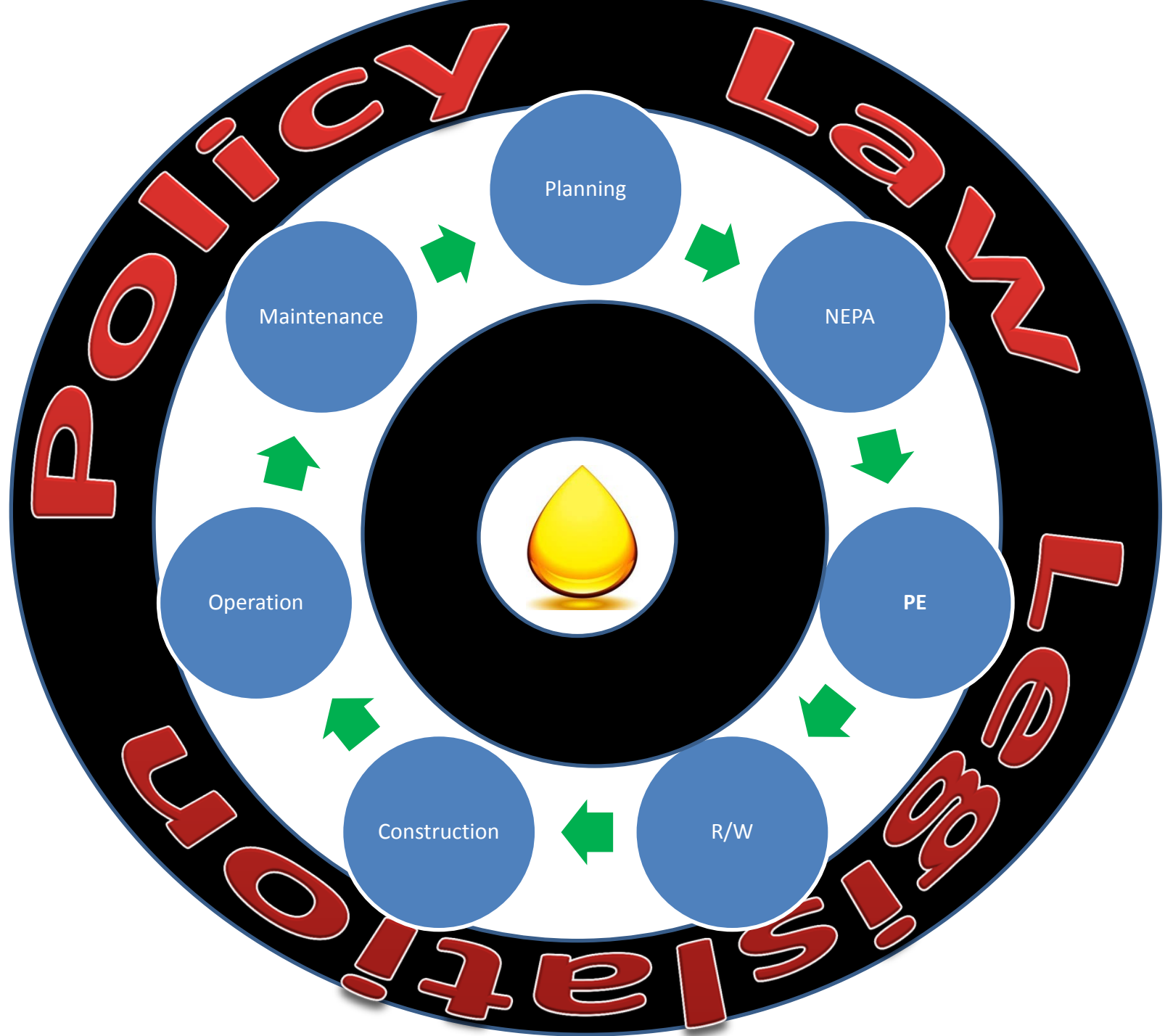


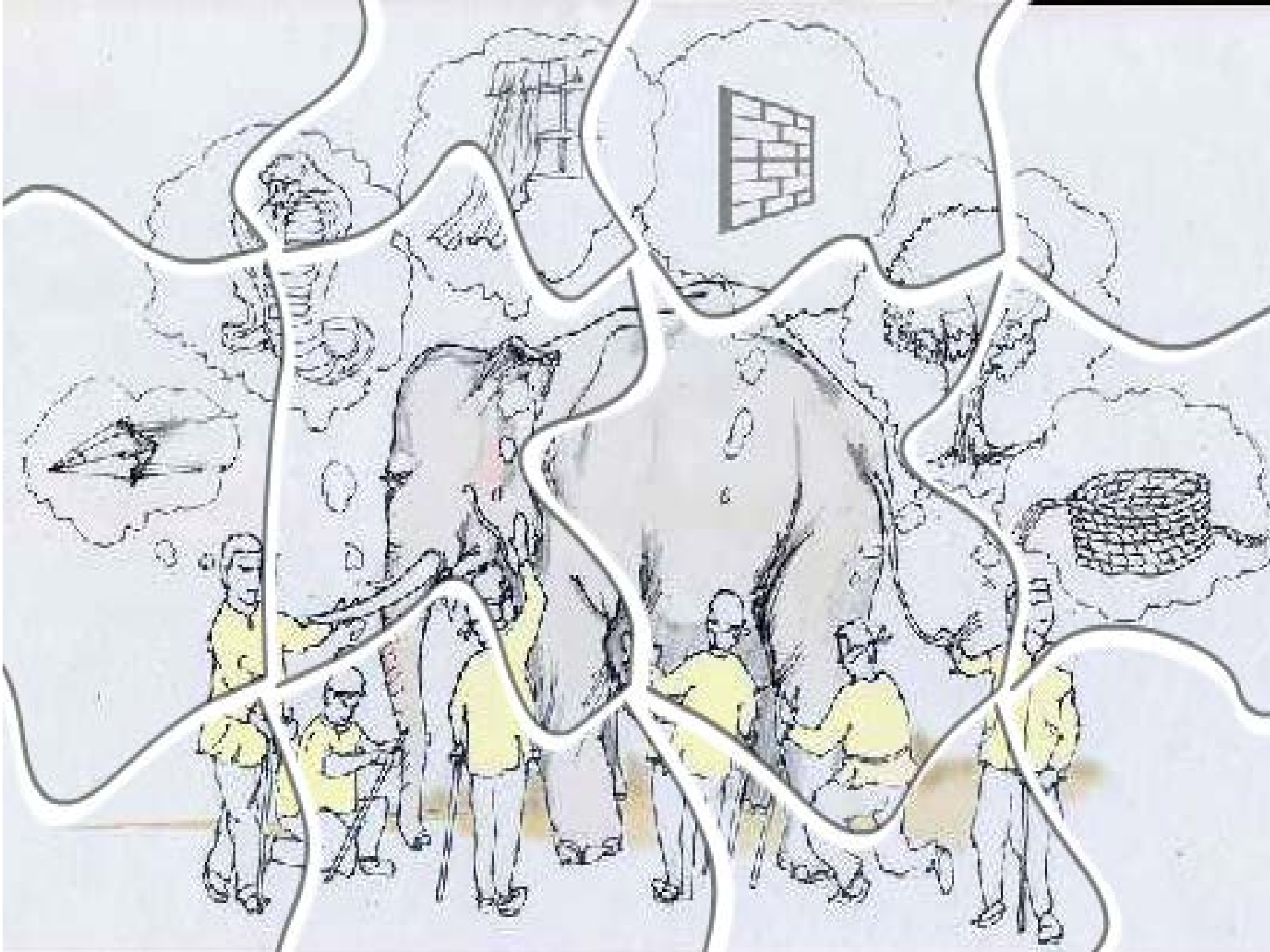
# Putting the Power of Data to Work for Our People and Business

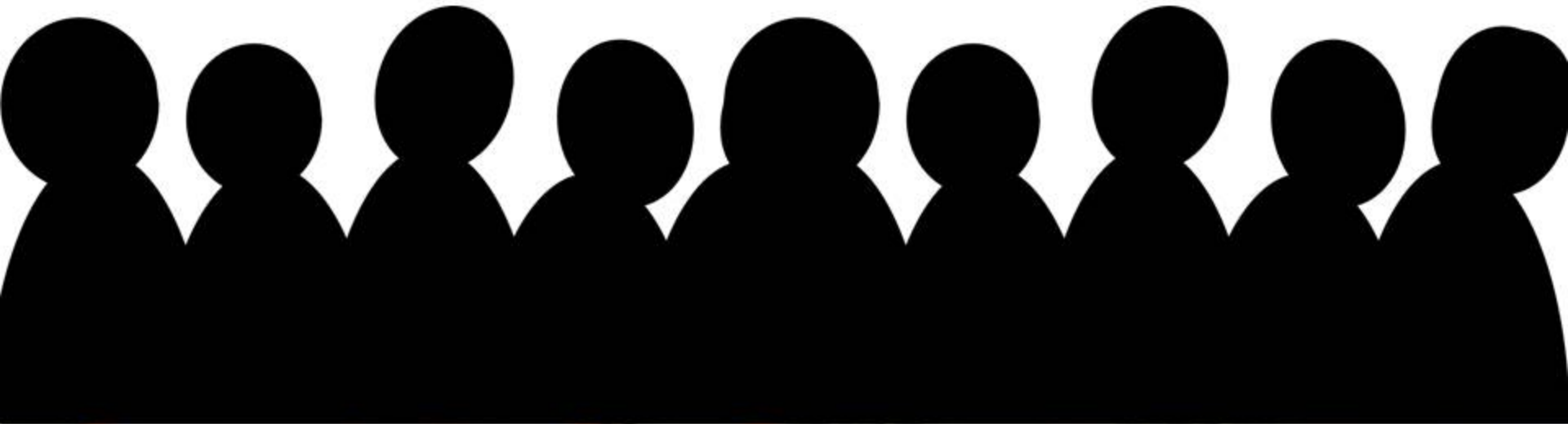
MATMEC 2016 Miami, Florida

May 1 – 4, 2016

Tianjia Tang, Ph.D., PE  
Chief, Travel Monitoring and Surveys Division  
Office of Highway Policy Information, FHWA  
1200 New Jersey Avenue, SE Washington, DC 20590  
Tianjia.Tang@DOT.GOV





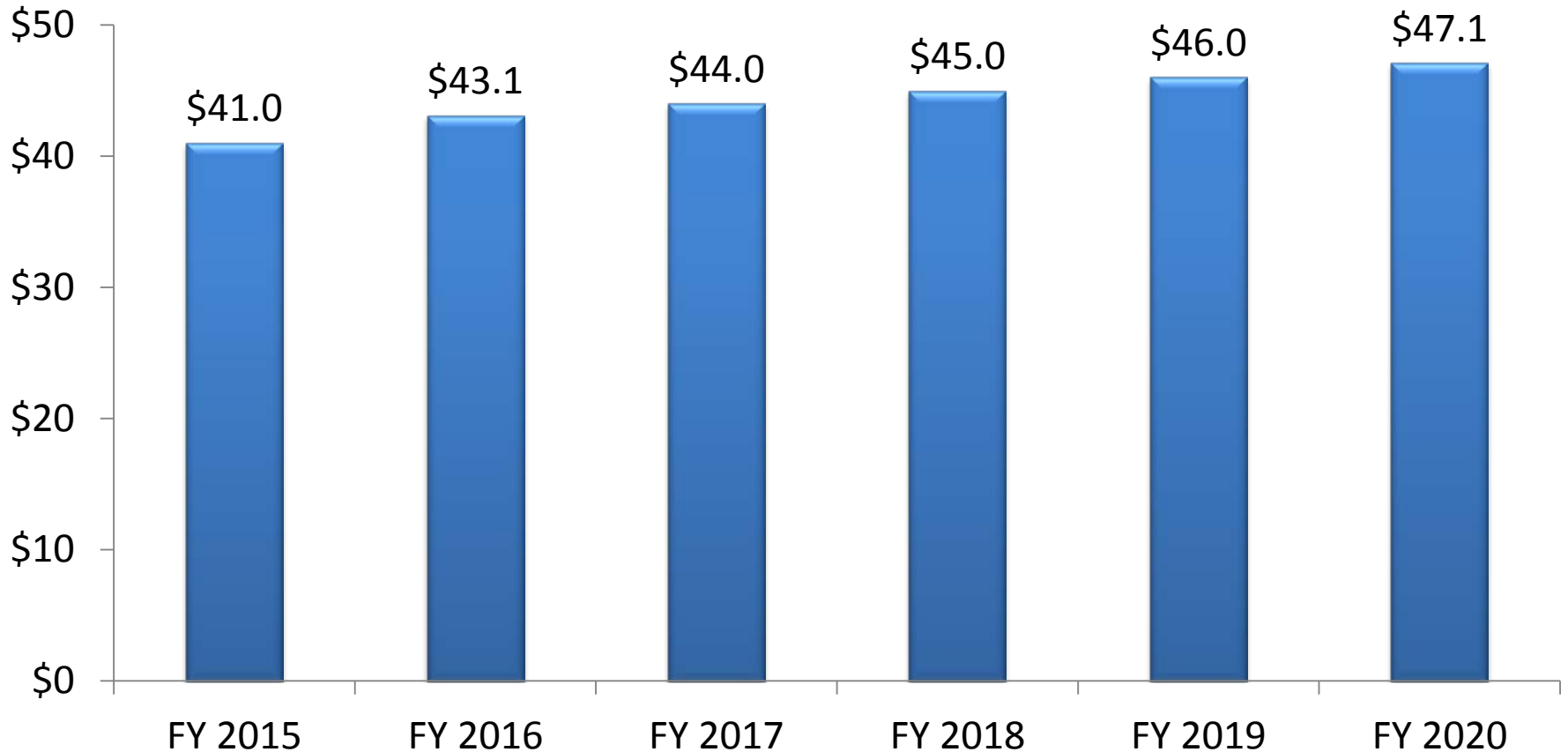


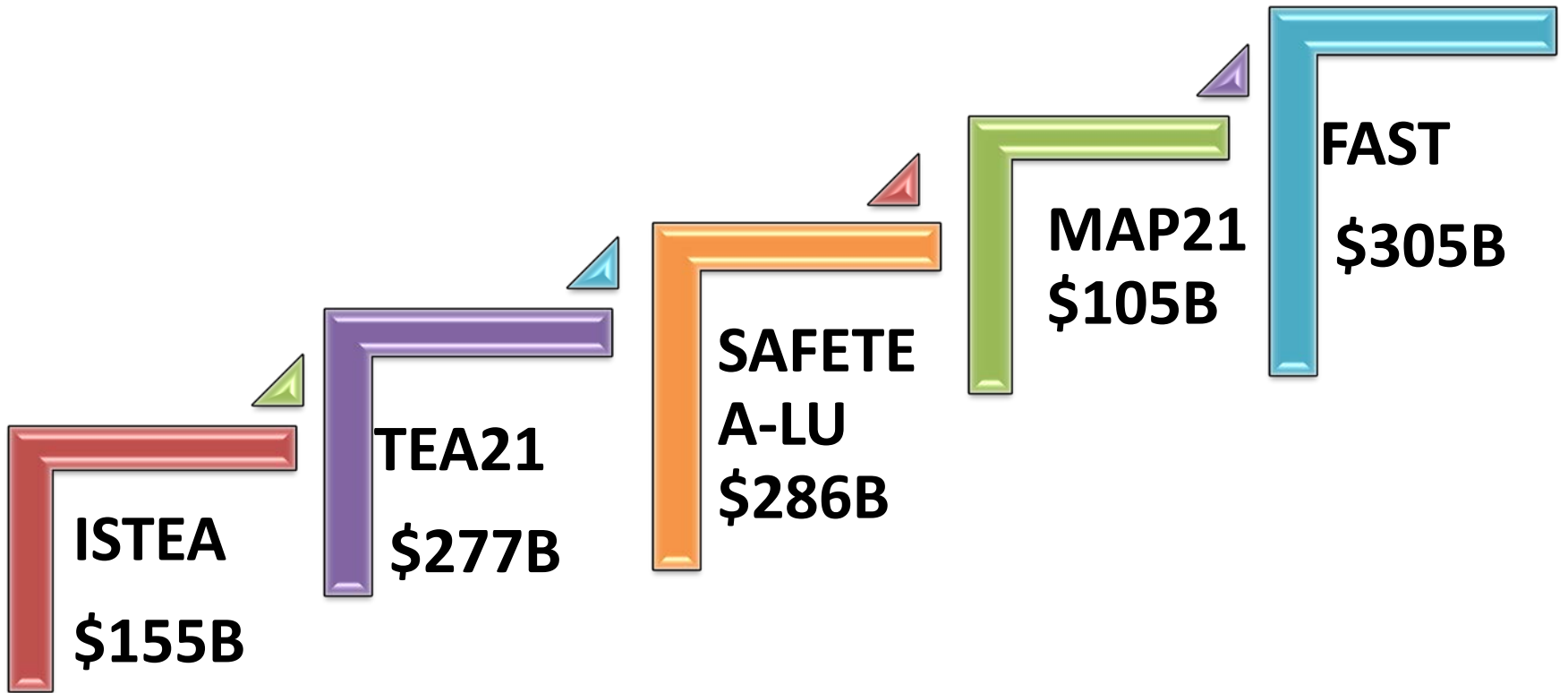
# Fixing America's Surface Transportation (FAST) Act

**\$305 B (all modes) over FY2016-2020**

Program	5-Year Funding (billions)
Federal Highway Administration	\$ 226.3
Federal Transit Administration	61.1
Federal Motor Carrier Safety Administration	3.2
Pipeline and Hazardous Materials Administration	0.4
National Highway Traffic Safety Administration	4.7
Federal Railroad Administration	10.3
Total	305.0

# FAST Act Highway Authorizations from Trust Fund (billions)





47,575

227,224

1,006,257

4,115,462

611,845



47,575 miles of Interstate Highway

227,224

1,006,257

4,115,462

611,845

47,575 miles of Interstate Highway

227,224 miles of NHS

1,006,257

4,115,462

611,845

47,575 miles of Interstate Highway

227,224 miles of NHS

1,006,257 miles of Federal-aid eligible

4,115,462

611,845

47,575 miles of Interstate Highway

227,224 miles of NHS

1,006,257 miles of Federal-aid eligible

4,115,462 miles of public roadways

611,845

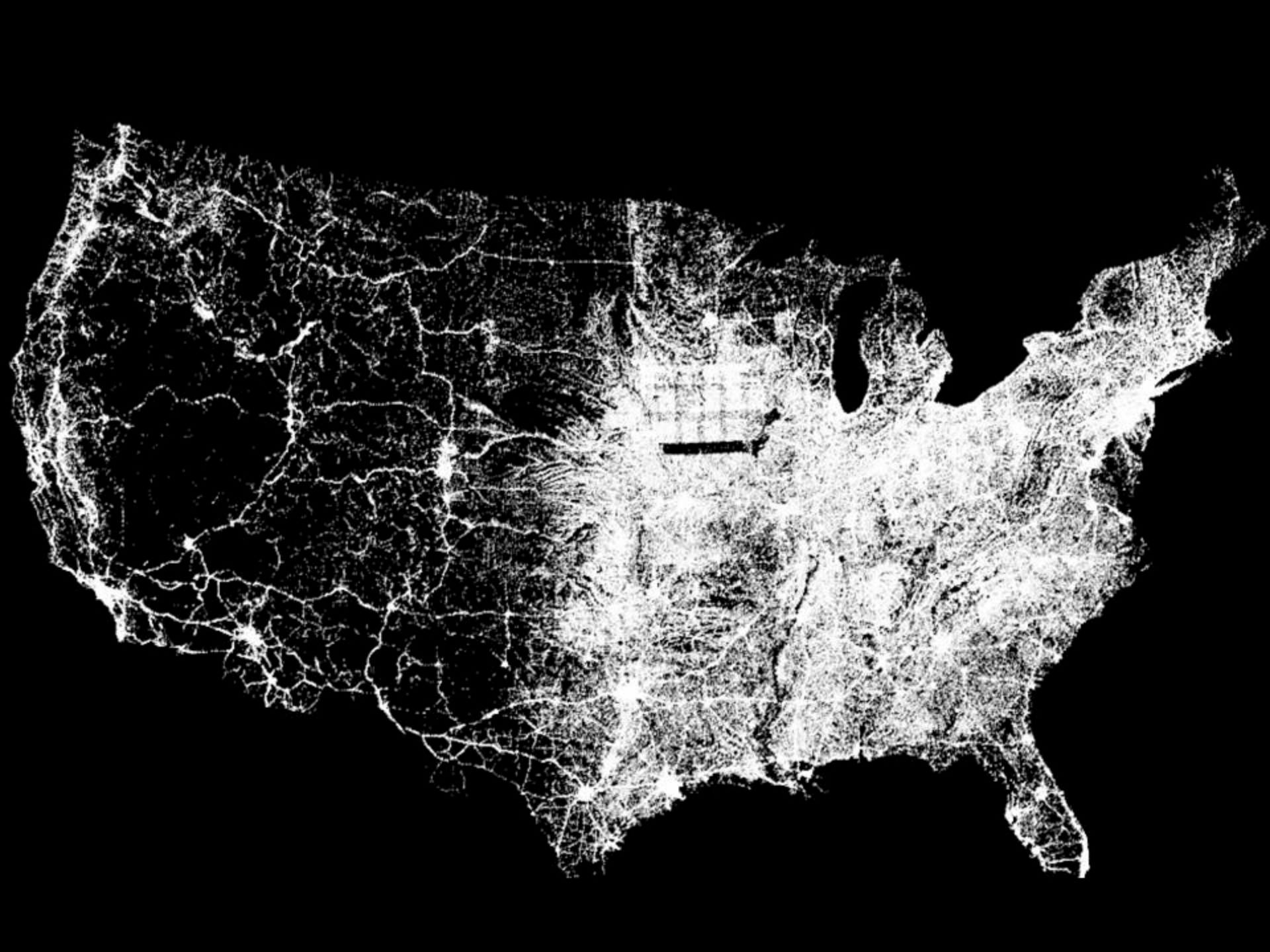
47,575 miles of Interstate Highway

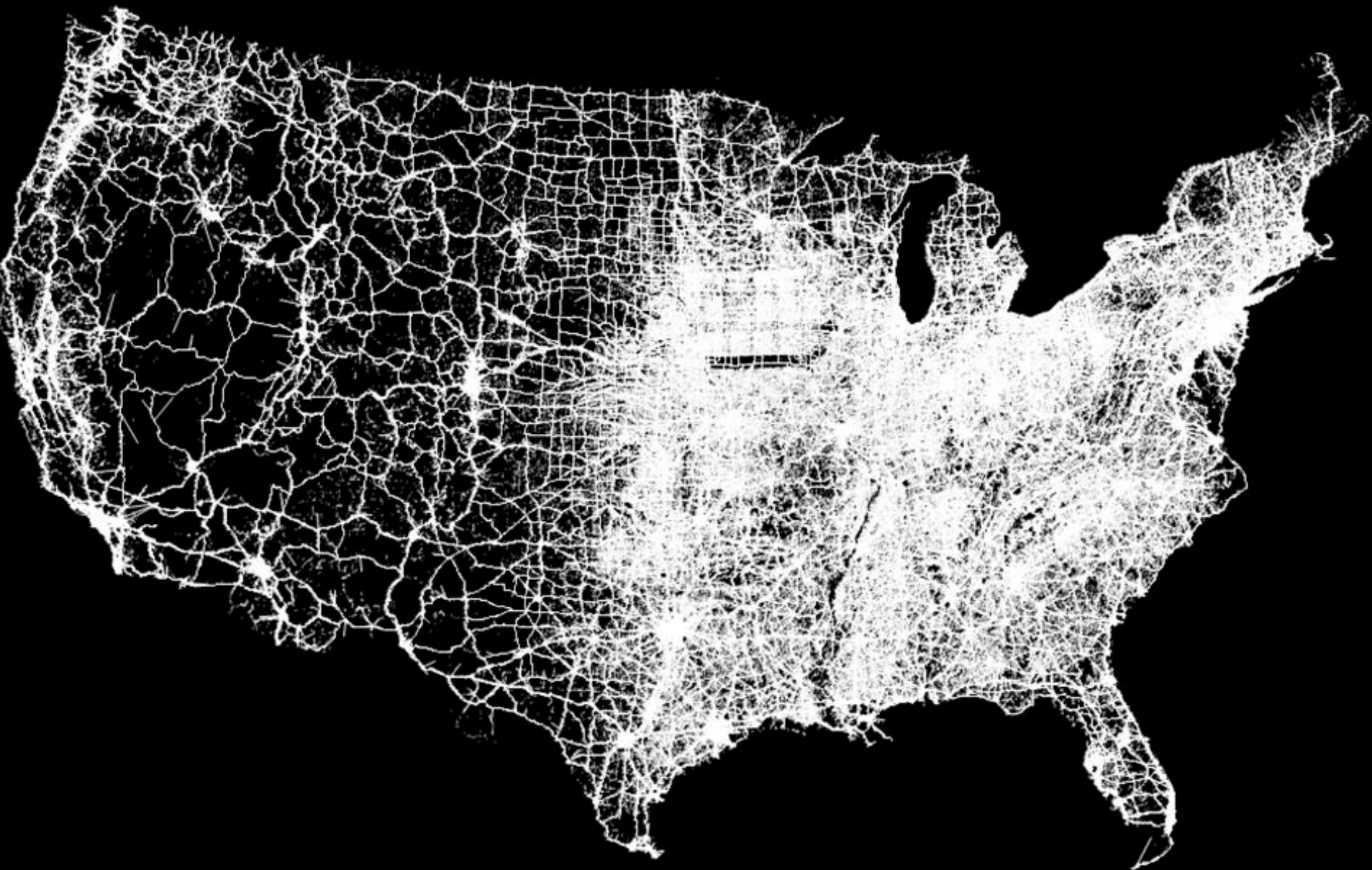
227,224 miles of NHS

1,006,257 miles of Federal-aid eligible

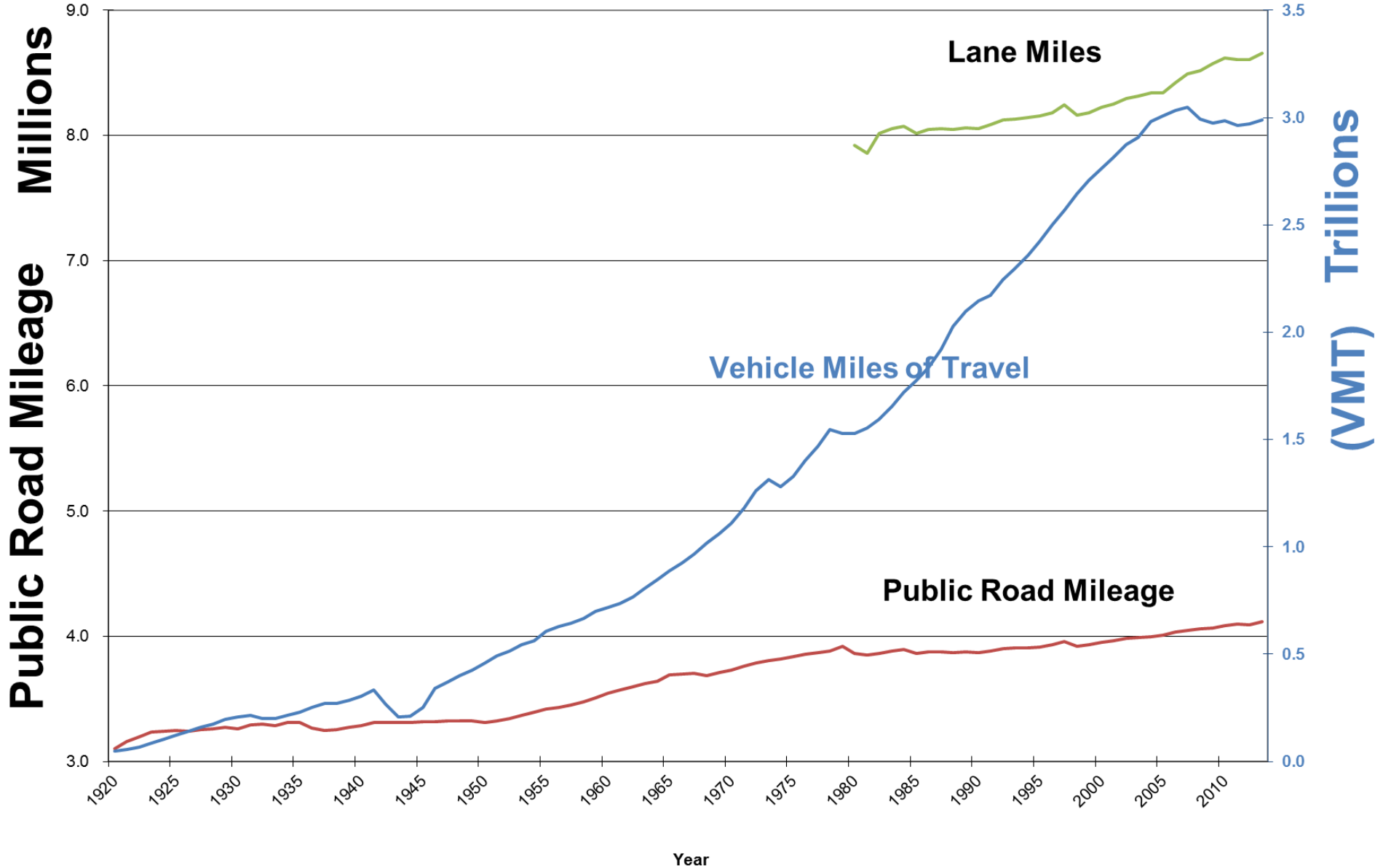
4,115,462 miles of public roadways

611,845 bridges on public roads





# Public Road Length and Travel





**PUBLIC ROAD LENGTH  
MILES BY FUNCTIONAL SYSTEM**

HM-20

STATE	RURAL								URBAN								TOTAL
	INTERSTATE	OTHER FREEWAYS AND EXPRESSWAYS	OTHER PRINCIPAL ARTERIAL	OTHER MINOR ARTERIAL	MAJOR COLLECTOR	MINOR COLLECTOR	LOCAL	TOTAL	INTERSTATE	OTHER FREEWAYS AND EXPRESSWAYS	OTHER PRINCIPAL ARTERIAL	OTHER MINOR ARTERIAL	MAJOR COLLECTOR	MINOR COLLECTOR	LOCAL	TOTAL	
Alabama	610	0	2,229	4,192	12,658	6,673	50,323	76,685	392	42	1,165	2,088	3,023	33	18,410	25,153	101,837
Alaska	1,024	-	808	456	1,657	1,246	8,057	13,248	57	-	131	175	205	192	1,671	2,432	15,680
Arizona	921	18	1,174	1,173	4,179	1,794	30,870	40,129	248	208	1,491	1,957	1,927	173	20,308	26,311	66,441
Arkansas	383	105	1,929	2,901	11,840	6,827	61,257	85,243	272	133	771	1,602	2,060	334	11,242	16,413	101,656
California	1,207	60	3,408	6,627	12,363	7,994	49,141	80,801	1,244	1,472	7,042	11,393	11,844	22	61,172	94,187	174,989
Colorado	684	39	2,615	3,424	5,498	8,958	47,654	68,873	268	313	1,022	1,845	1,789	-	14,455	19,692	88,565
Connecticut	43	39	127	257	941	399	4,456	6,261	303	240	689	1,652	1,830	37	10,463	15,213	21,474
Delaware	-	-	161	116	453	222	2,407	3,359	41	30	176	198	364	-	2,226	3,034	6,393
District of Columbia	-	-	-	-	-	-	-	-	12	16	107	163	157	-	1,047	1,501	1,501
Florida	748	181	2,733	2,355	4,159	3,296	26,969	40,441	747	571	3,608	4,142	7,106	-	65,473	81,647	122,088
Georgia	536	-	2,313	4,695	11,695	6,846	51,147	77,233	712	149	2,309	4,863	3,877	618	38,859	51,387	128,620
Hawaii	-	-	66	246	225	87	1,241	1,864	55	34	277	202	251	188	1,559	2,566	4,430
Idaho	522	-	1,741	1,392	5,853	4,053	28,973	42,534	90	-	460	655	705	-	3,638	5,548	48,082
Illinois	1,286	30	2,319	4,659	13,671	3,378	72,750	98,094	899	105	3,156	4,502	5,053	66	33,833	47,614	145,708
Indiana	736	131	1,432	2,162	10,060	8,940	46,004	69,465	453	163	1,697	3,173	3,455	67	19,080	28,088	97,553
Iowa	610	-	3,389	3,883	14,180	16,027	63,687	101,775	172	-	923	1,582	1,290	132	8,554	12,654	114,429
Kansas	647	405	2,651	4,252	22,770	9,271	87,051	127,048	227	190	727	1,463	1,609	48	9,376	13,639	140,687
Kentucky	597	536	1,335	2,444	5,958	9,496	46,589	66,955	204	68	529	1,257	1,108	-	9,477	12,643	79,598
Louisiana	564	-	994	1,605	4,647	3,146	33,062	44,018	362	53	1,115	1,918	2,180	-	11,782	17,409	61,427
Maine	299	-	788	1,019	3,213	2,166	12,387	19,873	68	18	135	239	535	0	2,013	3,009	22,882
Maryland	142	0	335	726	1,328	1,650	9,269	13,452	338	304	1,193	1,551	1,959	122	13,503	18,970	32,422
Massachusetts	64	10	105	315	870	617	4,184	6,165	511	335	1,967	4,035	3,203	-	20,205	30,205	36,370
Michigan	564	344	2,131	4,838	16,335	4,260	55,783	84,255	680	361	2,369	4,965	3,861	2	25,648	37,886	122,141
Minnesota	594	4	3,479	6,527	15,971	11,892	78,094	116,560	320	162	811	2,703	2,439	107	15,665	22,208	138,767
Mississippi	473	-	1,864	3,728	11,919	2,356	42,799	63,138	228	77	973	1,099	1,617	-	7,986	11,978	75,116
Missouri	841	923	2,039	3,996	16,441	6,241	77,051	107,532	538	457	1,042	2,031	2,403	24	17,874	24,367	131,900
Montana	1,095	-	2,773	2,772	6,946	8,839	48,363	70,787	98	-	254	290	405	54	3,045	4,146	74,933
Nebraska	417	351	2,362	4,153	11,499	8,786	59,717	87,284	64	92	406	781	488	-	4,655	6,486	93,770
Nevada	462	-	1,511	757	2,064	2,525	24,523	31,842	134	55	336	813	2	1,021	5,936	8,297	40,139
New Hampshire	142	9	324	626	1,039	1,067	7,859	11,065	83	75	222	491	536	-	3,626	5,032	16,098
New Jersey	45	35	157	290	772	334	4,253	5,887	386	453	1,803	3,652	2,925	405	23,781	33,406	39,293
New Mexico	848	-	1,784	1,870	3,773	4,595	20,772	33,640	152	-	700	609	1	820	34,849	37,131	70,772
New York	865	123	2,036	3,133	5,750	9,585	44,713	66,206	859	813	2,943	5,552	5,402	-	32,953	48,522	114,728
North Carolina	581	17	1,806	2,653	8,028	6,541	49,101	68,727	674	449	1,843	3,250	2,781	0	28,478	37,475	106,202
North Dakota	511	-	2,935	2,515	11,600	-	67,363	84,925	60	-	188	303	328	-	1,274	2,153	87,078
Ohio	643	288	1,501	2,576	10,903	6,334	53,530	75,775	931	579	2,322	3,987	5,329	303	34,072	47,522	123,297
Oklahoma	650	-	2,252	2,660	21,193	2,966	65,492	95,213	283	191	1,138	2,176	1,292	39	12,608	17,728	112,940
Oregon	553	-	2,793	2,368	8,549	8,139	35,899	58,302	176	57	759	1,134	1,900	-	8,899	12,926	71,228
Pennsylvania	1,118	336	1,595	4,523	7,242	7,255	51,800	73,870	738	521	2,813	3,973	5,349	1	32,670	46,066	119,936
Rhode Island	18	-	72	91	197	125	859	1,364	52	77	349	324	565	-	3,376	4,742	6,106
South Carolina	581	-	1,648	2,928	10,472	2,153	31,823	49,606	270	81	1,010	1,564	2,463	-	11,237	16,626	66,232
South Dakota	599	-	2,891	2,966	12,409	6,278	54,170	79,312	80	14	128	430	318	-	2,276	3,246	82,558
Tennessee	687	-	1,923	3,180	5,167	10,481	48,577	70,015	417	155	1,561	2,486	2,346	-	18,556	25,521	95,536
Texas	2,080	-	7,708	10,096	34,889	17,432	140,714	212,918	1,335	1,414	5,779	8,284	12,834	-	70,665	100,310	313,228
Utah	684	-	1,171	1,274	3,311	3,783	24,798	35,020	253	13	654	660	978	91	8,586	11,235	46,558
Vermont	280	0	321	725	2,007	894	8,585	12,813	40	18	105	152	218	-	921	1,452	14,266
Virginia	658	58	1,393	3,438	9,428	2,447	32,857	50,279	461	232	1,350	2,293	2,515	3	17,614	24,469	74,748
Washington	425	609	1,297	1,960	8,151	6,253	38,211	56,906	339	417	1,418	2,712	2,711	177	17,768	25,542	82,448
West Virginia	369	-	1,070	1,334	5,679	2,216	22,381	33,049	186	13	344	737	739	-	3,682	5,701	38,750
Wisconsin	464	189	2,926	4,741	12,134	8,621	62,491	91,567	279	383	1,976	2,695	2,746	-	15,499	23,578	115,145
Wyoming	810	-	1,990	1,226	2,731	7,004	12,343	26,104	104	3	226	227	510	33	1,817	2,920	29,024
U.S. Total	29,678	4,842	90,405	132,845	414,816	262,490	2,002,399	2,937,476	17,896	11,602	66,510	111,028	121,389	5,112	844,448	1,177,986	4,115,462
Puerto Rico (1)	42	-	42	231	244	245	2,300	3,104	240	52	400	1,009	1,245	-	10,641	13,587	16,691
Grand Total	29,720	4,842	90,447	133,076	415,060	262,735	2,004,699	2,940,580	18,136	11,654	66,910	112,037	122,634	5,112	855,089	1,191,573	4,132,153

# What These Roads and Vehicles Do for Us

Average Daily Person Trips per Person by Age and Gender  
1983, 1990, and 1995 NPTS, and 2001 and 2009 NHTS.

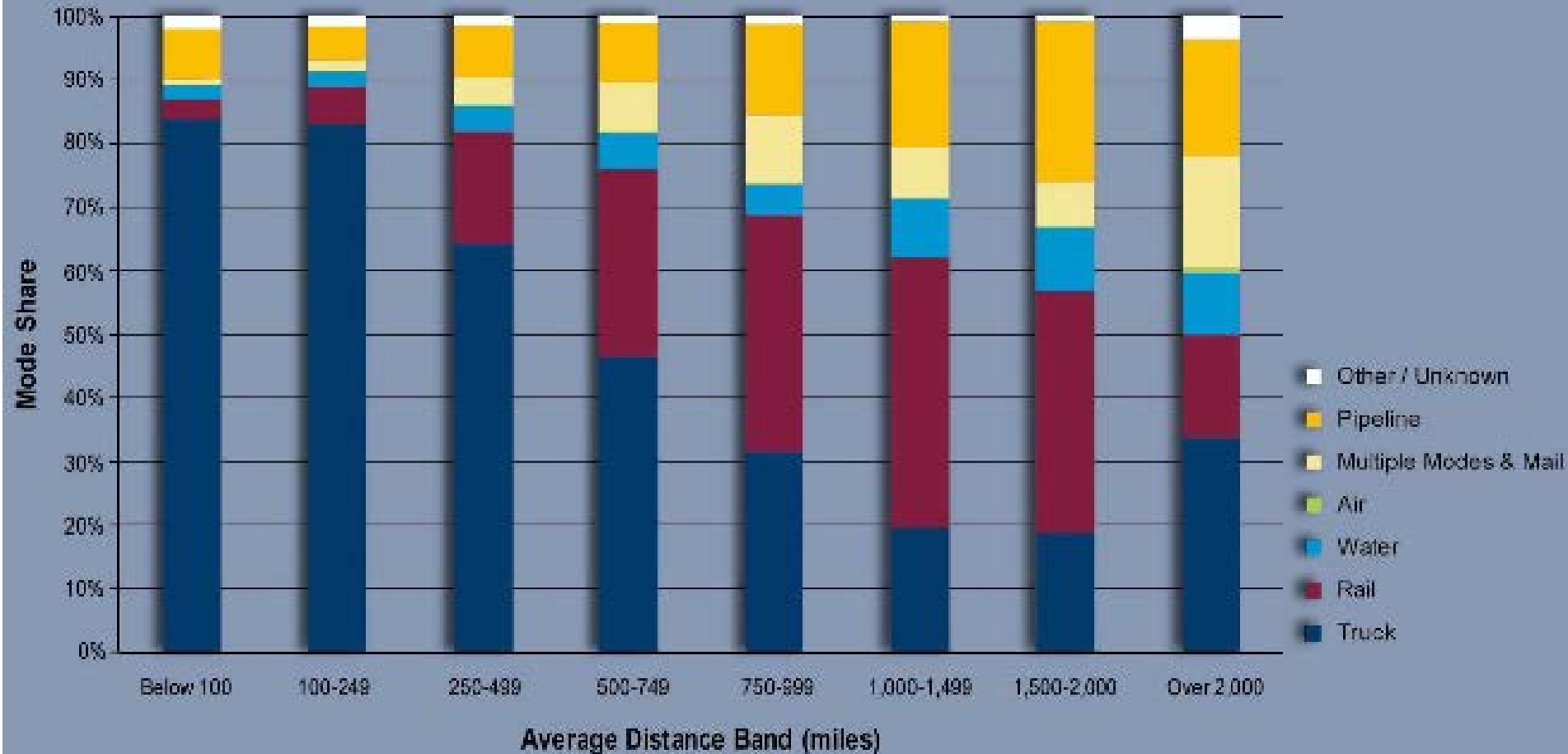
Age	<i>Total</i>					
	1983	1990	1995	2001	2009	95% CI
<b>Total</b>	<b>2.9</b>	<b>3.8</b>	<b>4.3</b>	<b>4.1</b>	<b>3.8</b>	<b>0.03</b>
Under 16	2.3	3.1	3.7	3.4	3.2	0.07
16 to 20	3.3	4.2	4.6	4.1	3.5	0.11
21 to 35	3.5	4.4	4.6	4.3	3.9	0.09
36 to 65	2.9	3.9	4.6	4.5	4.2	0.05
Over 65	1.8	2.4	3.4	3.4	3.2	0.07

# What These Roads and Vehicles Do for Us (Million Tons)

	<b>2013</b>	<b>2040</b>
<b>Truck</b>	<b>13,955</b>	<b>18,786</b>
<b>Rail</b>	<b>1,858</b>	<b>2,770</b>
<b>Water</b>	<b>808</b>	<b>1,070</b>
<b>Air, air &amp; truck</b>	<b>15</b>	<b>53</b>
<b>Multiple modes &amp; mail</b>	<b>1,554</b>	<b>3,575</b>
<b>Pipeline</b>	<b>1,539</b>	<b>1,740</b>
<b>Other &amp; unknown</b>	<b>333</b>	<b>526</b>
<b>Total</b>	<b>20,063</b>	<b>28,520</b>

# What These Roads and Vehicles Do for Us

Figure 2-2a. Mode Share of Freight Tonnage by Distance Band: 2007



# Simple Math

if we invest the annual federal-aid \$ to any one of these road categories or bridge, then ...

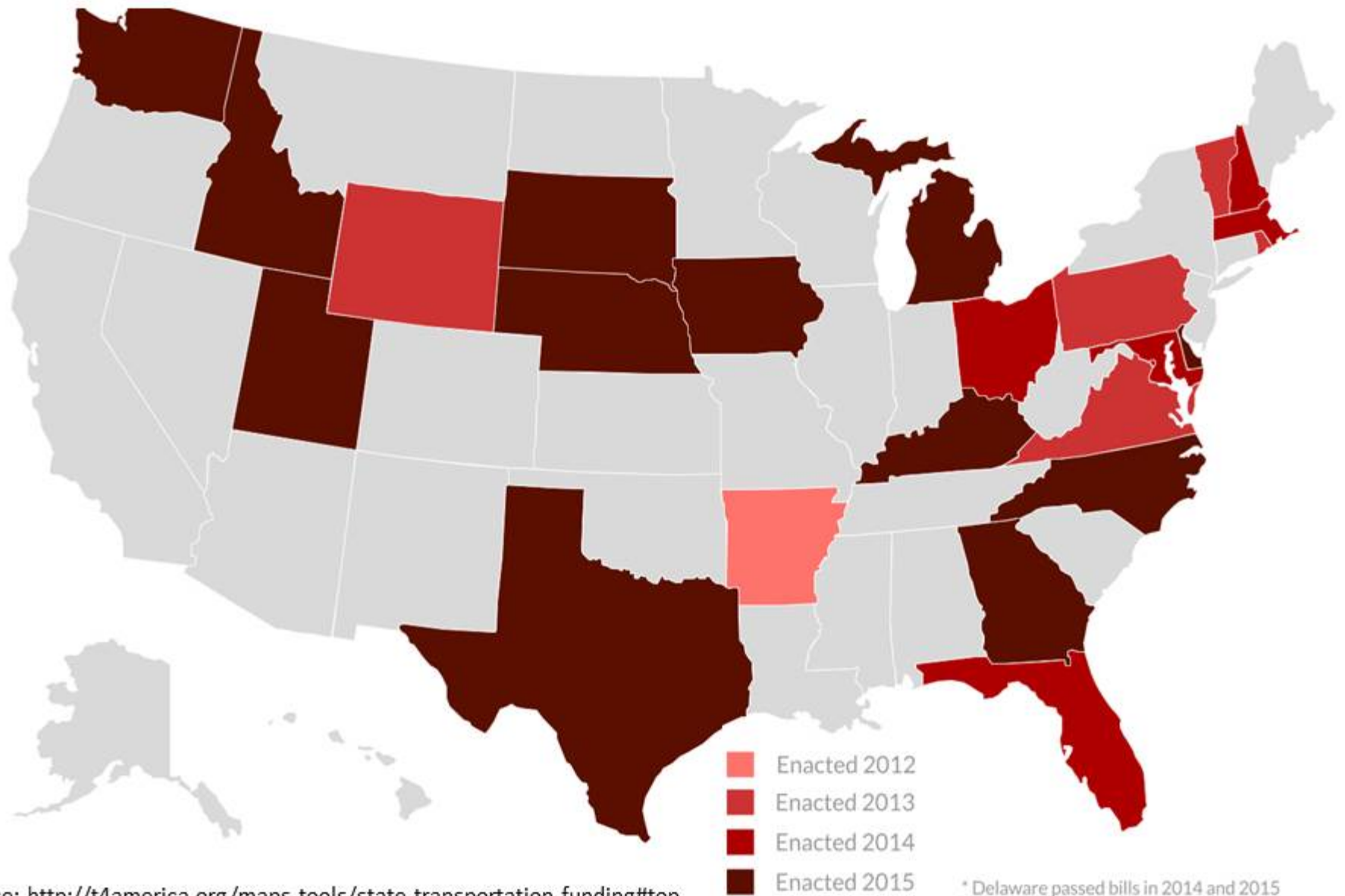
<b>\$950,000</b>	per mile of Interstate Highways
<b>\$200,000</b>	per mile of NHS highways
<b>\$44,000</b>	per mile of Federal-aid-eligible Highways
<b>\$11,000</b>	per miles of public roadways
<b>\$74,000</b>	per bridge on public road

# Public Perception

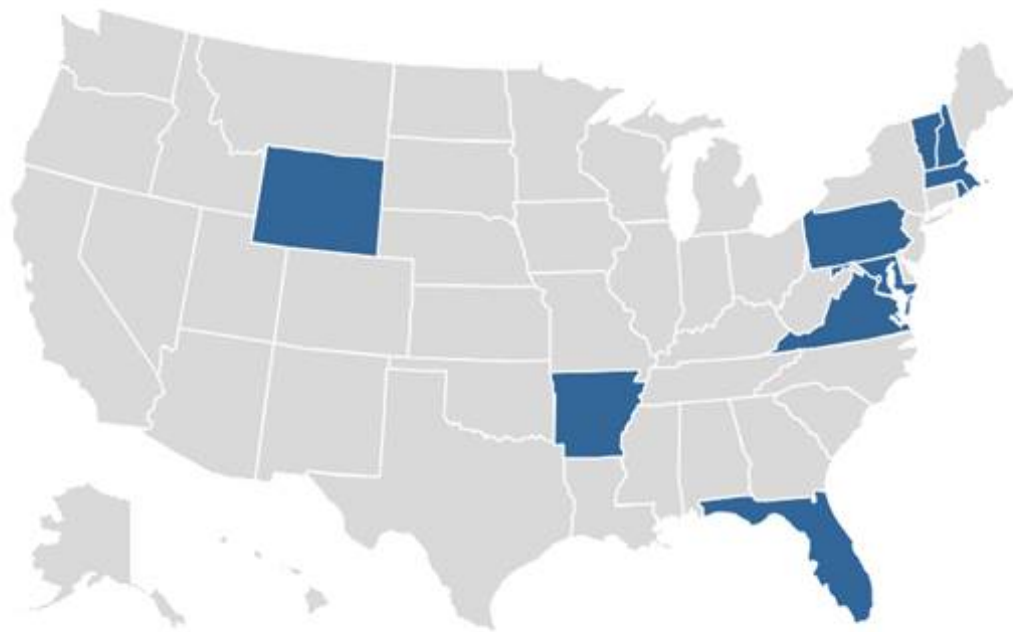
Referendum on the ballot  
box and legislation for  
revenues to operate our  
highways



# Successful States Raising Additional Transportation Revenue Since 2012



# Since 2002, in these 10 States



OF THE REPRESENTATIVES  
VOTING **YES** ON BILLS TO  
RAISE TRANSPORTATION  
REVENUE WHO RAN FOR  
RE-ELECTION:

**98%** WON NEXT PRIMARY

**90%** KEPT THEIR SEATS



<http://t4america.org/maps-tools/state-transportation-funding/>

<http://t4america.org/maps-tools/state-transportation-funding/gas-tax-votes/>





## Our World in Brief

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POSTED: TUESDAY, FEBRUARY 23, 2016 12:00 AM

0 comments

The government says driving in the U.S. hit a new record in 2015 of 3.1 trillion miles.

The previous record was 3 trillion miles set in

A man sits inside a Starbucks. Starbucks is changing the term so that people who just get a rit have to spend significantly mor Seattle-based coffee chain say award stars based on the dolla. Currently, people earn a star fo get a free food or item of their c stars. (AP Photo/Mark Lennih



## THE KANSAS CITY STAR.

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NATIONAL FEBRUARY 22, 2016 11:22 AM

## Americans drive 3.1 trillion miles record

HIGHLIGHTS For a sense of scale, 3.1 trillion miles is roughly the same distance as 337 round trips from Earth to Pluto

Traffic deaths in the U.S. rose 8 percent from 2014 to 2015, also a record



View this week's e-edition | View today's e-edition

0 Comments 0 Comment(s)

Published: February 23, 2016 - 10:12 PM

### EMPLOYMENT

Akron landscaper to hire 20

Akron-based landscaping company Edenscape LLC is looking to hire 20 or more employees before April 1.

"We have seen strong growth the last few years as the economy has been improving," Brian Kenny, president, said in a statement. "Our commercial and residential clients are spending money on improving their landscapes to enhance their lifestyle or improve their company image," he said.

Property enhancement trends include outdoor living areas, fireplaces and water features.

Prospective employees need to have a good attitude, be honest, a strong work ethic and be passionate about a job well done, Kenny said. The company recruits through help-wanted postings in local publications, job fairs, signs on their trucks and by hiring friends of existing employees.

For more information, go to [www.edenscapeohio.com](http://www.edenscapeohio.com).

Home | News | Transportation

## Americans drove 3.1 trillion miles in 2015, setting new record

Convert Select



Election U.S. World Entertainment Health Tech

abc NEWS Your Living Room Reimagined

## Americans Drive 3.1 Trillion Miles in 2015, Setting New Record

By JOAN LOWY, ASSOCIATED PRESS · WASHINGTON — Feb 22, 2016, 10:12 AM ET

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34

SHARES

The government says driving in the U.S. hit a new record in 2015 of 3.1 trillion miles



The previous record was 3 trillion miles set in 2007, before the recession led to a sharp reduction in driving.



For a sense of scale, 3.1 trillion miles is roughly the same distance as 337 round trips from Earth to Pluto.

## Americans drove a new record in 2015

POSTED 3:25 PM, FEBRUARY 22, 2016, BY SHELLIE NELSON

FACEBOOK

TWITTER

WASHINGTON (AP) — The government says driving in the U.S. hit a new record in 2015 of 3.1 trillion miles.

The previous record was 3 trillion miles set in 2007, before the recession led to a sharp reduction in driving.

For a sense of scale, 3.1 trillion miles is roughly the same distance as 337 round trips from Earth to Pluto.

## Los Angeles Times

### Americans drive 3.1 trillion miles in 2015, a new record



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# The Public

relies on

**you**

to provide

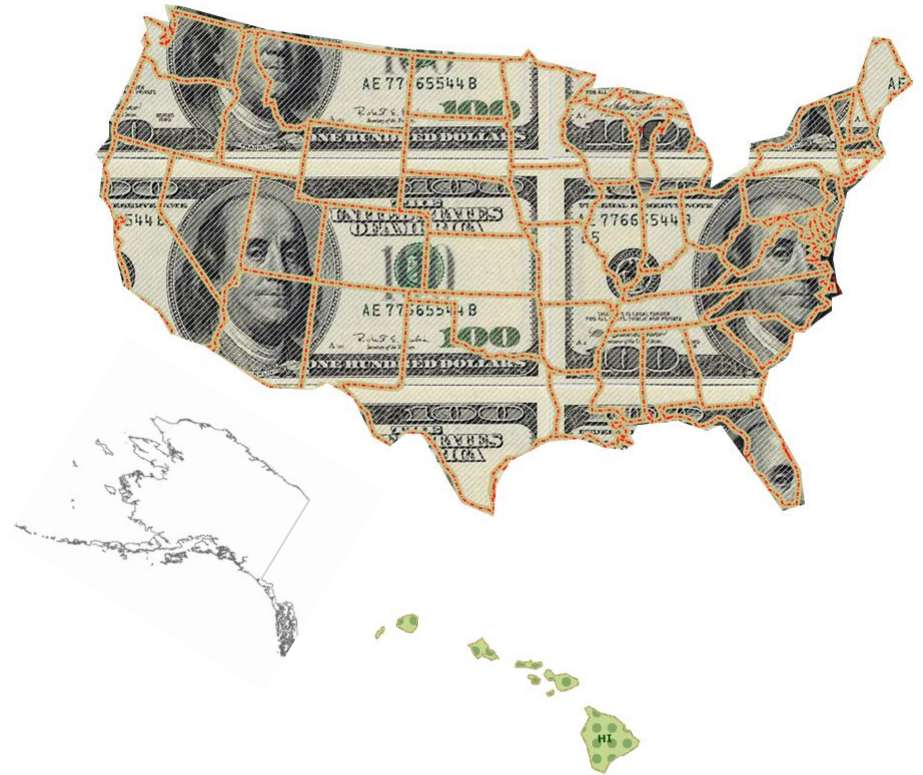
**quality & trustworthy**

data

for informed decision making!

# Dividing the \$

Annual Federal Highway Funding Over \$40 B



<b>Funding Category</b>	<b><u>Prior to FAST Act</u></b>
Bridge Replacement and Rehabilitation Program (BRR)	
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	
Coordinated Border Infrastructure Program	
Highway Safety Improvement Program (HSIP)	
Interstate Maintenance (IM)	
Metropolitan Planning (MP)	
National Highway System (NHS)	
Railway - Highway Crossings	
Recreational Trails Program (RT)	
Safe Routes to School Program	
Surface Transportation Program (STP)	

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Railway - Highway Crossings	
Recreational Trails Program (RT)	
Safe Routes to School Program	
Surface Transportation Program (STP)	

1: Lane miles on principal arterial routes  
(excluding the Interstate System) **25%**

---

2: Vehicle miles traveled on principal  
arterial routes (excluding the Interstate  
System) **35%**

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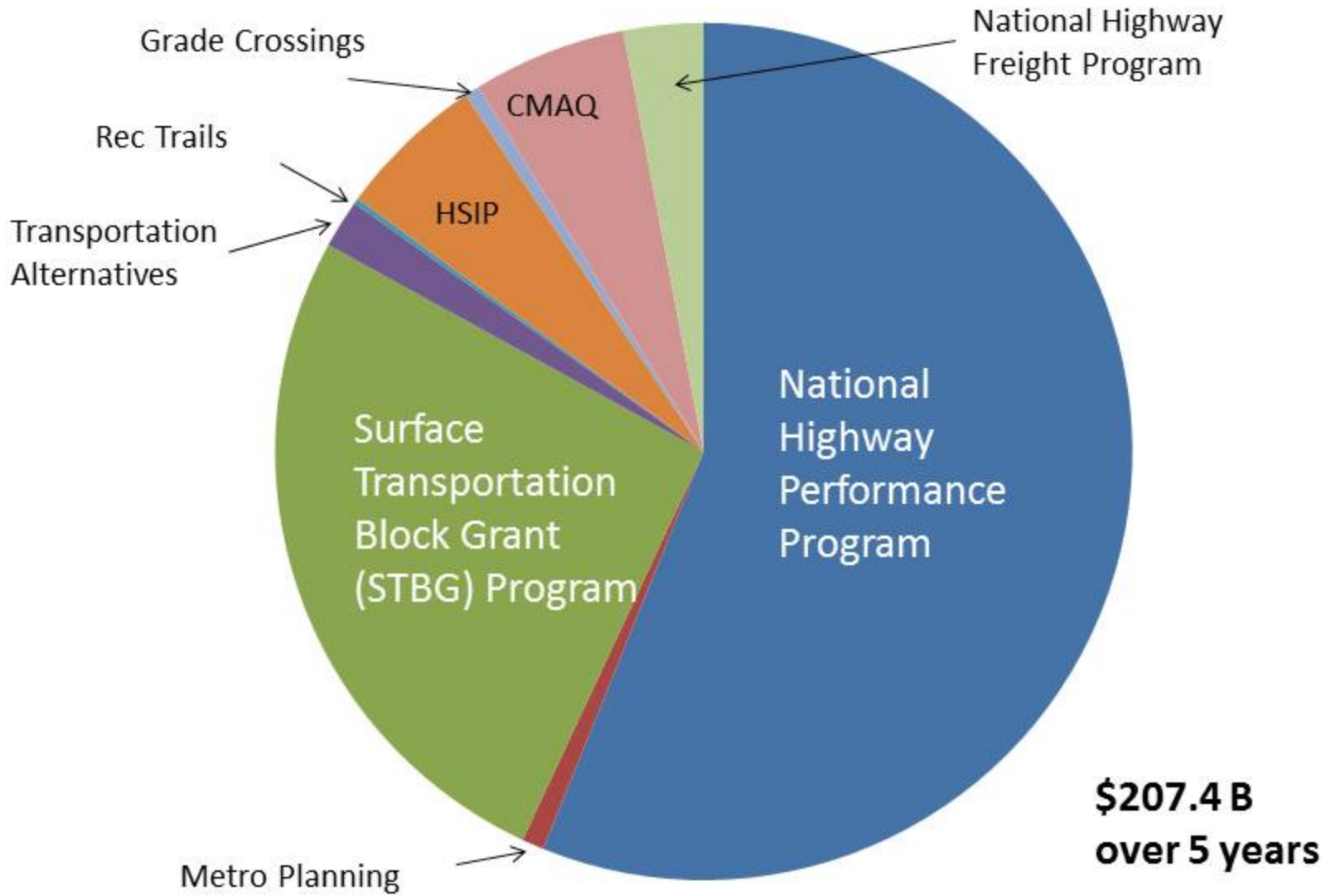
3: Diesel fuel used on highways **30%**

---

4: Total lane miles on principal arterials  
divided by the State's total population  
**10%**

# FAST Act

## 92% of Highway Funds Are Apportioned





# The FHWA

relies on

**you**

to provide

**quality & trustworthy**

data

to carry out legislations and laws faithfully!

# FHWA Traffic Monitoring Initiatives Updates

- AADT computation method
- Short-term traffic monitoring duration on AADT estimation validity
- National vehicle configuration reassessment – axle spacing, tire arrangement, length and other parameters
- Pedestrian and bicycle monitoring exploration
- Traffic monitoring outsourcing assessment
- Peer to Peer Exchange
- 2018 NATMEC – Involving APWA and NACE