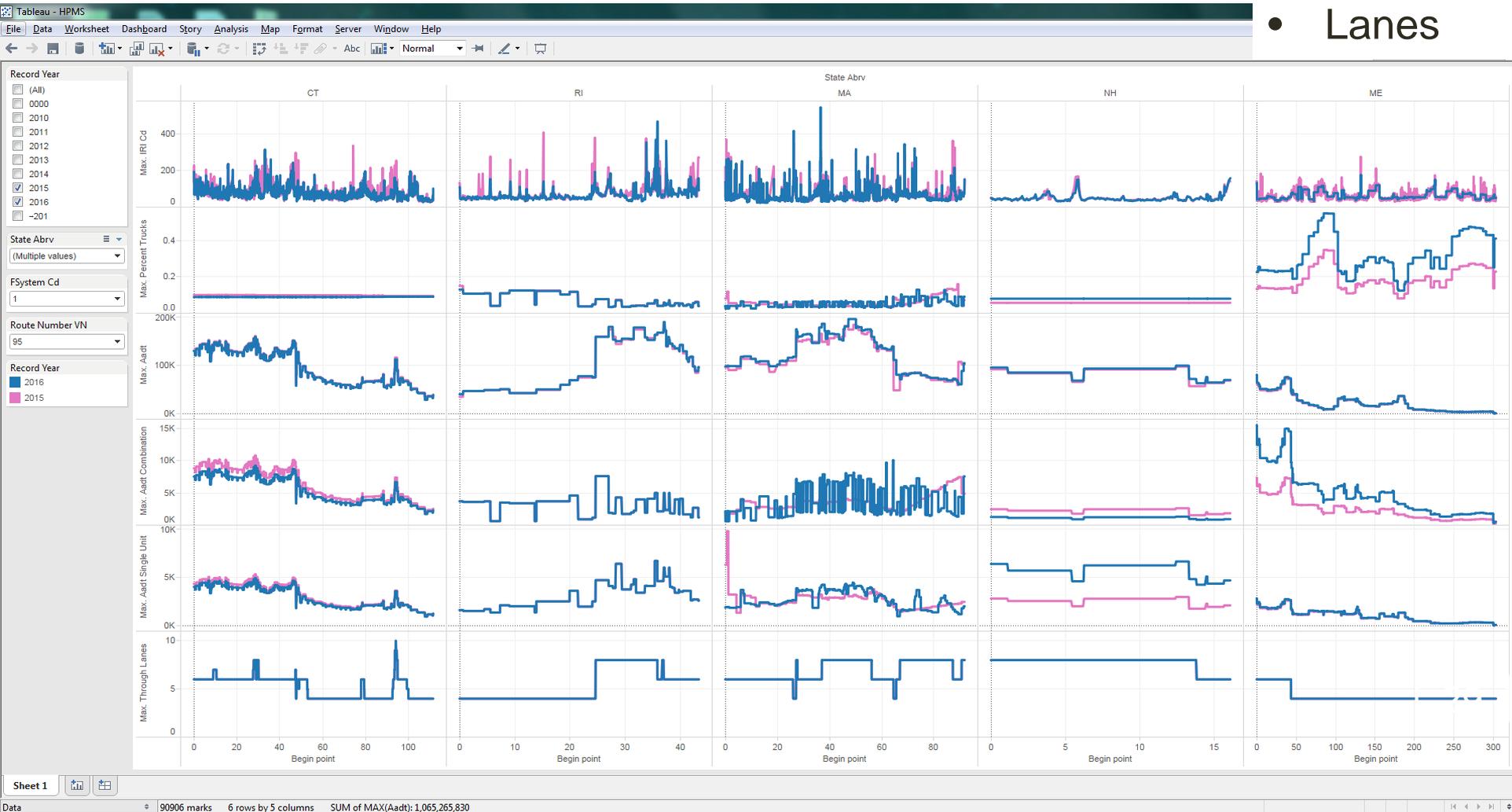
I-25 (NM-CO-WY)

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



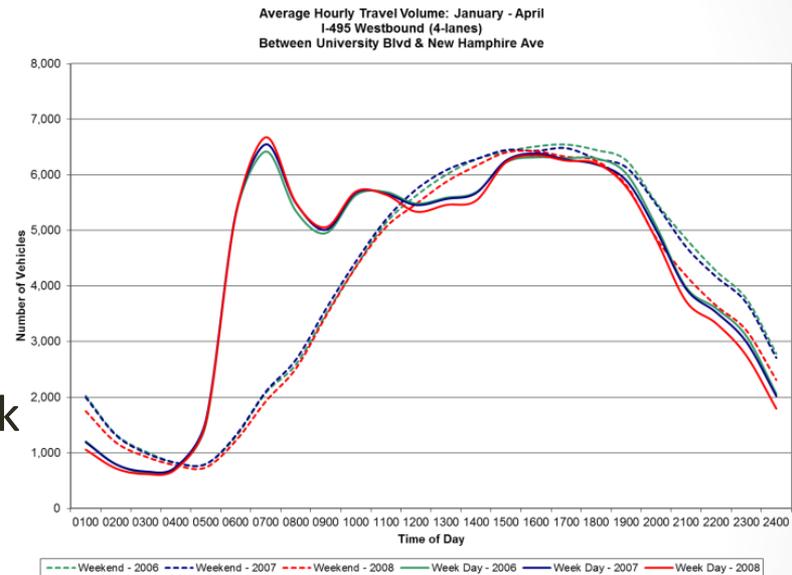
I-95(CT-RI-MA-NH-ME)

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

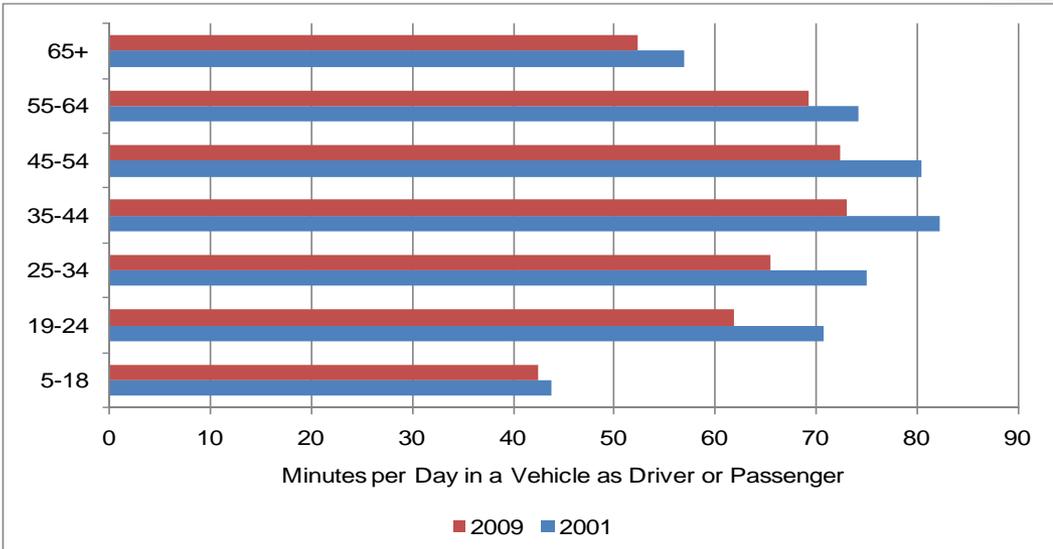
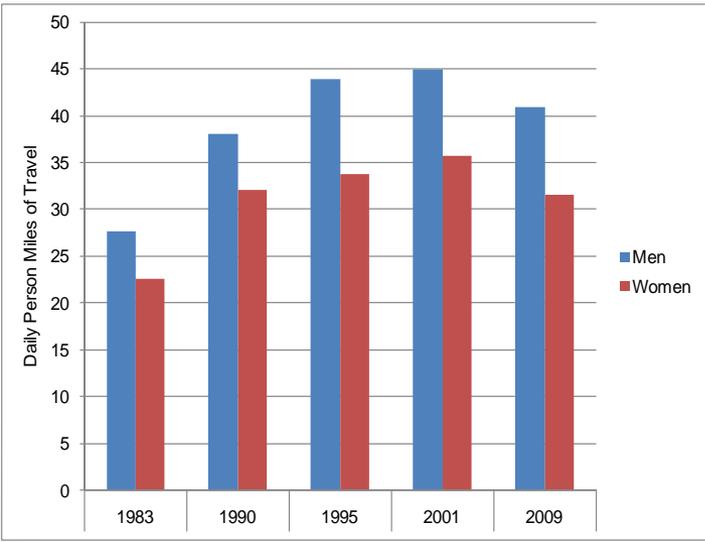
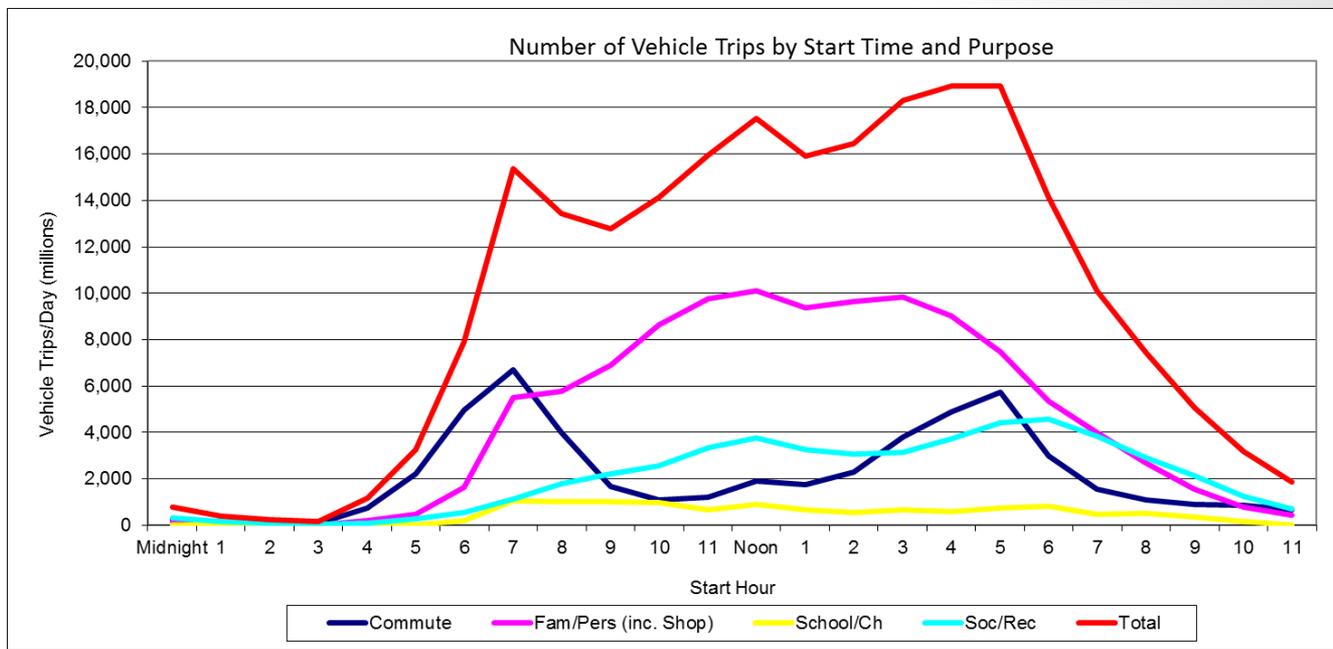


Major Initiatives

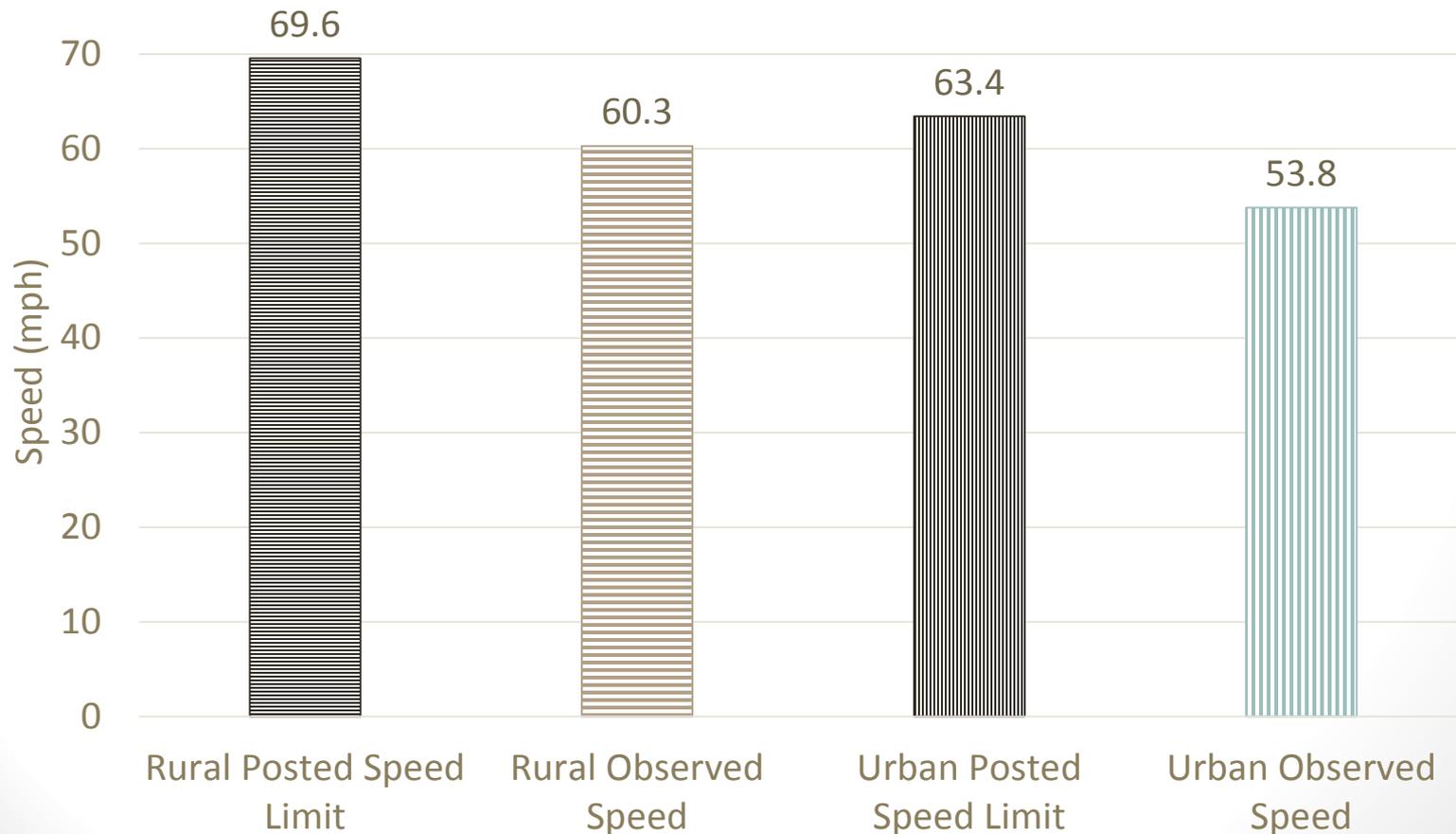
- National Household Travel Survey (NHTS)
- HPMS Reassessment
- Performance Management
- NPMRDS
- Special Tabulations
 - VMT Forecasts
 - Transportation Analysis Framework
 - TMAS Data
 - Performance Network
- Integrated Transportation Information System (ITIP)
- Data Visualization Center
- Factoids
- Knowledge Center



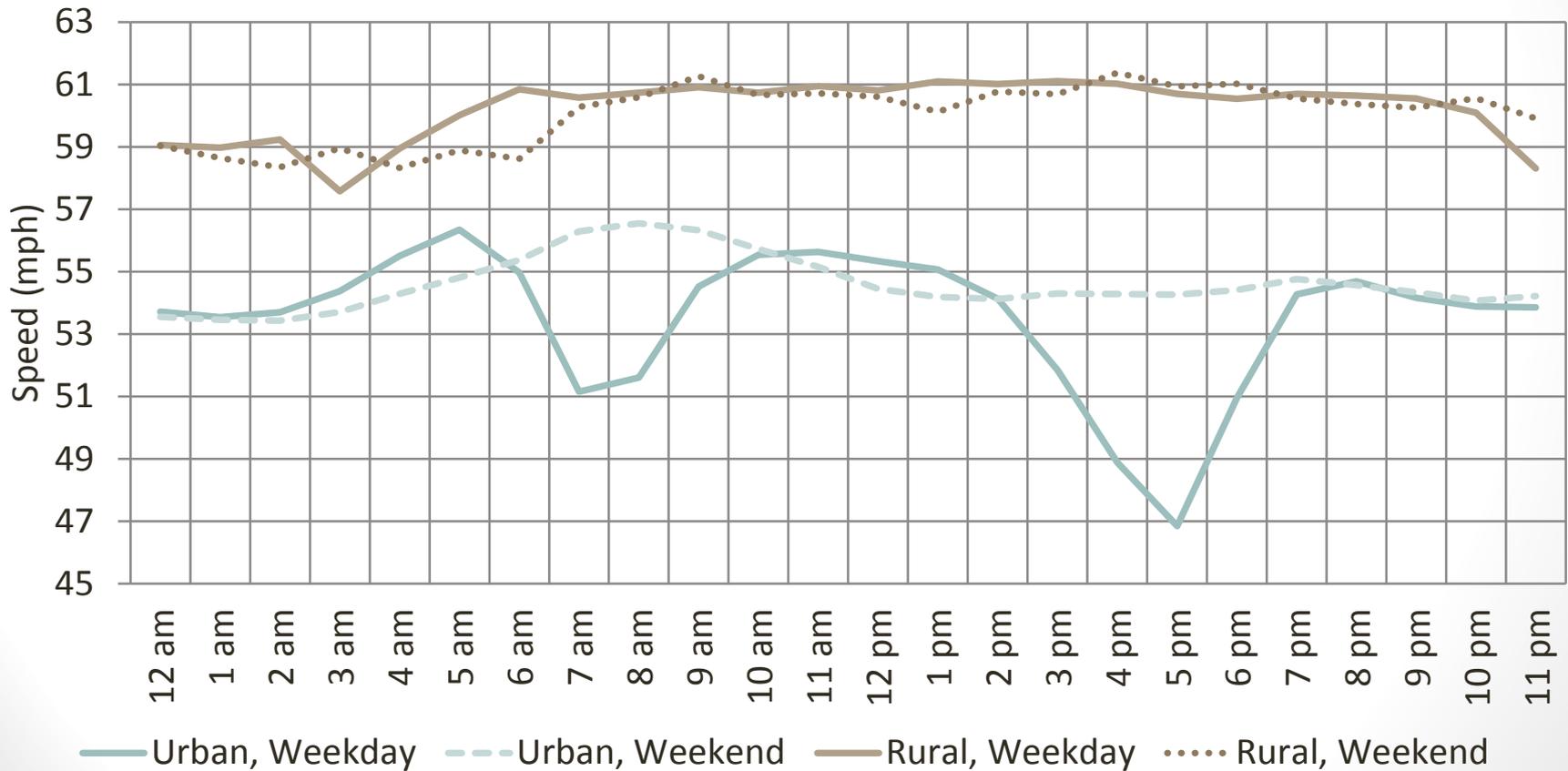
NHTS



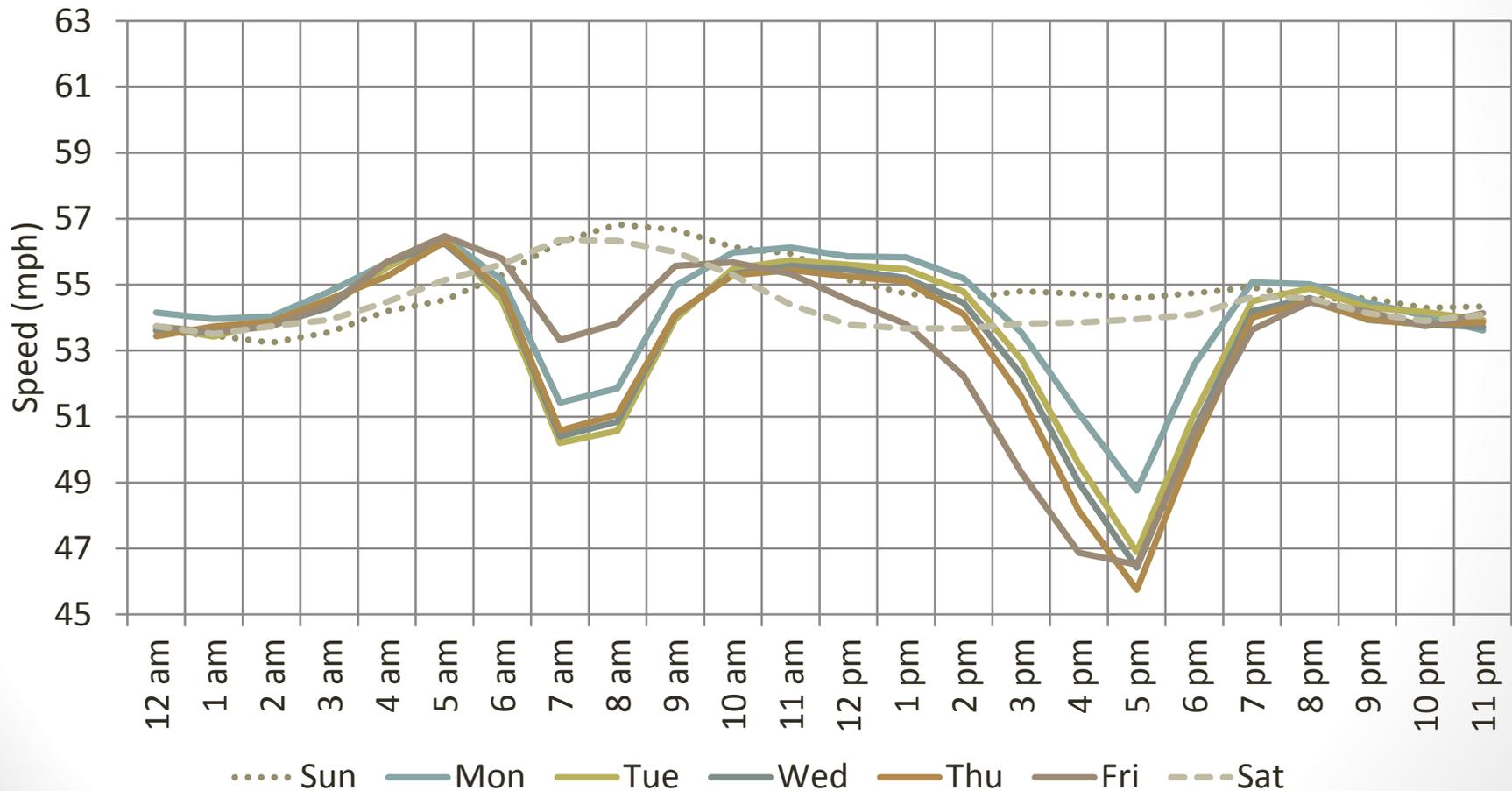
Observed Speed – National Average on Rural and Urban Interstate System



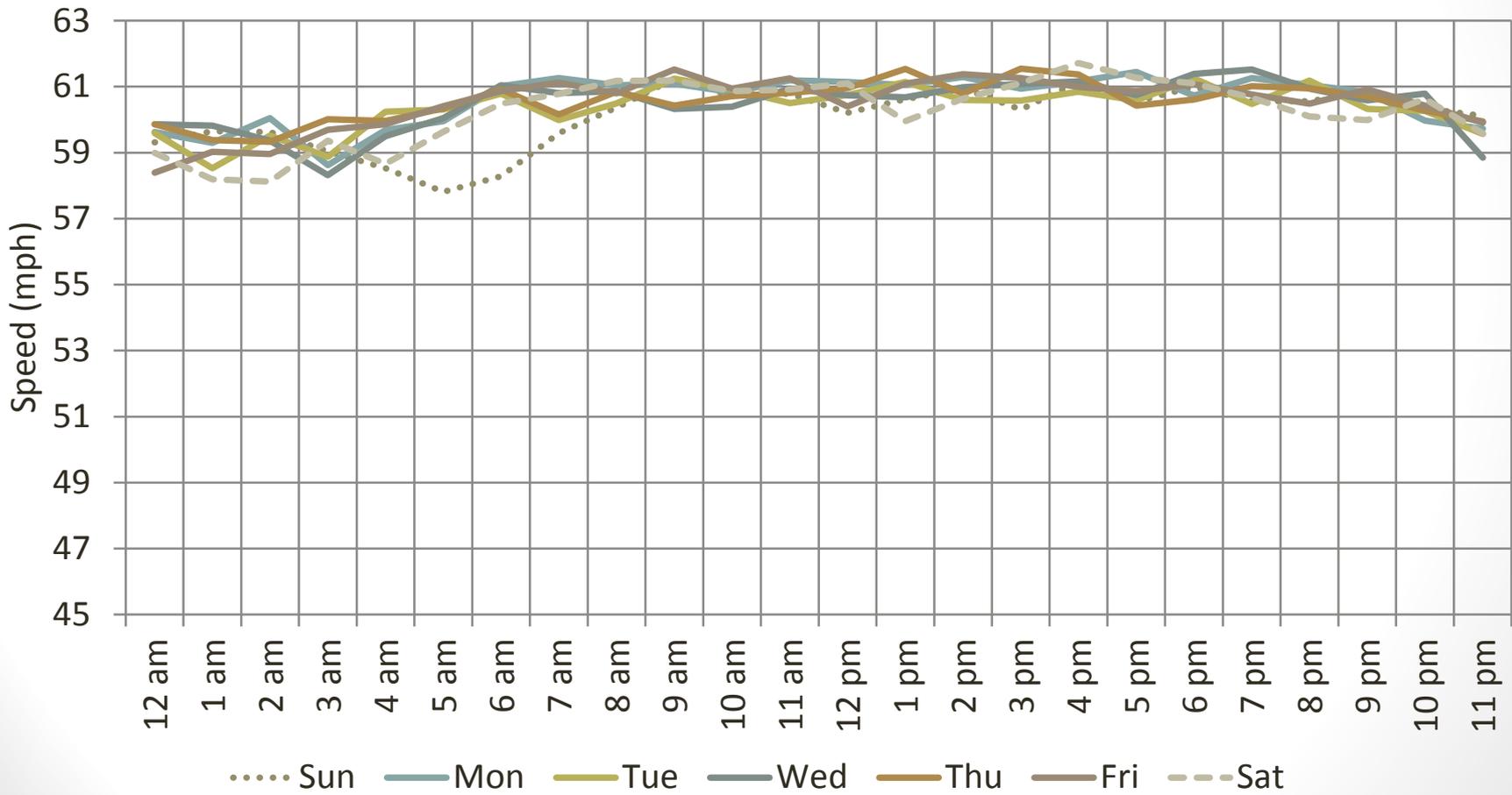
Observed Speed by Hour of the Day



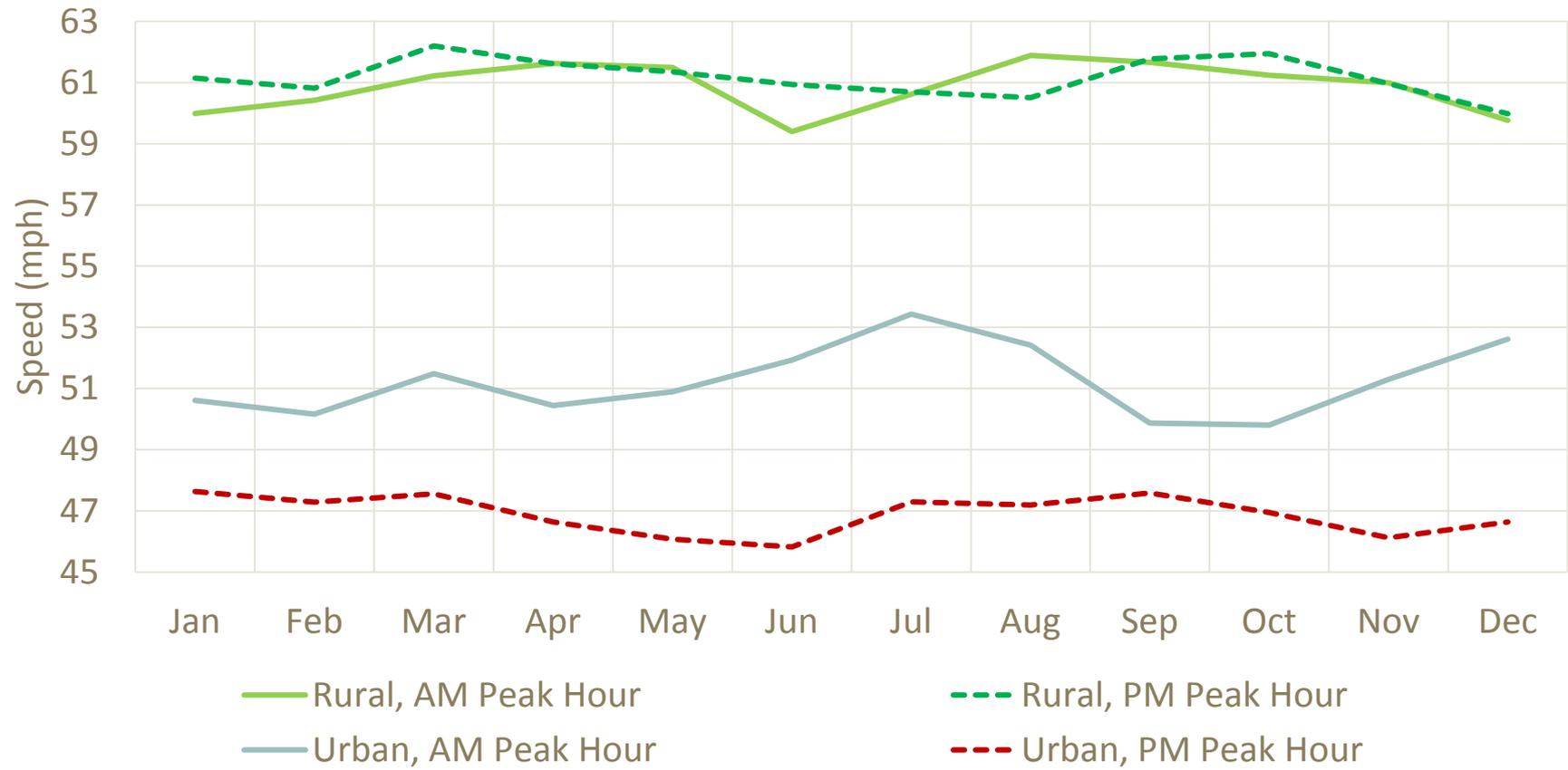
Observed Hourly Speed Pattern by Day of the Week - Urban



Observed Hourly Speed Pattern by Day of the Week - Rural



Observed Peak Hour Speed by Month



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 (Virginia)



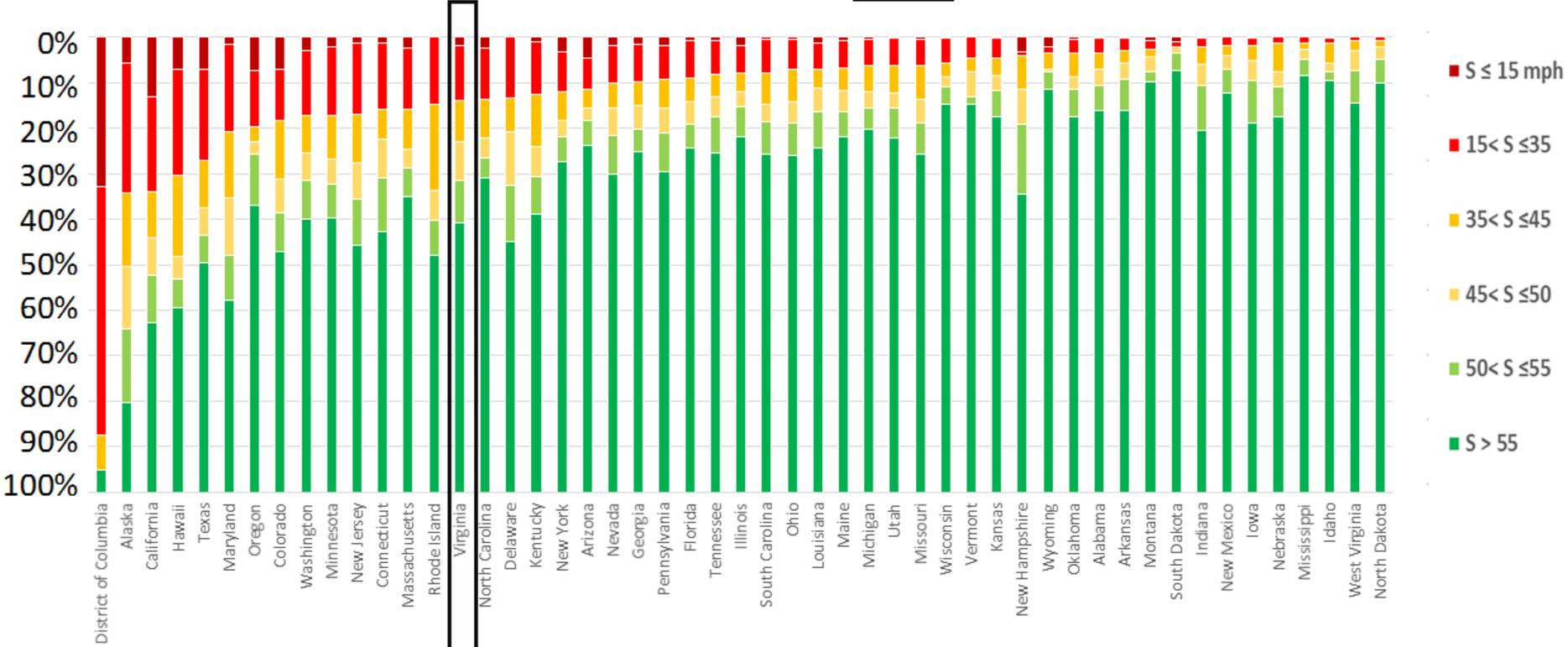
Speed

- < 35 mph
- 35-50
- 50-60
- >60



Percent of Interstate Miles within Various Speed Bins

Urban Interstate in PM Peak Hour



VMT Forecasts

- Updated earlier this year

http://www.fhwa.dot.gov/policyinformation/tables/vmt/vmt_forecast_sum.cfm

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

Vehicle Class	Compound Annual Growth Rates					
	Low Economic Growth Outlook*		Baseline Economic Growth Outlook*		High Economic Growth Outlook*	
	2015 - 2035 (20 Year)	2015 - 2045 (30 Year)	2015 - 2035 (20 Year)	2015 - 2045 (30 Year)	2015 - 2035 (20 Year)	2015 - 2045 (30 Year)
<i>Light-Duty Vehicles</i>	0.89%	0.61%	1.01%	0.71%	1.12%	0.78%
<i>Single-Unit Trucks</i>	1.43%	1.24%	1.72%	1.50%	1.98%	1.77%
<i>Combination Trucks</i>	1.04%	1.05%	1.46%	1.45%	1.74%	1.79%
Total	0.92%	0.66%	1.07%	0.78%	1.19%	0.89%

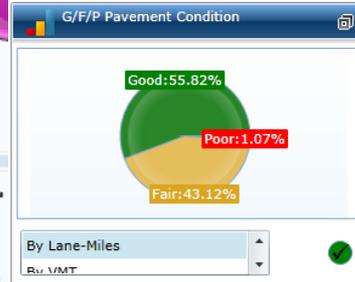
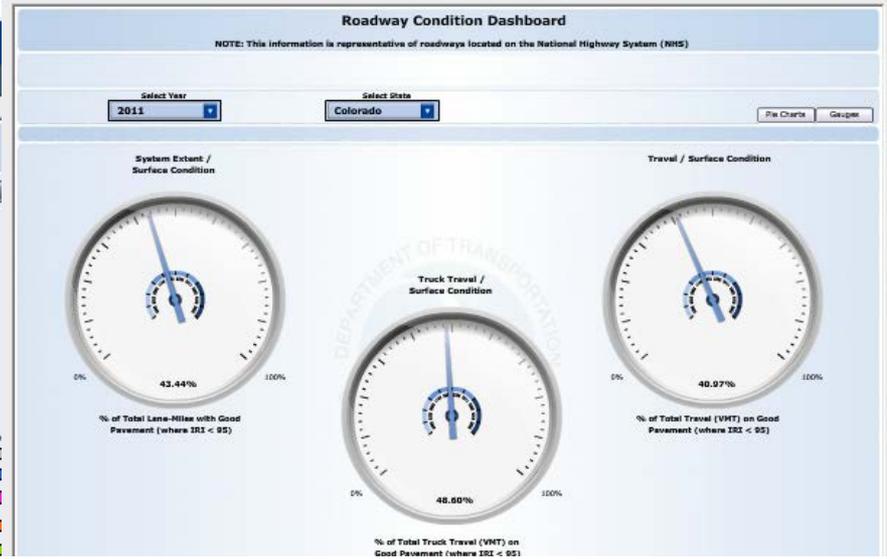
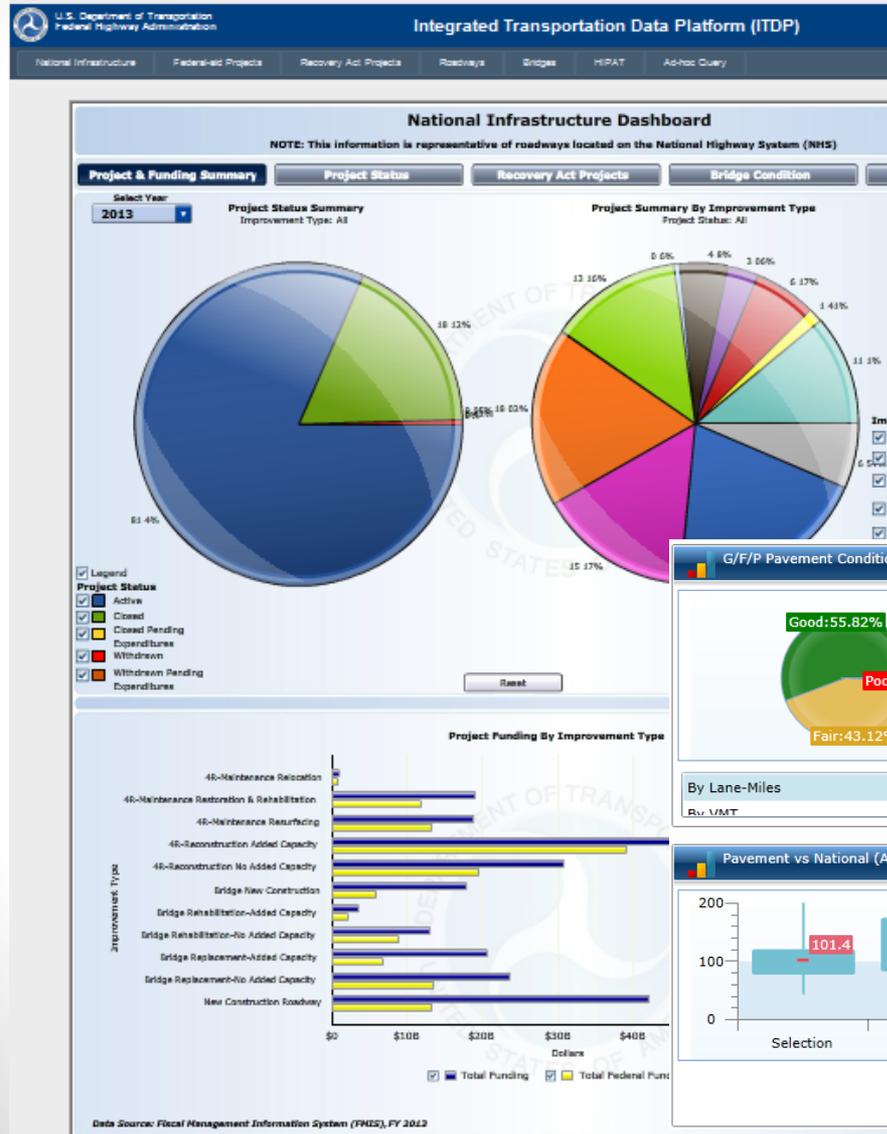
Long Distance Travel

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

Website includes:

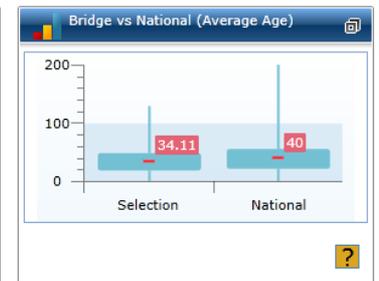
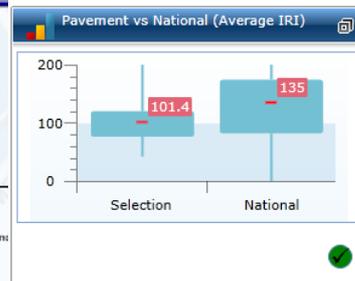
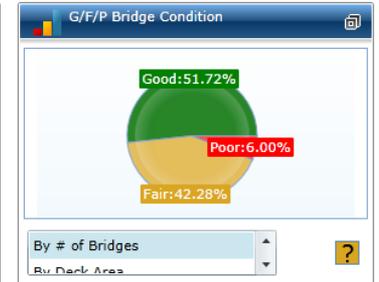
- Traffic Analysis Framework – Final Report
- 2008 and 2040 Trip Tables for:
 - Bus
 - Rail
 - Air
 - Auto (business)
 - Auto (non-business)
- Trips greater than 100 miles
- County (or equivalent) to county level

Data Integration



Summary Statistics

PAVEMENT	CORRIDOR	BRIDGES
Lane-miles: 4119.46	Length (mi.): 952.71	Bridges: 8522
Avg. IRI: 101.4	Climate Zone: Wet-Freeze	Deck Area (sq.m.): 4664249
Daily VMT: 31885353	AADT Range: 6200 - 249000	# of SD: 578
		# Load Posted:



HIPAT – Highway Infrastructure Performance and Analysis Tool

Projects Infrastructure Health Report

Active Item: HPMS Active Query: SELECT Map_HPMS_WKB.* FROM Map_HPMS_WKB WHERE ((Map_ AQC: 498 AHC: 0 FSystems / States

Map View (right-click map surface for tools)

Chart Categorization: IRI

Category	% of Total
< 95	~45%
95 - 170	~45%
> 170	~10%

Data Table

OBJECTID	Year_Record	State_Cod
122887	2010	8
122888	2010	8
122889	2010	8
122890	2010	8

Page 1 of 25

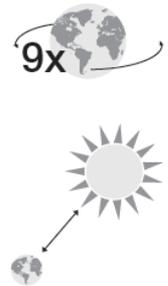
Statistics

Type	Field	Count	Min	Max	Avg	Std.Dev
	AADT	498	6200	249000	68377.51	61177.32
	VMT	498	132	319788	64026.81	57393.78
	IRI	498	42	208	101.4	32.65

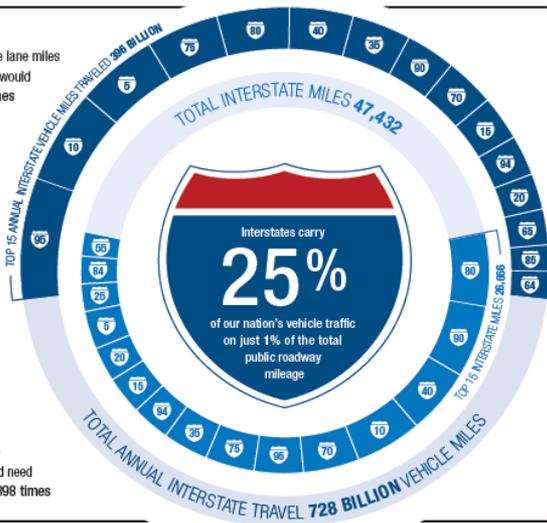
Data Visualization Center (DVC)

Top U.S. Interstates By Length and Travel

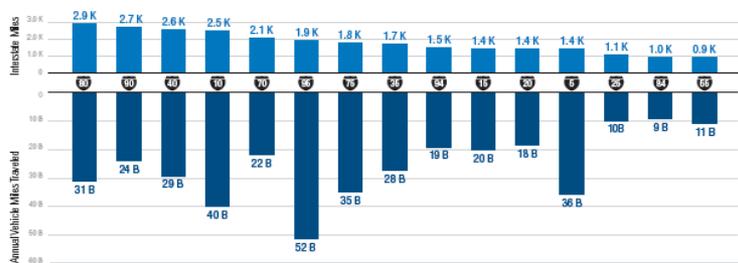
DISTANCE CONTEXT:
If you stretched all the Interstate lane miles along the equator, the distance would almost circle the Earth nine times



TRAFFIC CONTEXT
To equal the total annual vehicle miles traveled, one person would need to travel to the sun and back 3,998 times



TOP 15 INTERSTATES



SAFER PEOPLE, SAFER STREETS

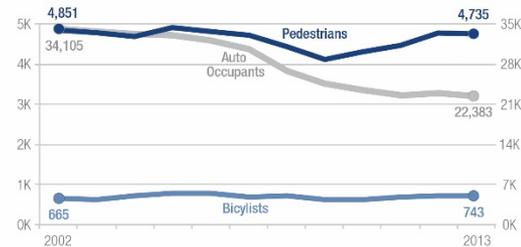
USDOT Pedestrian and Bicycle Safety Initiative

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.



Source: USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (2010)

Pedestrian and bicyclist fatalities have increased in recent years, as auto occupant deaths declined



Source: 2013 Motor Vehicle Crash Data from FARS and GES

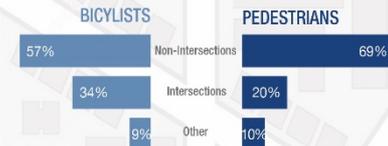
Fatalities and time of day



Source: FARS 2012 Final File, 2013 ARI.

Fatalities at intersections vs non-intersections

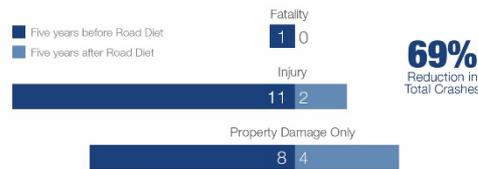
A large percentage of pedestrian and bicycle fatalities occur in mid-block locations.



Source: FARS 2013 ARI.
Note: Unknown values were removed before calculating percentages.
* Other includes parking lane/zone, bicycle lane, shoulder/roadside, sidewalk, median/crossing island, driveway access, shared-use path/trail, non-trafficway area, and other.

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

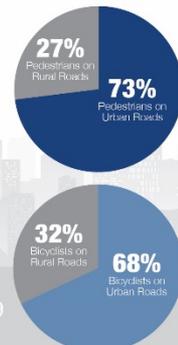
After implementing a road diet that added a turn lane and bike lanes on Lawyers Road in Fairfax County, the Virginia Department of Transportation documented a 69% reduction in overall crashes.



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

Fatalities in rural vs urban areas

The majority of pedestrian and bicyclist fatalities occur in urban areas.

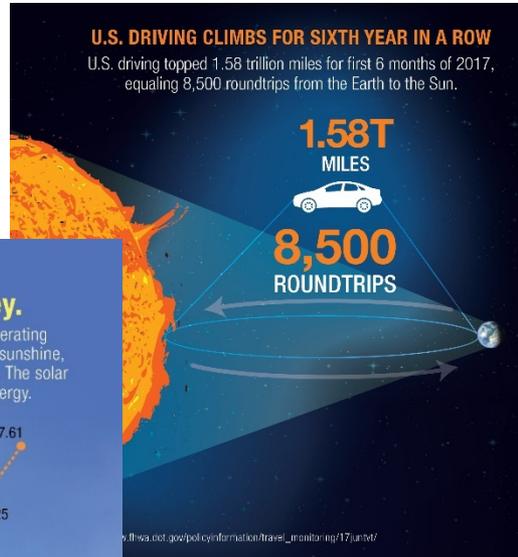
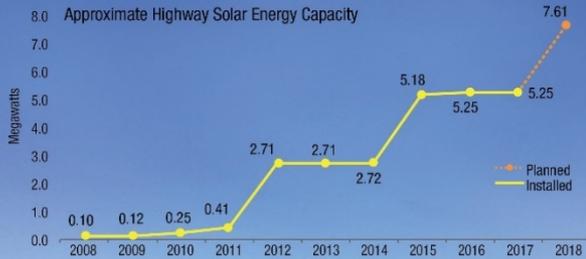


Source: 2013 Motor Vehicle Crash Data from FARS and GES

Factoids

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

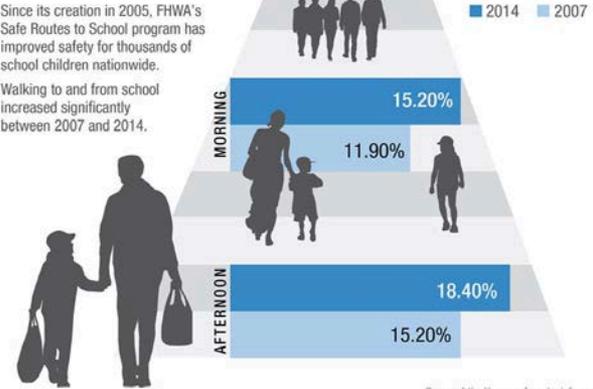
Transportation agencies have high electric bills from lighting roads and operating maintenance shops. Since they also own land along roads that get plenty of sunshine, some state DOTs are using public-private partnerships to install solar panels. The solar panels help to reduce those electric bills while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



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

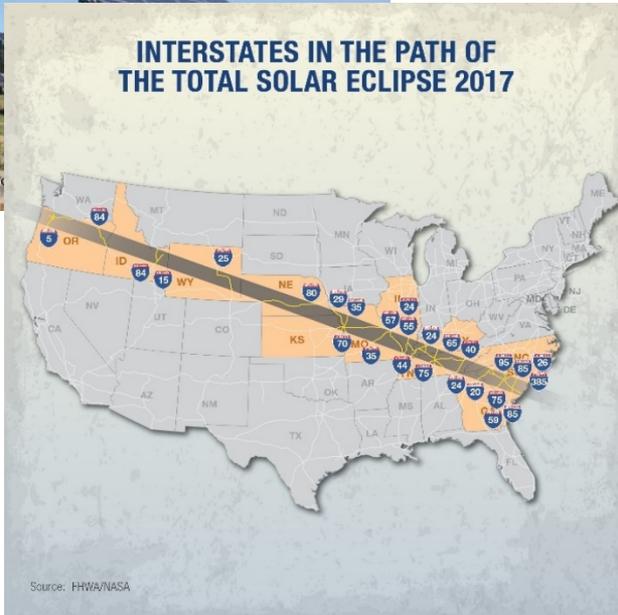
Since its creation in 2005, FHWA's Safe Routes to School program has improved safety for thousands of school children nationwide.

Walking to and from school increased significantly between 2007 and 2014.



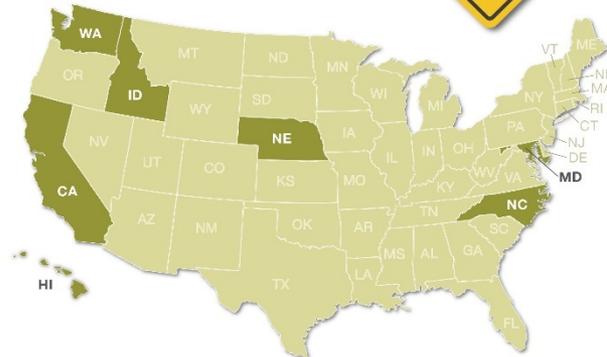
Source: <http://www.saferroutesinfo.org/>

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.



Sources: https://www.environment.fhwa.dot.gov/ecosystems/Pollinators_Roadsides/BMPs_pollinators_landscapes.asp
https://www.environment.fhwa.dot.gov/ecosystems/regingrnt_invasive.asp

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/>



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Publications

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Events, Seminars and Special Interest

- [Data Governance](#) **NEW!**
- [2015 Datapalooza](#) (includes Presentations)
- [Highway Information Seminar](#)
- [Interactive Highway Data Explorer](#) **NEW!**
- [Knowledge Center](#) **NEW!**

Publications

- [Highway Statistics Series](#)
- [Monthly Motor Fuel Reported by States](#)
- [Our Nation's Highways](#)
- [Publications Library](#) (alphabetical)
- [Status of Highway Trust Fund](#)
- [Traffic Volume Trends](#)
- [Special Tabulations](#)



Program Areas

- [American Recovery and Reinvestment](#)
- [Heavy Vehicle Use Tax](#)
- [Highway Finance Data](#)
- [Highway Performance Monitoring System](#)
- [Motor Fuel and Highway Trust Fund](#)
- [National Highway Construction Cost Index](#)
- [National Household Travel Survey](#)
- [Travel Monitoring](#)

State Statistical Abstracts

The abstracts contain state-specific data on population, land area, mileage, fuel use, drivers, vehicles, travel, and other related data.



- 2014 State Statistical Abstracts
- 2013 State Statistical Abstracts
- 2012 State Statistical Abstracts
- 2011 State Statistical Abstracts
- 2010 State Statistical Abstracts
- 2009 State Statistical Abstracts
- 2008 State Statistical Abstracts

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Thank You!