

Working Together to Deliver: FHWA Data and Information Framework

NATMEC

MAY 2016



Office Role

Internal, Administration, Congress

- Collect and analyze data
- Facilitate knowledge sharing through data dissemination
- Promote and support the use of data throughout the transportation community
- Assist in Program Delivery
- Tax Evasion

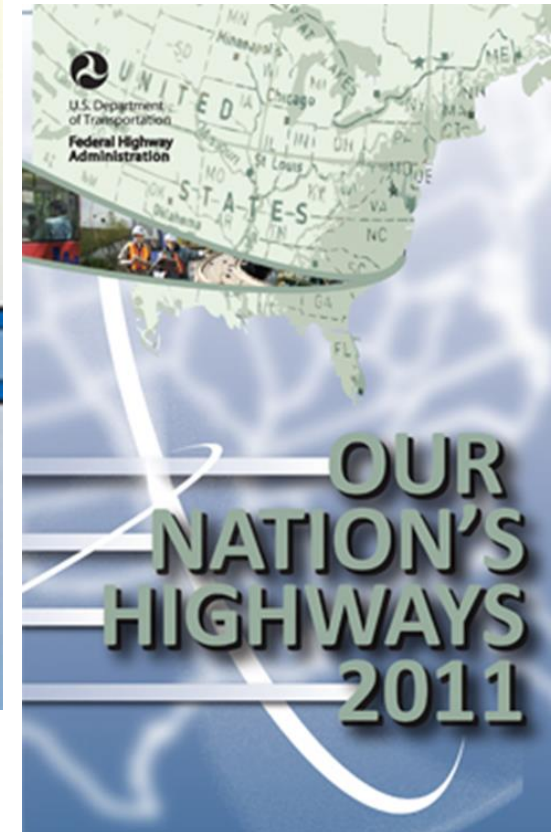
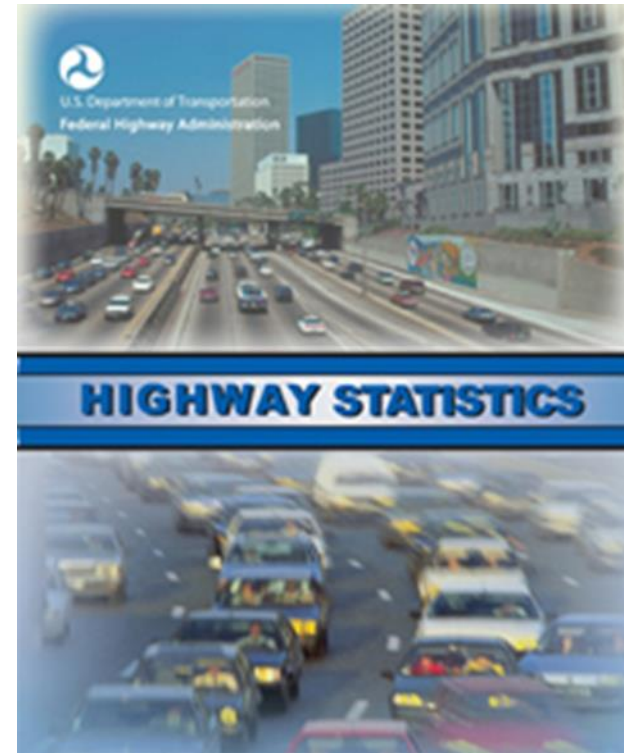
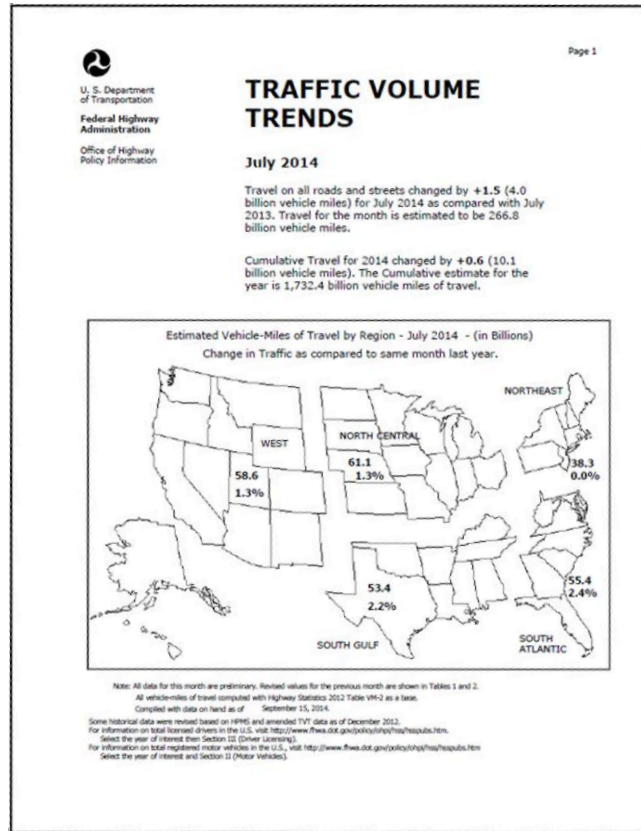
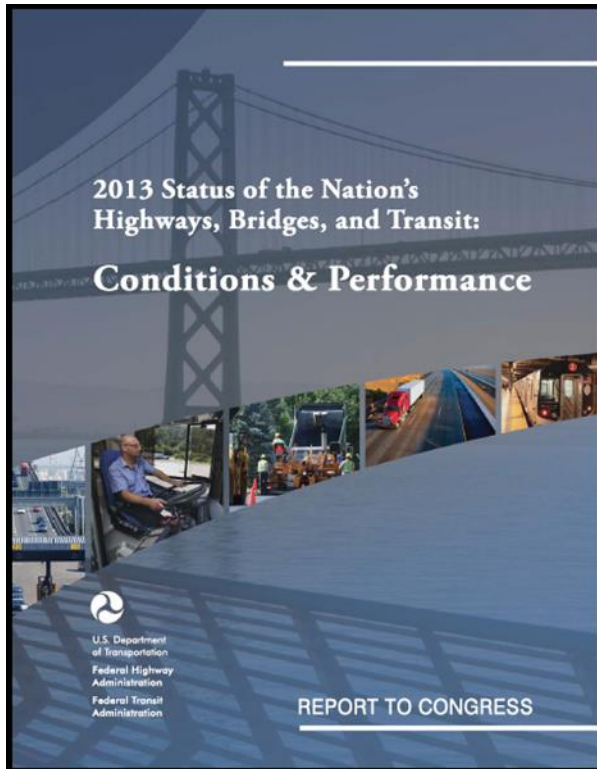
External

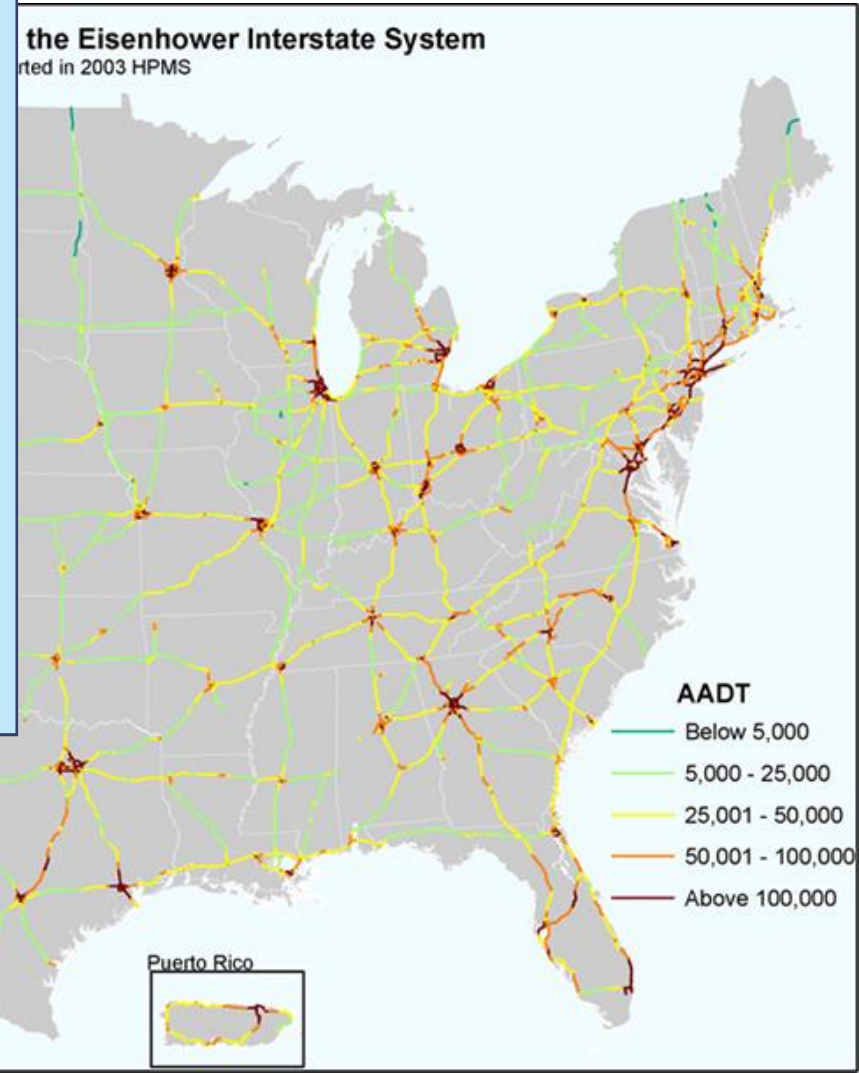
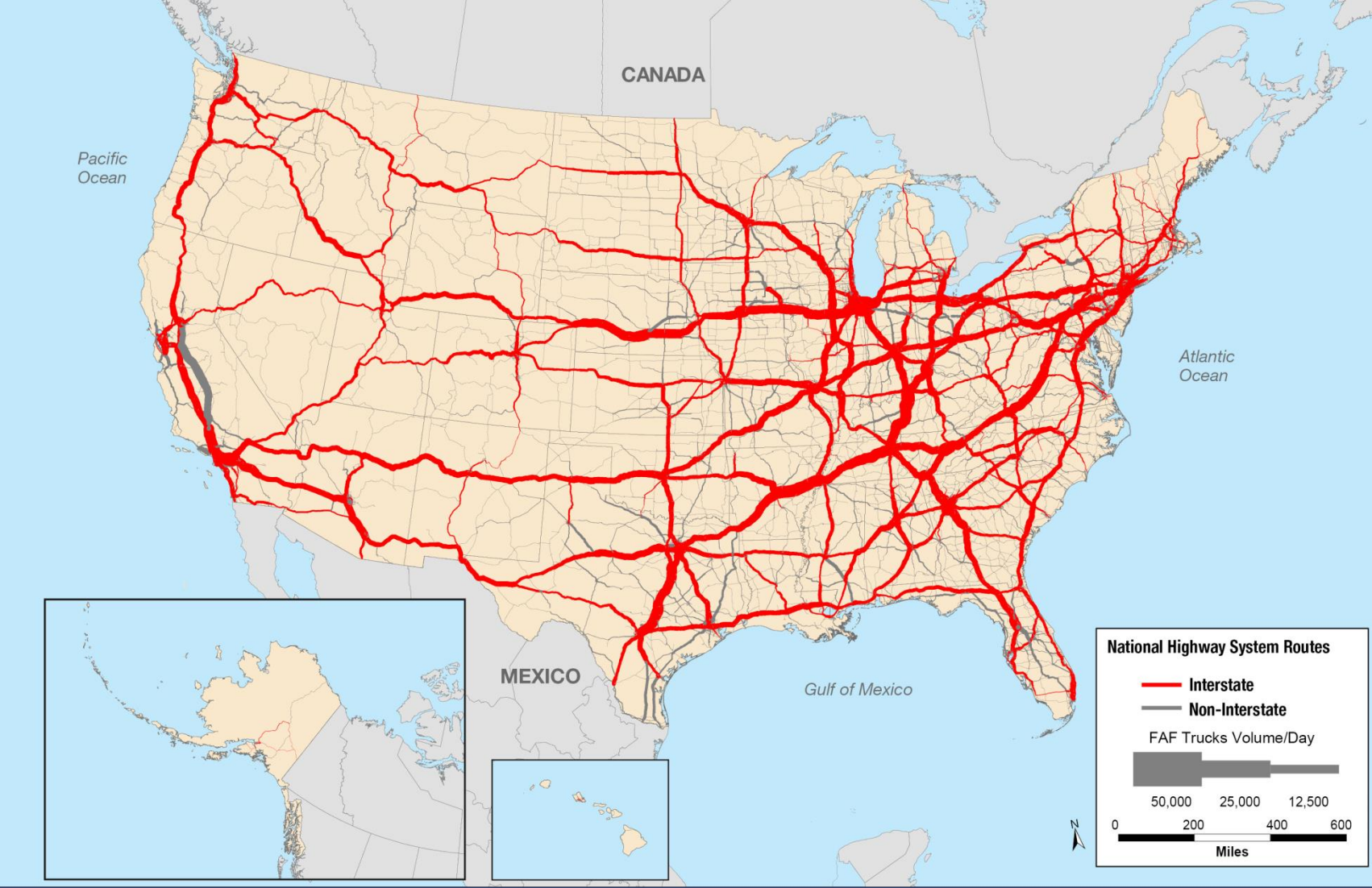
- Provide timely, high quality data and data products
- Help support the advance of data technologies
- Provide training and technical assistance
- Researchers, private sector, public

DATA



How We Use Your Data

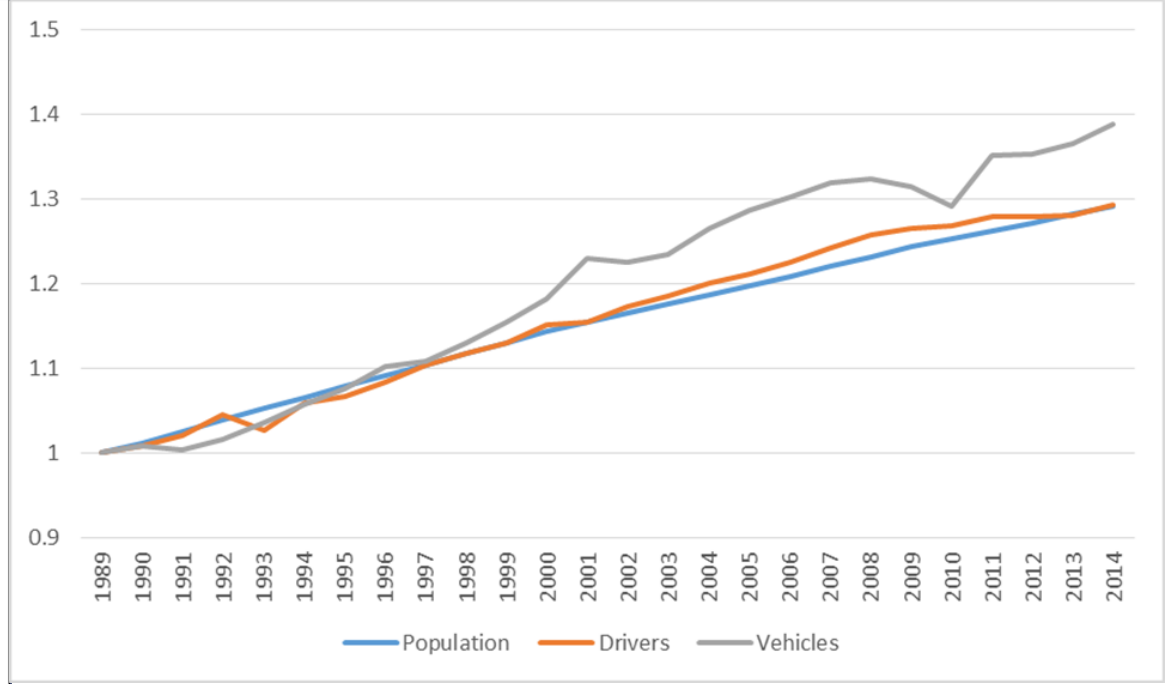
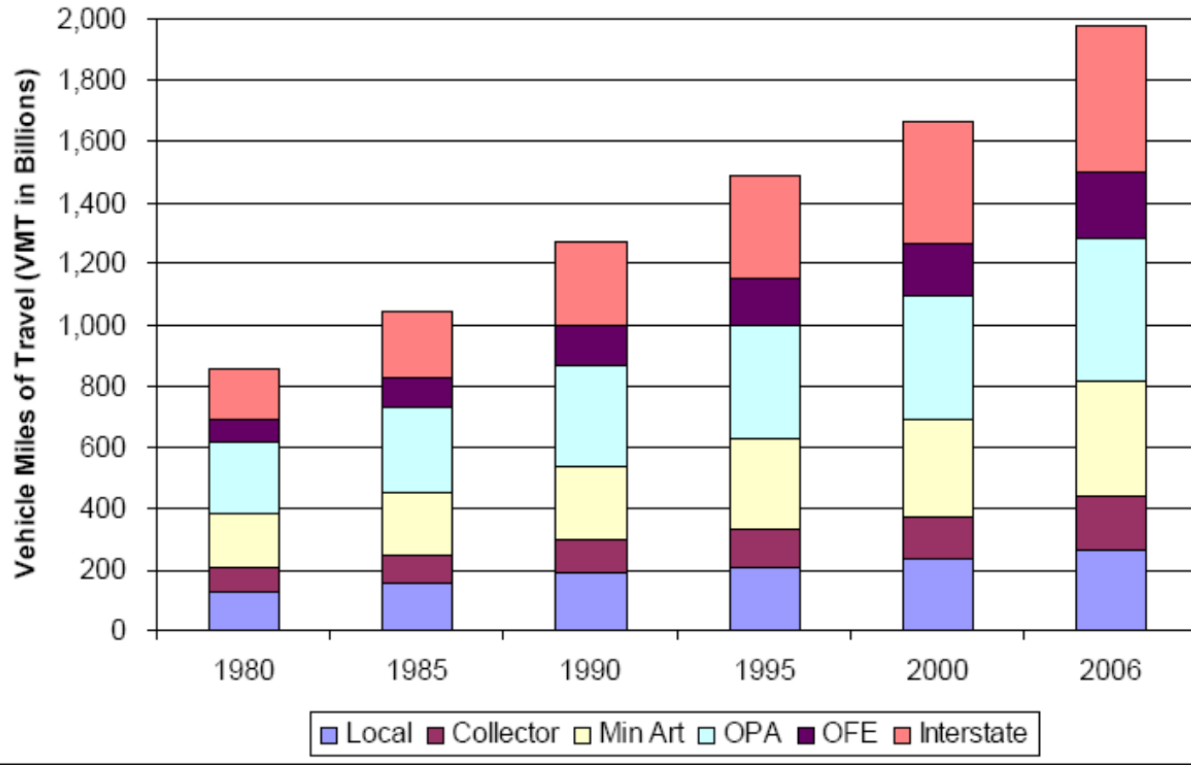




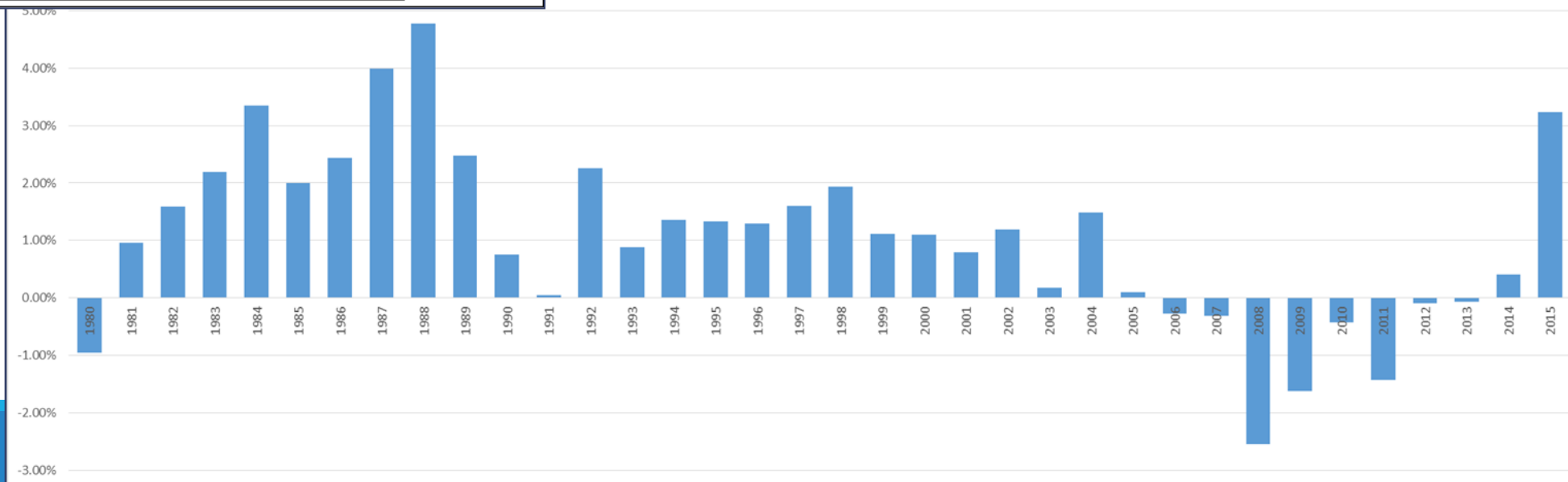
U.S. Department of Transportation
Federal Highway Administration



Urban Travel by Functional Class



Change in VMT per Capita Since Previous Year



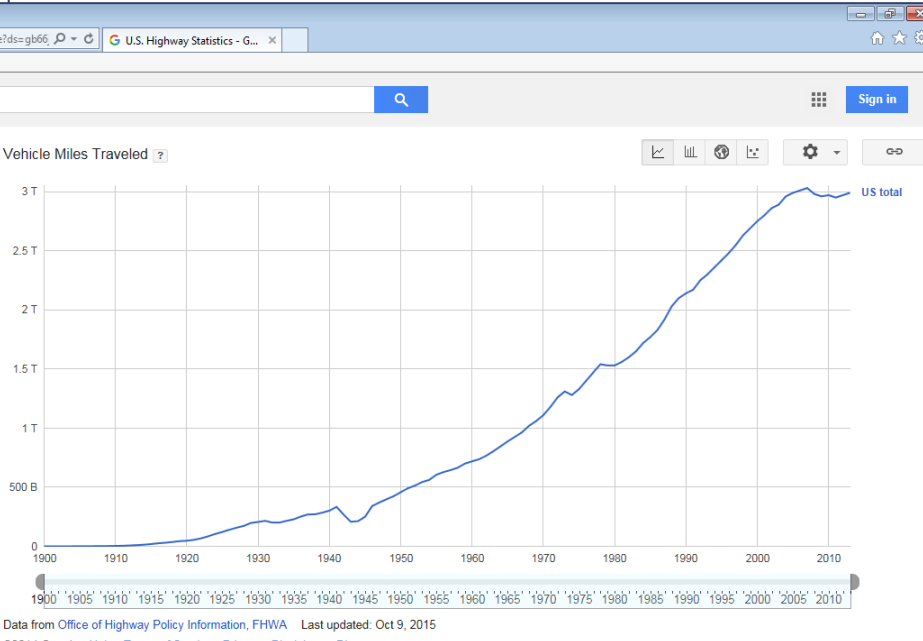
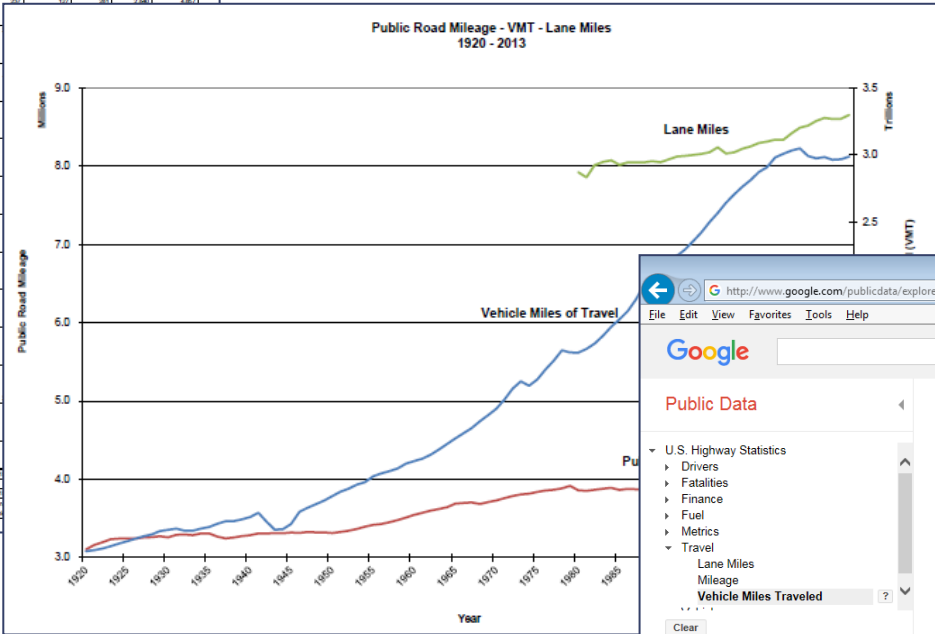
Evolution of Data Dissemination

FUNCTIONAL SYSTEM TRAVEL - 2014 (1)
ANNUAL VEHICLE - MILES

Tables

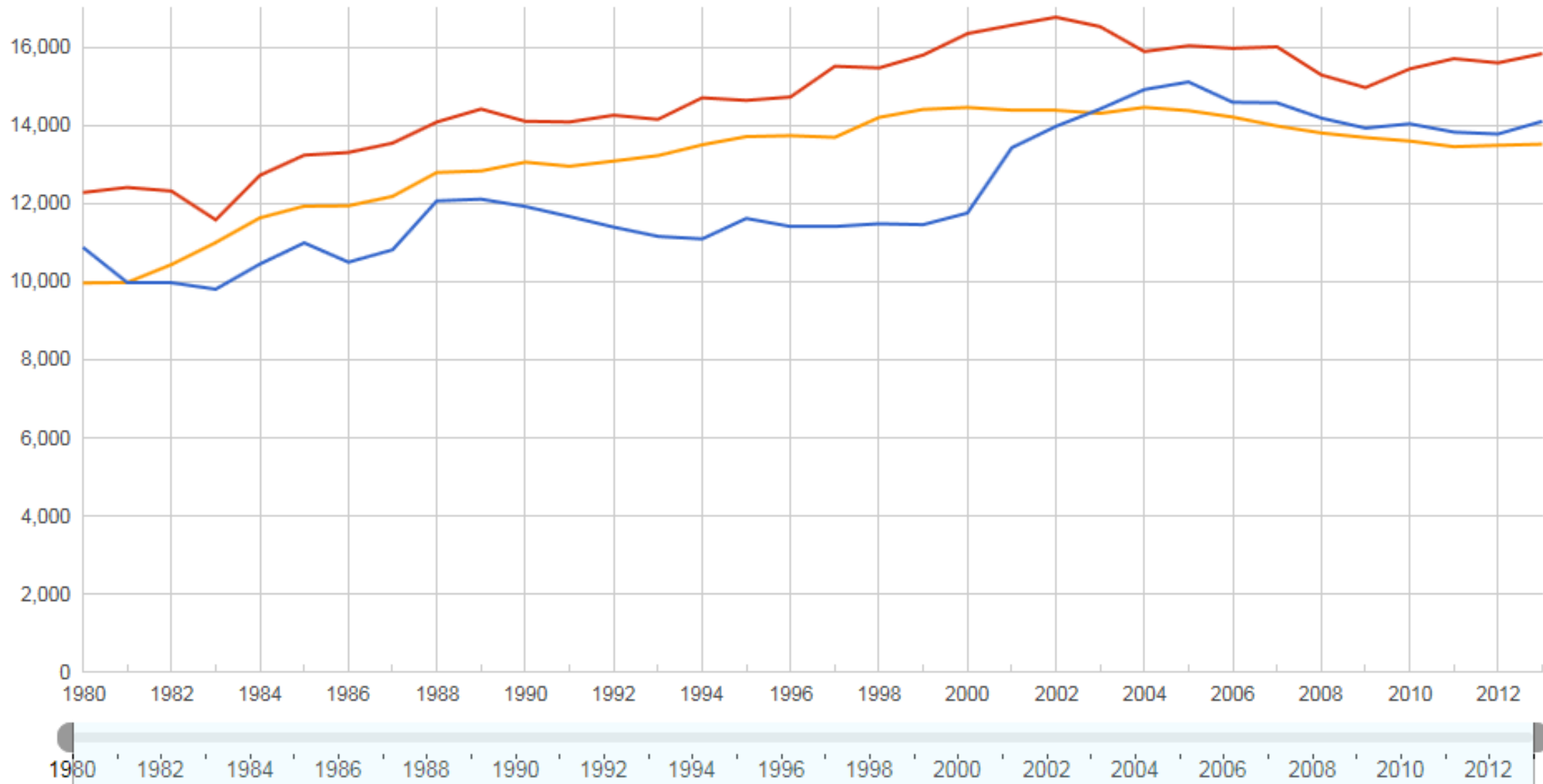
Charts

STATE	RURAL										URBAN										TOTAL
	INTERSTATE	OTHER FREEWAYS AND EXPRESSWAYS	OTHER PRINCIPAL ARTERIAL	MINOR ARTERIAL	MAJOR COLLECTOR	MINOR COLLECTOR	LOCAL	TOTAL	INTERSTATE	OTHER FREEWAYS AND EXPRESSWAYS	OTHER PRINCIPAL ARTERIAL	MINOR ARTERIAL	MAJOR COLLECTOR	MINOR COLLECTOR	LOCAL	TOTAL					
Alabama	5,500	-	5,200	4,310	1,220	1,240	6,750	27,200	6,410	471	9,280	6,810	4,100	30	3,880	3,860	48,600				
Alaska	800	-	300	117	306	141	204	2,016	730	-	807	503	-	-	-	-	2,040				
Arizona	5,800	50	3,180	1,380	1,880	600	1,490	15,510	6,960	7,640	6,850	15,710	-	-	-	-	34,720				
Arkansas	5,710	-	540	2,980	2,060	640	2,180	14,630	5,510	1,000	1,800	4,210	-	-	-	-	22,350				
California	15,310	370	10,000	5,000	3,000	2,200	33,400	55,400	71,500	25,100	40,370	40,900	-	-	-	-	117,370				
Colorado	4,200	200	3,300	2,300	1,700	710	1,400	14,410	6,850	5,000	5,300	6,700	-	-	-	-	28,260				
Connecticut	400	100	400	400	400	400	400	400	400	400	400	400	-	-	-	-	2,000				
Delaware	500	-	500	500	500	500	500	500	500	500	500	500	-	-	-	-	2,500				
Dist. of Columbia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0				
Florida	6,150	1,720	7,100	3,320	3,350	1,360	5,500	31,800	27,500	12,000	42,340	36,800	-	-	-	-	74,340				
Georgia	7,000	-	5,100	4,800	4,400	800	3,500	25,000	22,000	3,300	15,070	15,470	-	-	-	-	47,470				
Hawaii	-	-	300	300	300	300	300	300	300	300	300	300	-	-	-	-	1,200				
Idea	2,300	-	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	-	-	-	-	9,200				
Illinois	5,300	100	5,300	4,400	3,400	1,400	3,400	20,000	18,000	1,000	10,000	10,000	-	-	-	-	39,000				
Indiana	7,000	600	4,500	3,000	2,000	1,000	3,300	18,000	16,000	1,000	10,000	10,000	-	-	-	-	36,000				
Iowa	4,700	-	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	4,700	-	-	-	-	18,800				
Kansas	3,500	1,200	4,700	3,500	2,500	1,500	3,000	15,000	13,000	2,000	10,000	10,000	-	-	-	-	28,000				
Kentucky	2,200	2,000	3,400	3,300	4,000	2,300	2,300	11,000	10,000	1,000	5,000	5,000	-	-	-	-	24,000				
Louisiana	6,100	70	3,000	2,000	3,000	1,000	3,000	15,000	14,000	1,000	10,000	10,000	-	-	-	-	30,000				
Maine	2,200	-	1,800	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	-	-	-	-	6,800				
Maryland	1,200	-	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	-	-	-	-	4,800				
Massachusetts	700	80	300	300	300	300	300	300	300	300	300	300	-	-	-	-	1,200				
Michigan	4,800	2,200	3,000	2,000	1,000	1,000	3,000	15,000	14,000	1,000	10,000	10,000	-	-	-	-	30,000				
Minnesota	3,000	-	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	-	-	-	-	12,000				
Mississippi	3,500	-	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	-	-	-	-	14,000				
Missouri	6,000	2,500	3,500	2,500	1,500	1,500	3,500	17,000	16,000	1,000	10,000	10,000	-	-	-	-	34,000				
Montana	2,500	-	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	-	-	-	-	10,000				
Nebraska	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	-	-	-	-	8,000				
Nevada	1,600	-	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	-	-	-	-	6,400				
New Hampshire	1,000	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	-	-	-	-	4,000				
New Jersey	4,500	-	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	-	-	-	-	18,000				
New Mexico	1,500	-	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	-	-	-	-	6,000				
New York	5,700	500	3,000	2,000	1,000	1,000	3,000	15,000	14,000	1,000	10,000	10,000	-	-	-	-	30,000				
North Carolina	5,000	-	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	-	-	-	-	20,000				
North Dakota	1,800	-	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	-	-	-	-	7,200				
Ohio	6,300	1,000	4,000	3,000	2,000	1,000	3,000	15,000	14,000	1,000	10,000	10,000	-	-	-	-	30,000				
Oklahoma	4,000	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	-	-	-	-	16,000				
Oregon	3,000	-	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	-	-	-	-	12,000				
Pennsylvania	10,000	1,500	6,000	5,000	4,000	3,000	6,000	30,000	28,000	2,000	10,000	10,000	-	-	-	-	40,000				
Rhode Island	200	-	200	200	200	200	200	200	200	200	200	200	-	-	-	-	800				
South Carolina	3,000	-	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	-	-	-	-	12,000				
South Dakota	1,800	-	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	-	-	-	-	7,200				
Tennessee	7,000	-	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	-	-	-	-	28,000				
Texas	15,000	1,000	10,000	8,000	6,000	4,000	10,000	50,000	48,000	2,000	20,000	20,000	-	-	-	-	70,000				
Utah	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	-	-	-	-	8,000				
Vermont	1,000	-	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	-	-	-	-	4,000				
Virginia	4,000	500	3,000	2,000	1,000	1,000	3,000	15,000	14,000	1,000	10,000	10,000	-	-	-	-	30,000				
Washington	4,000	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	-	-	-	-	16,000				
West Virginia	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	-	-	-	-	8,000				
Wisconsin	4,000	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	-	-	-	-	16,000				
Wyoming	2,000	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	-	-	-	-	8,000				
U.S. Total	221,270	38,410	108,150	140,540	100,000	60,000	125,100	600,000	510,000	100,000	400,000	400,000	-	-	-	-	1,100,000				
Grand Total	259,680	38,410	108,350	140,740	100,200	60,200	125,300	600,200	510,200	100,200	400,200	400,200	-	-	-	-	1,100,200				



Interactive Data Explorer

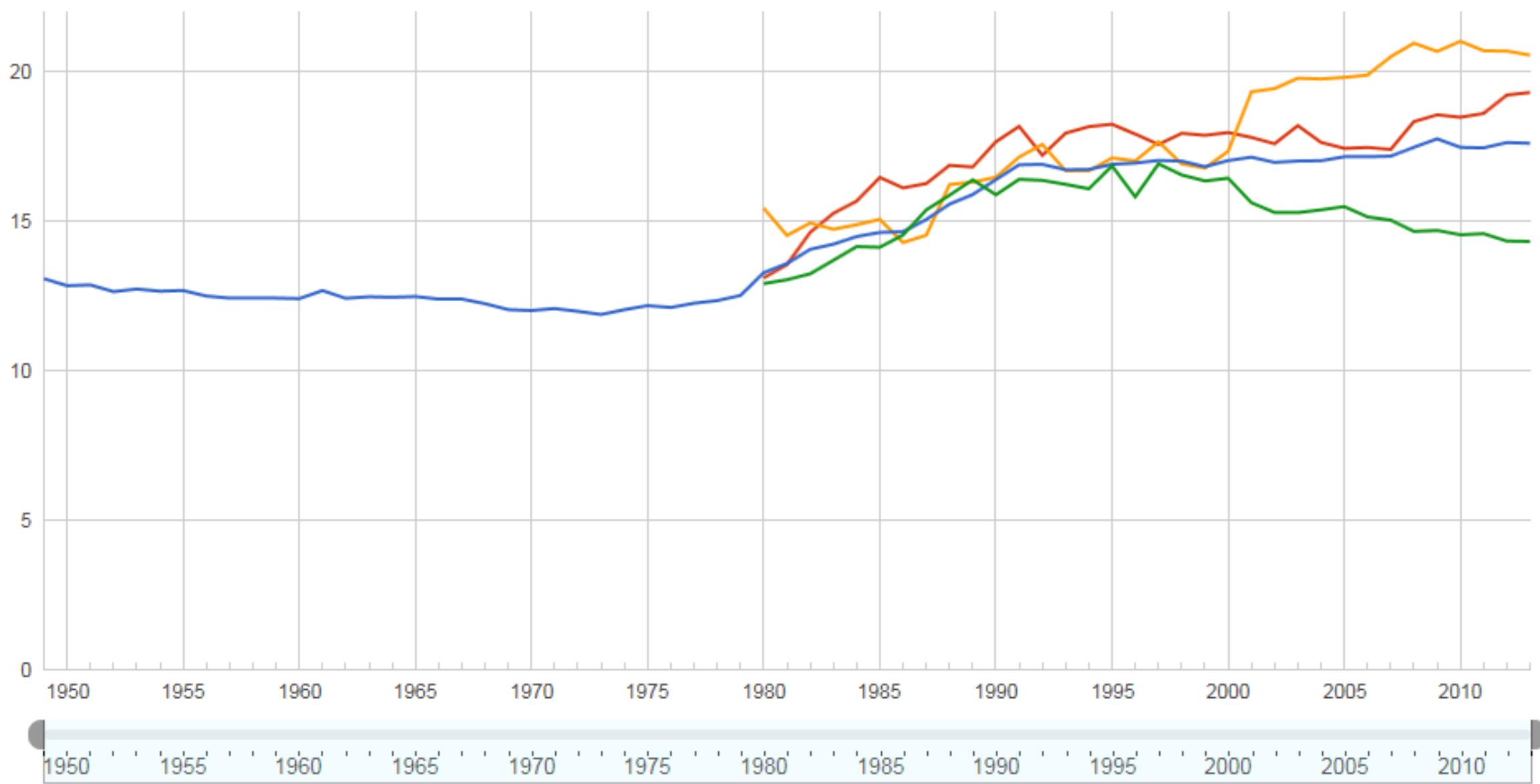
Travel per licensed driver ?



Data from [Office of Highway Policy Information, FHWA](#) Last updated: Oct 9, 2015

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Travel per gallon of fuel ?



Data from [Office of Highway Policy Information, FHWA](#) Last updated: Oct 9, 2015

Social Media – Factoids (Infographics)

Facebook

Twitter

LinkedIn

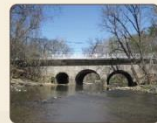
Every Wed

• 9 am

Flickr

Ten Oldest Bridges in the United States

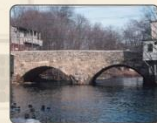
More than 200 years old and still safely carrying traffic!
(Listed by Year Built)



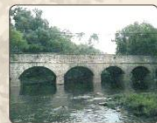
Frankford Ave Bridge
Frankford Ave over Pennypack Creek
Philadelphia, PA
1697 73.2 FT



Stony Brook Bridge
US 206 over Stony Brook
Princeton, NJ
1792 82 FT



Choate Bridge
Main St over Ipswich River
Ipswich, MA
1764 71.9 FT



Skippack Bridge
Germantown Pike over Skippack Creek
Collegeville, PA
1792 202.1 FT



Adams Street Bridge
Adams St over Neponset River
Dorchester Center, MA
1765 119.1 FT



Centre Avenue Bridge
Centre Ave over Newtown Creek
Philadelphia, PA
1796 34.1 FT



Old Bethlehem Rd Bridge
Over Cooks Creek
Quakertown, PA
1777 54.1 FT



Kingston Bridge
Old Lincoln Highway over Millstone River
Princeton, NJ
1798 109.9 FT



Trinity Lane Bridge
Trinity Ln over Gulph Creek
Conshohocken, PA
1789 22 FT



Perkiomen Bridge
Ridge Pike over Perkiomen Creek
Collegeville, PA
1798 453.1 FT

Source: National Bridge Inventory, December 31, 2014

FEDERAL GAS TAX PAID (current dollars) PER LICENSED DRIVER 1974–2014

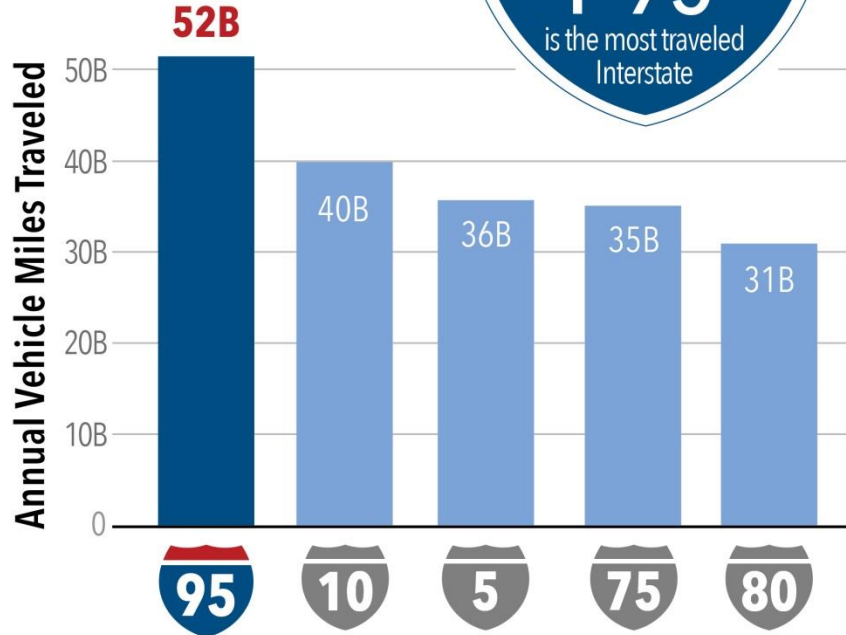
In 2014, the average federal gas tax paid per licensed driver was \$158.78 or roughly \$13.23 per month.



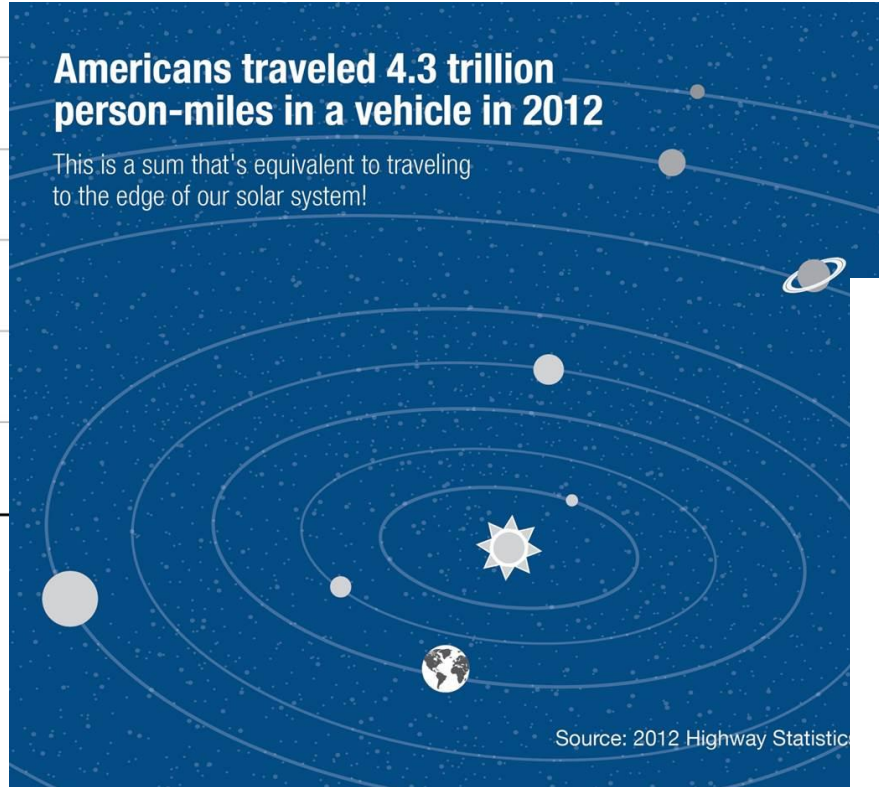
Source: Highway Statistics Table FE-210, FHWA (2014)



TOP 5 MOST TRAVELED INTERSTATES



Source: 2012 Highway Statistics Data Series



This year USDOT turns 50. Here is a comparison between key transportation statistics then and now.

	(per 1000 licensed drivers)		
	Roadway Fatalities	Licensed Drivers	Vehicle Miles
Now	15	214.1 Million	3.1 Trillion
Then	50	101 Million	925.9 Billion

Note: Now data is the most recent available and is 2014 for fatality data, and year end 2015 for licensed drivers and vehicle miles. Source: FHWA Highway Statistics, tables DL-220, VM-203, and FI-200. <http://www.fhwa.dot.gov/policyinformation/statistics.cfm>



Why Work Together

Improve the quality of the data

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

Raise the awareness of transportation data and data issues

Important role of data in decision making

Identify needs of data community

Limited resources – need to explore ways to leverage what we have



State DOT Data Programs

FAST Act provides greater flexibility to spend federal funds for data

We are here to provide assistance

We are looking for ways to leverage our funding through pooled fund projects

- Long Distance Passenger data (TAF)
- National Household Travel Survey (NHTS)

Help you quantify the value and benefit of your data to your management

Expand use of State reported data – adding vehicle class and weight data to monthly TVT report



Support States and Local Activities

National Household Travel Survey (NHTS)

Systems – TMAS, HPMS, Fuels & FASH

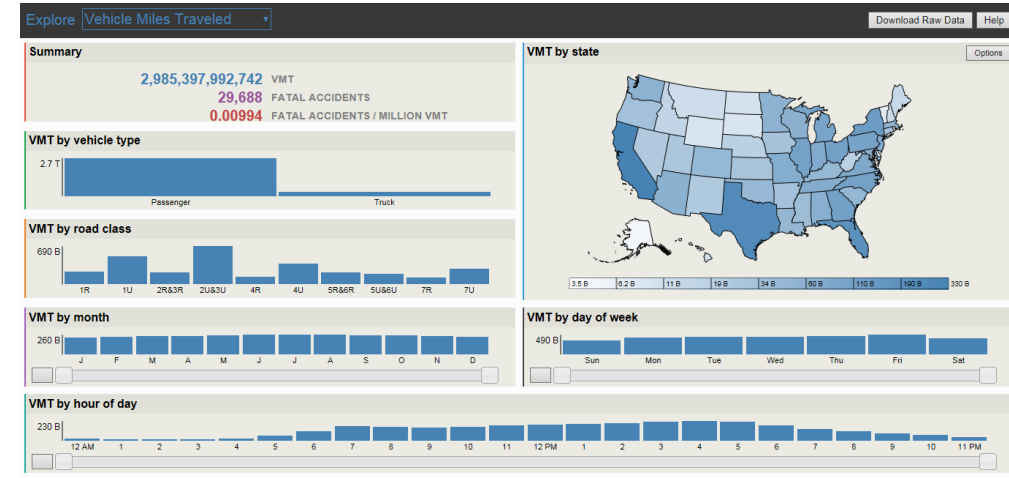
- Guidance – leads to greater consistency and data quality
- Data Governance – data standardization
- Technical Support - NHI Courses and onsite support

Research and Analysis - VMT forecasts & TAF

- <http://www.fhwa.dot.gov/policyinformation/tables/vmt/>
- <http://www.fhwa.dot.gov/policyinformation/analysisframework/01.cfm>

New Technology – VMT Explorer and Traffic Data Analytics

- <http://www.cattlab.umd.edu/vmt-explorer/>
- <http://www.availabs.org/>



Proactive Approach to Data Quality

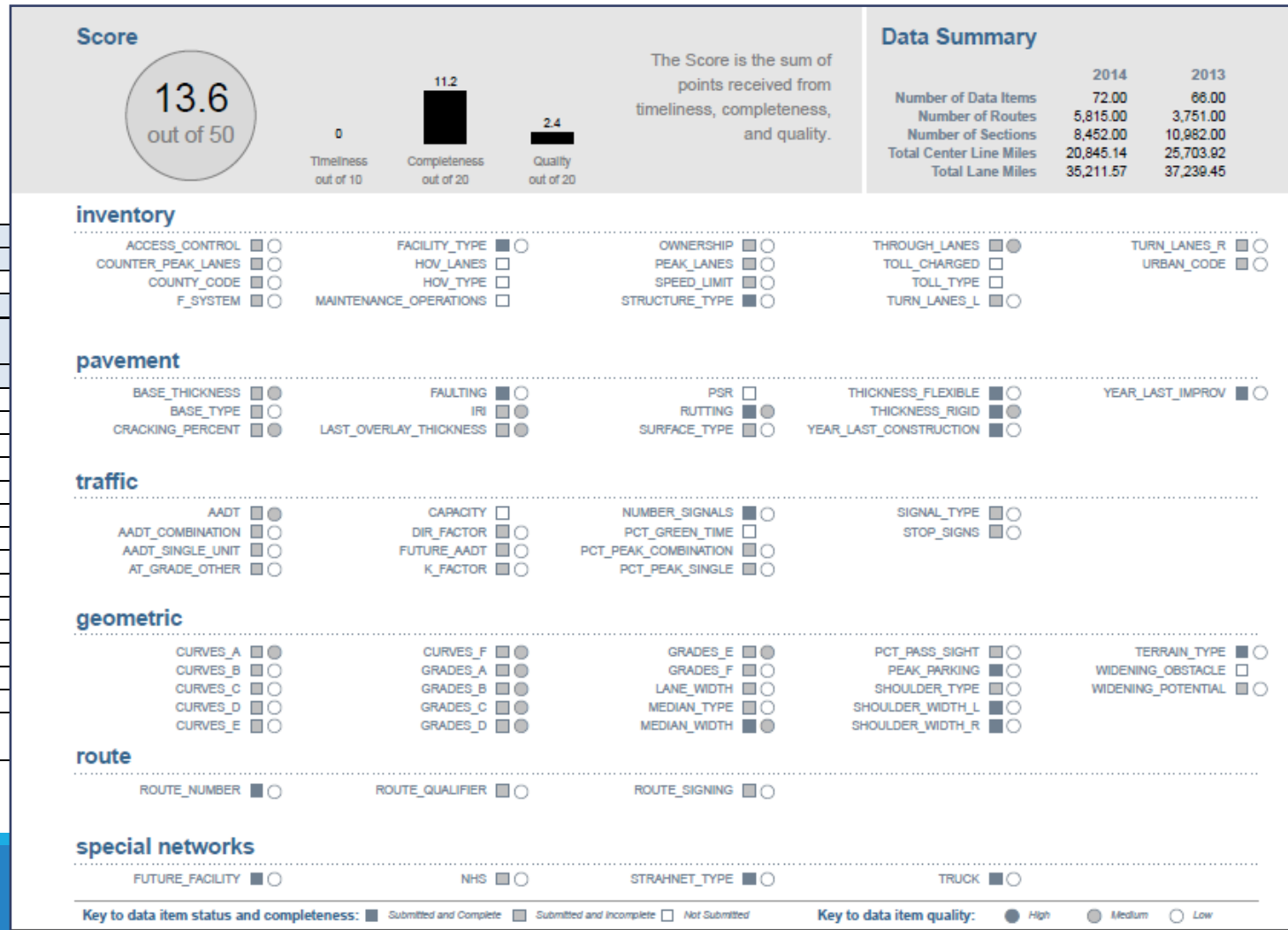
Division Office Checklists

Pavement Scorecards

HPMS Report Cards

Office of Highway Policy Information (HPPI) Data Checklist				
State:				
Submitted by:				
Data Area:		HPMS		
Data Items:	Overall HPMS Submittal	HPMS Traffic Data	HPMS Pavement Data	HPMS Inventory Data
Due Date:	June-15	June-15	June-15	June-15
DOT Person Responsible for Data:				
Years in Position:		yrs.	yrs.	yrs.
2014 Data	On-time Last Year:			
	Did the State Resubmit:			
	Reason for Resubmittal:			
Understands Requirements:				
Change in Staff or Staffing Levels:				
New/Different Equipment:				
Insufficient or Reduction in Funding:				
New Hardware, Software, Database:				
Written Schedule:				
Written Procedure(s):				
Written Data Exchange Agreement(s):				
Previous Data Quality Issues:				
Comments:				

U.S. Department of Transportation
Federal Highway Administration



Section 6028

Performance Management Data Support Program

- 1) Collect and distribute vehicle probe data
- 2) Collect household travel behavior data
- 3) Enhancing existing data collection and analysis tools
- 4) Enhancing existing data analysis tools to improve performance predictions and travel models
- 5) Developing tools—
 - a) to improve performance analysis; and
 - b) to evaluate the effects of project investments on performance.

FUNDING - From amounts authorized to carry out the Highway Research and Development Program, the Administrator of the Federal Highway Administration may use up to \$10,000,000 for each of fiscal years 2016 through 2020 to carry out this section.



Section 6028

Performance Management Data Support Program

- 1) Collect and distribute vehicle probe data (**NPMRDS**)
- 2) Collect household travel behavior data (**NHTS**)
- 3) Enhancing existing data collection and analysis tools (**HPMS, TMAS, ITIP etc.**)
- 4) Enhancing existing data analysis tools to improve performance predictions and travel models (**FAF & TAF**)
- 5) Developing tools— (**TPM**)
 - a) to improve performance analysis; and
 - b) to evaluate the effects of project investments on performance.

FUNDING - From amounts authorized to carry out the Highway Research and Development Program, the Administrator of the Federal Highway Administration may use up to \$10,000,000 for each of fiscal years 2016 through 2020 to carry out this section. (**\$5 M**)



Benefits for States and Locals

More technical assistance – HQ and Resource Center

Ongoing support for NPMRDS and NHTS

Exploring ways to enhance HPMS and other data systems

- Transactional approach
- Direct link with State DOT data systems
- Addition of non-State data i.e. intermodal facilities and primary freight network
- Add FAF and NHPN topology to ARNOLD
- Add enhanced analytics such as HERS-ST

Make ITIP available to State DOTs

Link ITIP to other US DOT and federal systems to reduce redundant data reporting

Developing new tools for data visualization and analysis



Questions

Office of Highway Policy Information: <http://www.fhwa.dot.gov/policyinformation/>

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