

Arkansas State Highway and Transportation Department



**ASCE Conference
Wyndham Hotel
North Little Rock
Thursday, October 16, 2014**

Recent Voter Approved Programs

**November
2011**

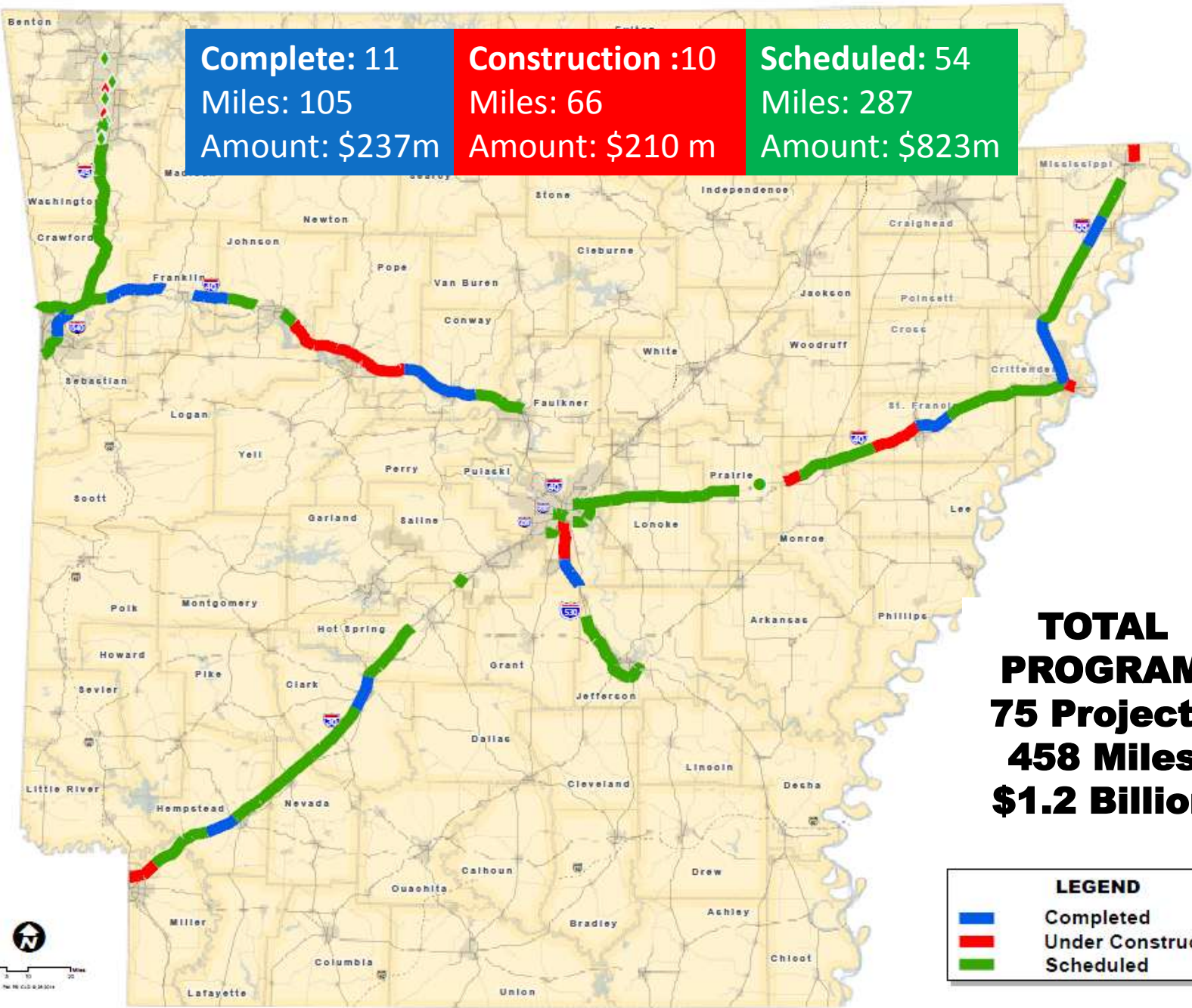


**November
2012**



Interstate Rehabilitation Program Job Status

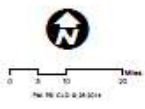
Complete: 11	Construction :10	Scheduled: 54
Miles: 105	Miles: 66	Miles: 287
Amount: \$237m	Amount: \$210 m	Amount: \$823m



TOTAL PROGRAM
75 Projects
458 Miles
\$1.2 Billion

LEGEND

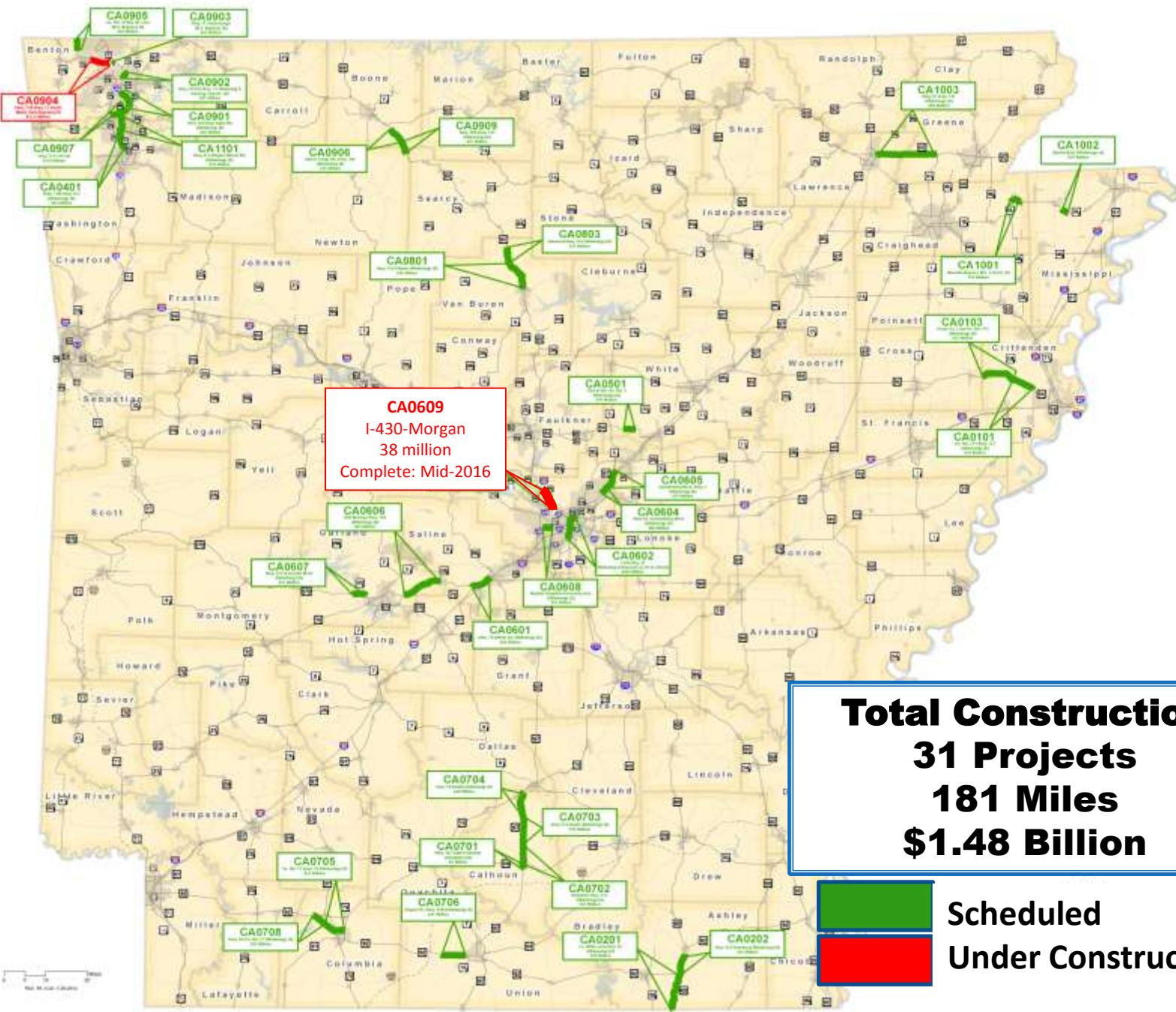
- Completed
- Under Construction
- Scheduled



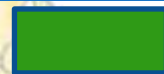
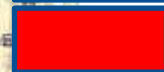


- ✓ Connects Arkansas
- ✓ Increases Capacity
- ✓ 10-Year Revenue Cap

Connecting Arkansas Program Job Status



Total Construction
31 Projects
181 Miles
\$1.48 Billion

 Scheduled
 Under Construction





Big Rock Interchange
When is it complete??





**Big Rock Interchange
Complete: Mid 2015**





Broadway Bridge



➤ Construction

- ✓ Bids Opened: September 17th
- ✓ Low Bid Amount: \$98,404,049.69
- ✓ Construction Begins TBD
- ✓ Bridge closed for 6 months, rather than 2 years

I-30 Corridor Project Review

Proposed Study Area

It is approximately 6.7 miles in length and extends through portions of Little Rock and North Little Rock.

The proposed study area extends:

- along I-30 from I-530 to the south and I-40 to the north
- along I-40 to its interchange with U.S. 67 in North Little Rock.

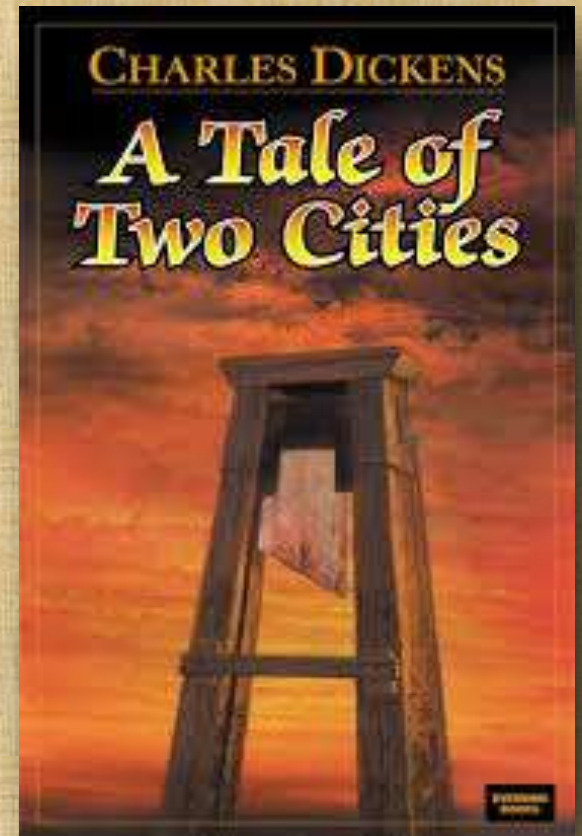


Traffic Management Plan

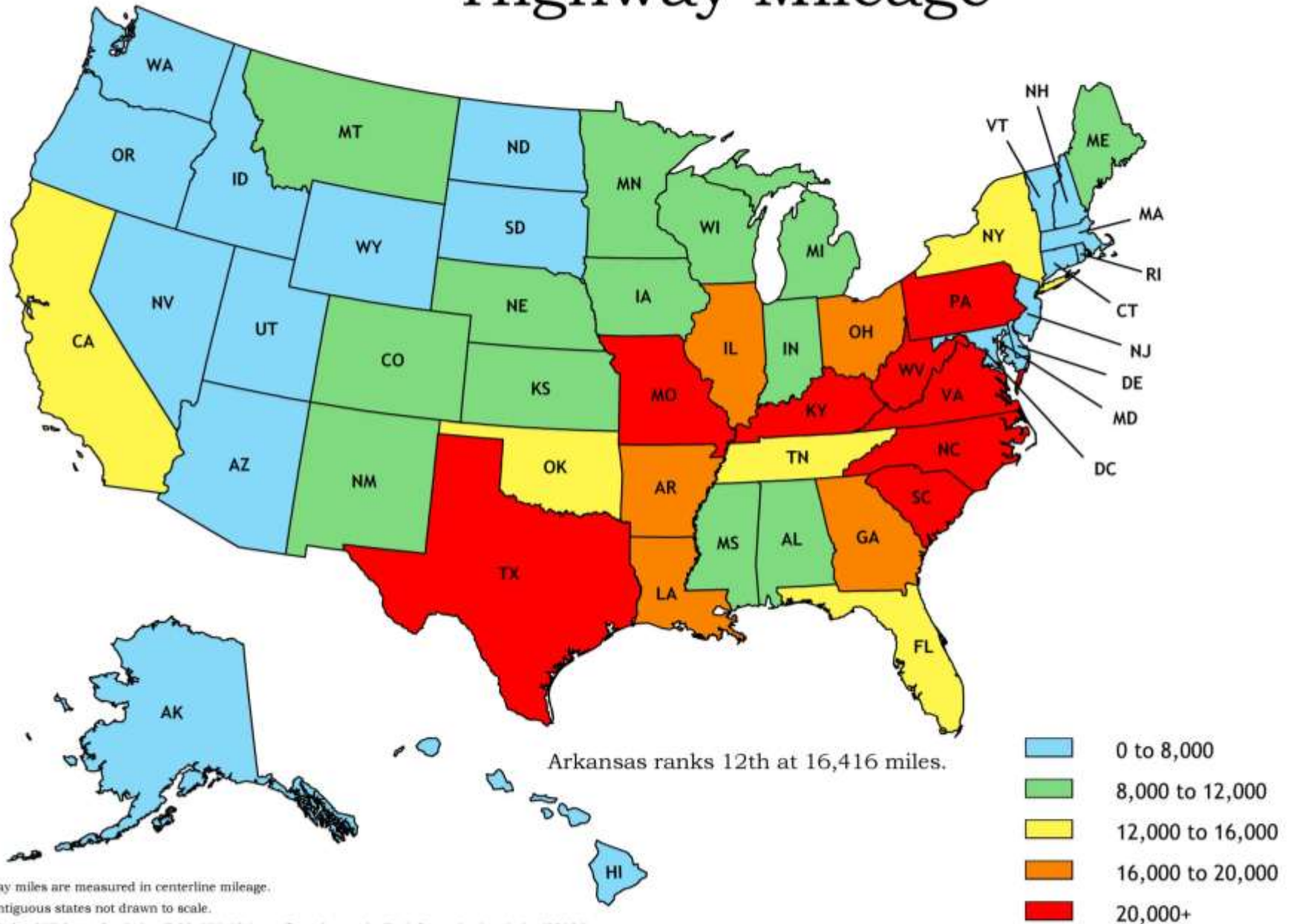


***“It was the best of times,
it was the worst of times, . . .”***

-A Tale of Two Cities
Charles Dickens



Highway Mileage



Notes:

1. Highway miles are measured in centerline mileage.
2. Noncontiguous states not drawn to scale.
3. 2012 Federal Highway Statistics: Table HM-10 (www.fhwa.dot.gov/policyinformation/statistics/2012/)

State and Federal Revenues Per Highway Mile






Notes:

1. Highway miles are measured in centerline mileage.
2. Noncontiguous states not drawn to scale.
3. 2012 Federal Highway Statistics; Tables SF-1 and HM-10 (www.fhwa.dot.gov/policyinformation/statistics/2012/)
May 2014



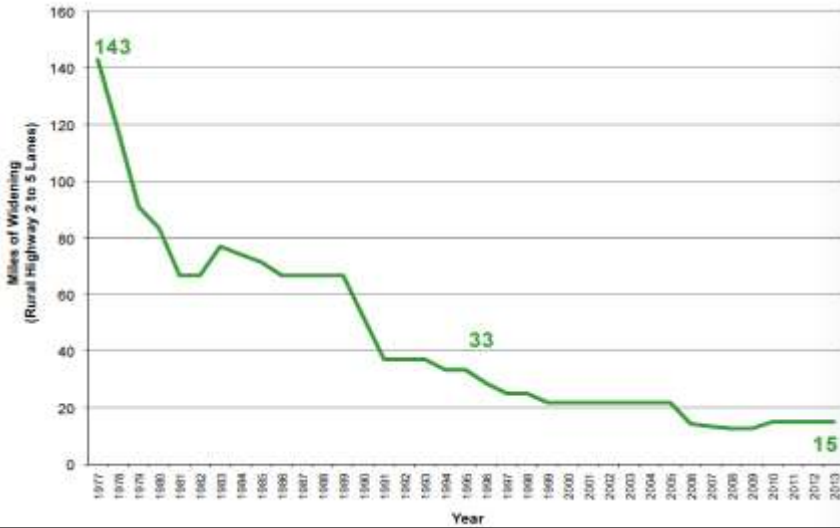
Arkansas Travel Trends

2007-2013

	2007	2013	Difference
Gas & diesel Consumption	2.087 billion	2.001 billion	 86 million
Gas & diesel Revenue	\$454 million	\$400 million	 \$54 million
Miles Traveled	32.4 billion	33.5 billion	 1.1 billion

The Shrinking Highway Dollar

\$100,000,000 Widening Program



\$10,000,000 Overlay Program



\$25,000,000 Bridge Program

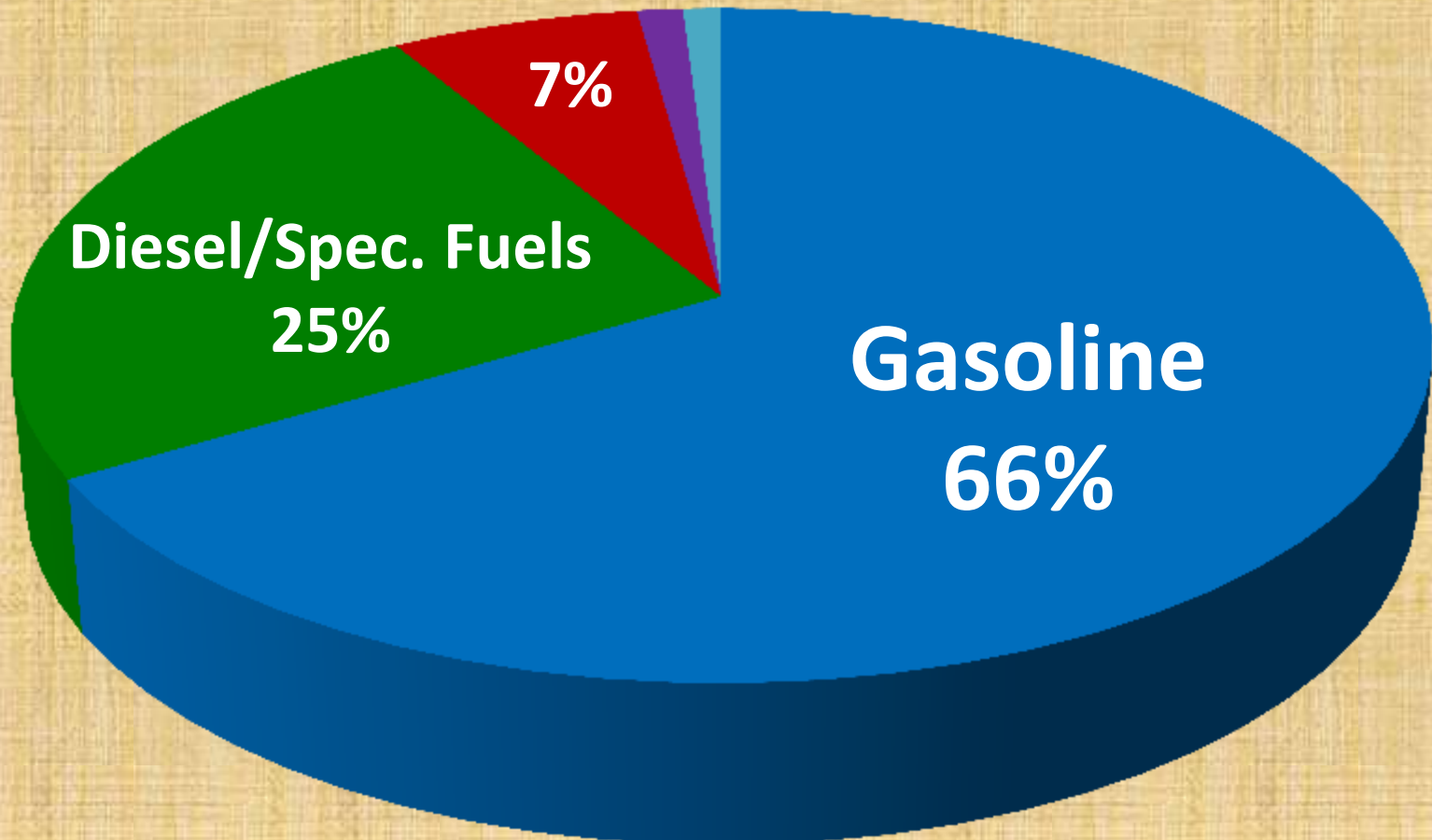


Highway Trust Fund Tax Receipts

Truck/Bus/Trailer 7%

Tires 1.0%

Heavy Vehicle Tax 0.1%



Quality of Infrastructure

2008-2009

Rank	Country/Economy	Score
1	Switzerland	6.8
2	Singapore	6.7
3	Germany	6.6
4	France	6.6
5	Finland	6.5
6	Austria	6.5
7	Denmark	6.4
8	Hong Kong	6.3
9	United States	6.1
10	Canada	6.0
11	United Arab Emirates	6.0
12	Sweden	6.0
13	Iceland	5.9

Rank	Country/Economy	Score
14	Luxembourg	5.9
15	Belgium	5.8
16	Japan	5.7
17	Netherlands	5.6
18	Korea	5.6
19	Malaysia	5.6
20	Barbados	5.5
21	Cyprus	5.5
22	China	5.5
23	Portugal	5.4
24	United Kingdom	5.3
25	Australia	5.2

Quality of Infrastructure 2012-2013

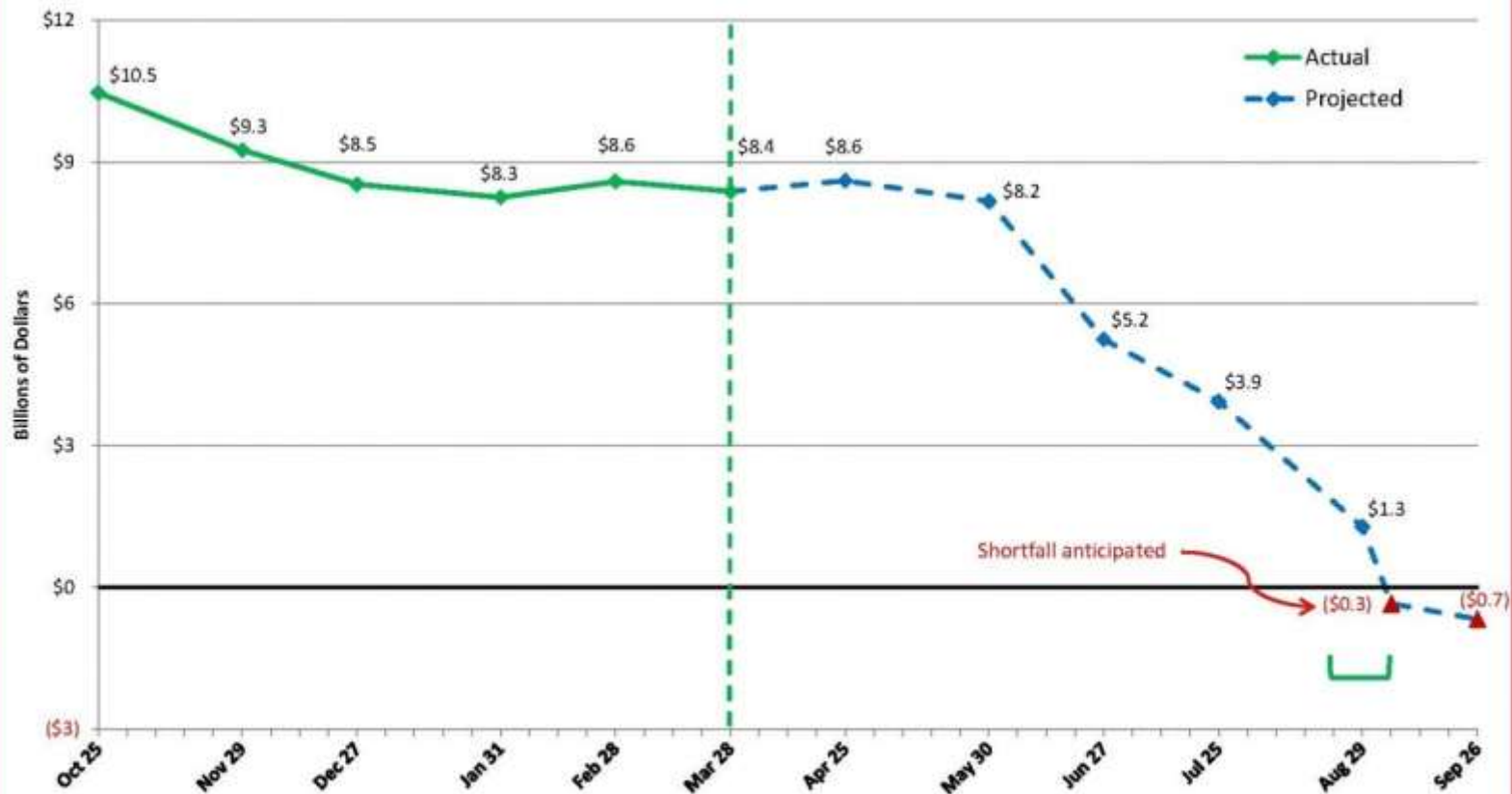
Rank	Country/Economy	Score
1	Switzerland	6.6
2	Singapore	6.5
3	Finland	6.5
4	Hong Kong	6.5
5	France	6.4
6	United Arab Emirates	6.4
7	Iceland	6.3
8	Austria	6.3
9	Germany	6.2
10	Netherlands	6.2
11	Portugal	6.2
12	Luxembourg	6.2
13	Denmark	6.0

Rank	Country/Economy	Score
14	Bahrain	6.0
15	Canada	6.0
16	Japan	5.9
17	Belgium	5.9
18	Spain	5.8
19	Sweden	5.8
20	Oman	5.8
21	Barbados	5.8
22	Korea	5.8
23	Saudi Arabia	5.8
24	United Kingdom	5.6
25	United States	5.6

Federal Highway Trust Fund

FY 2014 Projected Estimates for End-of-Month Cash Balances (as of 3/28/2014) ^{1/ 2/ 3/}

Highway Account of the Highway Trust Fund (Includes FHWA, FMCSA & NHTSA)



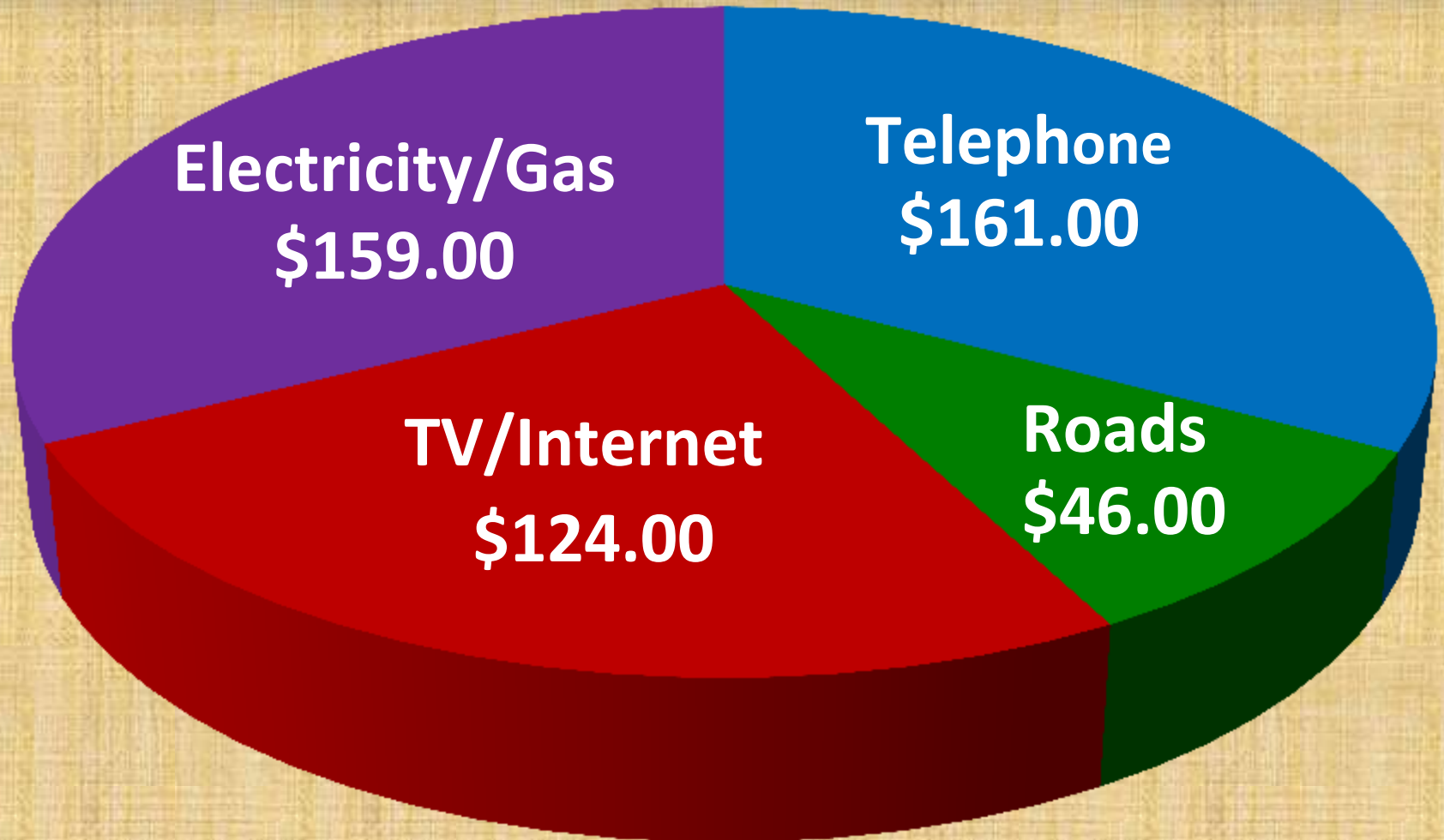
1/ Graph reflects actual data through 3/28/14 and end-of-month projections for the remainder of the fiscal year.

2/ Total receipt and outlay projections are based on FY 2015 President's Budget Baseline assumptions. Projected monthly receipt and outlay rates are based on historic averages.

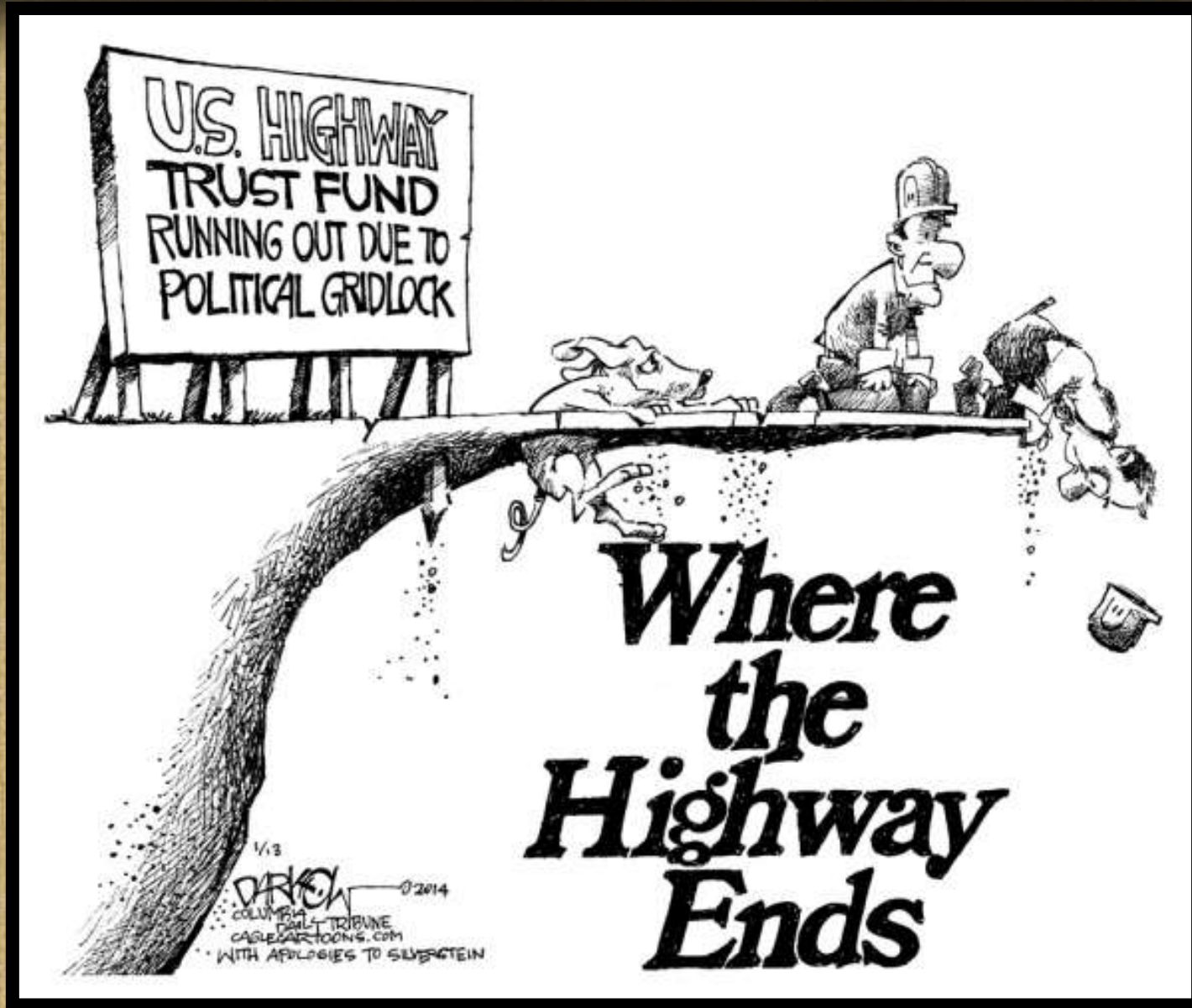
3/ Range of anticipated shortfall: Green brackets denote the estimated window of when the anticipated shortfall will occur.

Source: FHWA


Average Monthly Household Expenditures




Federal Highway Trust Fund



Needs vs. *Revenue*

 CONNECTING
ARKANSAS
PROGRAM
CAP = 180 miles

 INTERSTATE
REHABILITATION
PROGRAM
IRP = 450 miles

Needs vs. *Revenue*



+



Total = 630 miles

3.8%

History

➤ Highway Needs Study and Improvement Plan

- Last updated in February 2007

➤ Previous Considerations

- Capital Improvement Needs
 - New Location
 - Capacity
 - Economic Development Connectors
 - Congressionally-designated High Priority Corridors



➤ System Preservation Needs

- Interstate Rehabilitation
- Reconstruction and Resurfacing
- Shoulder Improvements
- Bridge Improvements

History



- **Previous Considerations**

- Capital Improvement Needs
- System Preservation Needs

- **Limited or No Consideration**

- Maintenance Needs

- Equipment
- Facilities
- Signing and Striping
- Intelligent Transportation Systems

Needs Assessment Update

- **Initial Considerations**
 - System Preservation Needs
 - Capacity Needs
 - Safety Needs
 - Maintenance Needs



MAP-21

Performance Management

- **Seven National Surface Transportation Goals:**
 - ✓ Safety
 - ✓ Infrastructure Condition
 - ✓ Congestion Reduction
 - ✓ System Reliability
 - ✓ Freight Movement and Economic Vitality
 - ✓ Environmental Sustainability
 - ✓ Reduced Project Delivery Delays

MAP-21

Funding Program Changes

➤ **Four Main Core Programs:**

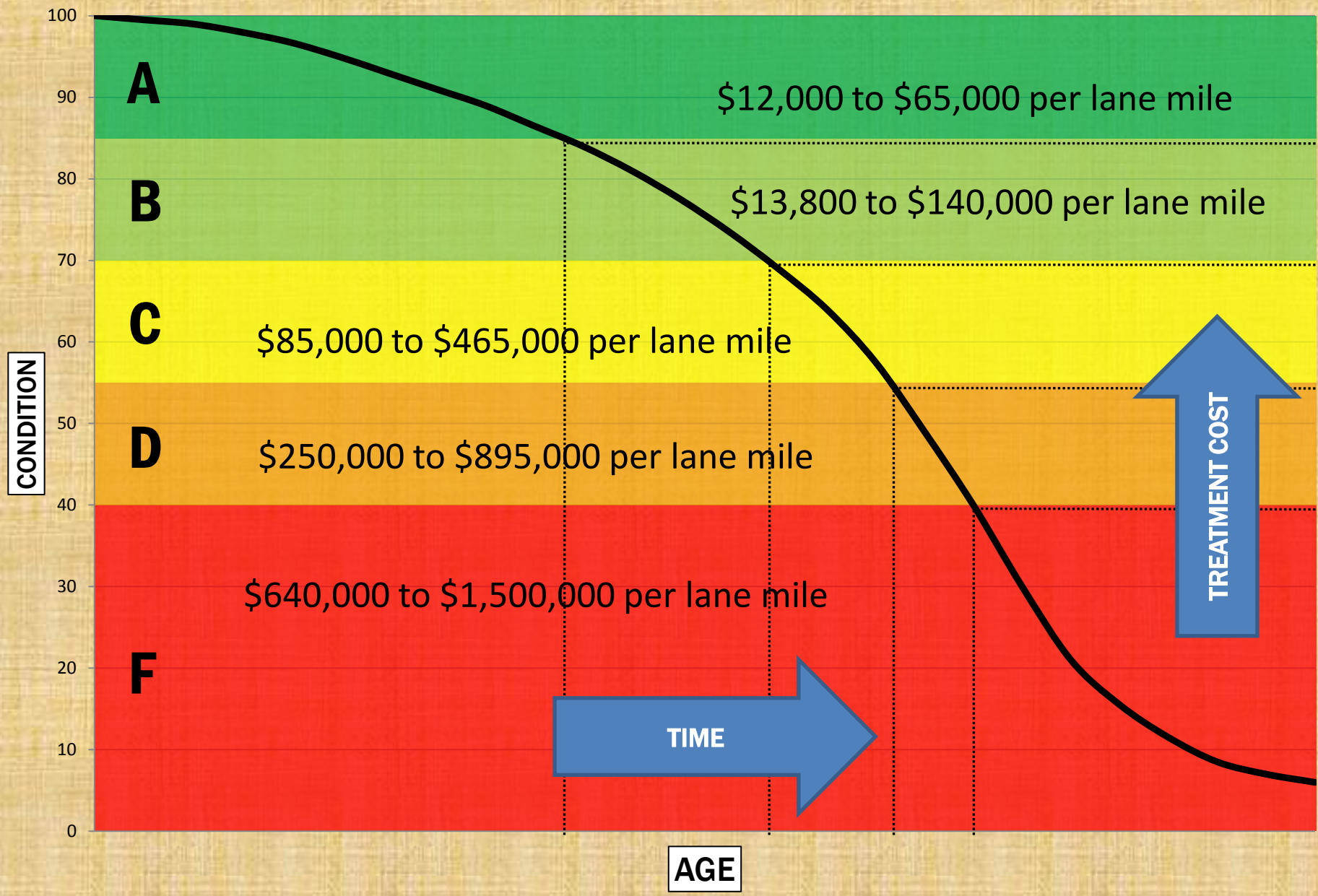
- ✓ National Highway Performance Program
- ✓ Surface Transportation Program
- ✓ Highway Safety Improvement Program
- ✓ Congestion Mitigation and Air Quality Program

MAP-21

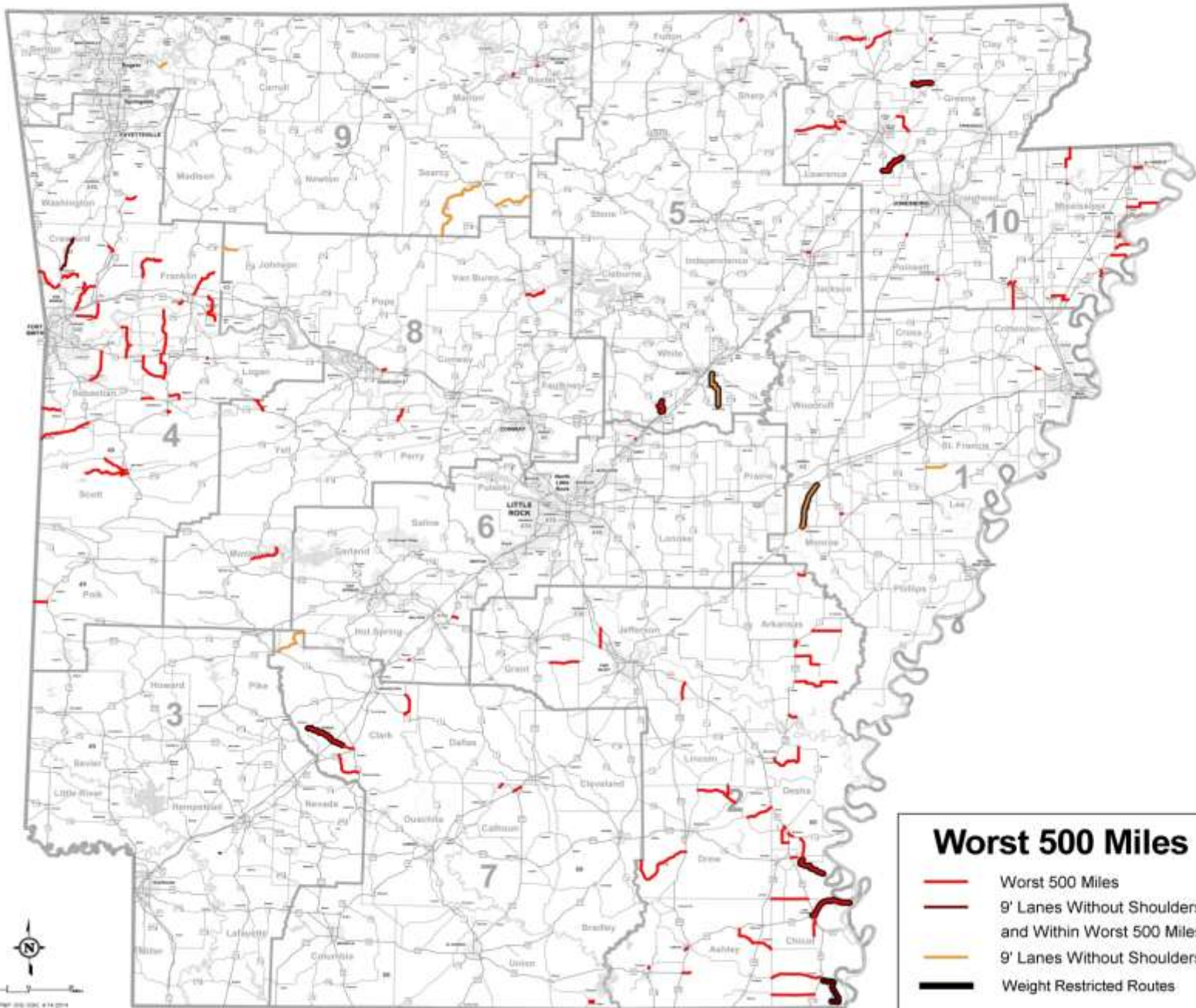
Performance Measures

➤ Measures will be established for the States to assess:

- **Condition**
 - ✓ Pavement
 - ✓ Bridges
- **Performance**
 - ✓ Congestion
 - ✓ Reliability
- **Safety**
 - ✓ Serious injuries per vehicle mile travelled
 - ✓ Fatalities per vehicle mile travelled
 - ✓ Number of serious injuries
 - ✓ Number of fatalities



Arkansas Highway and Transportation Department Worst 500 Miles on Non-APHN Network





**Ranking
#74**

Rutting: 0.34 inches

IRI: 213 inches / mile

Cracking: 42

PCI: 65

ADT: 170



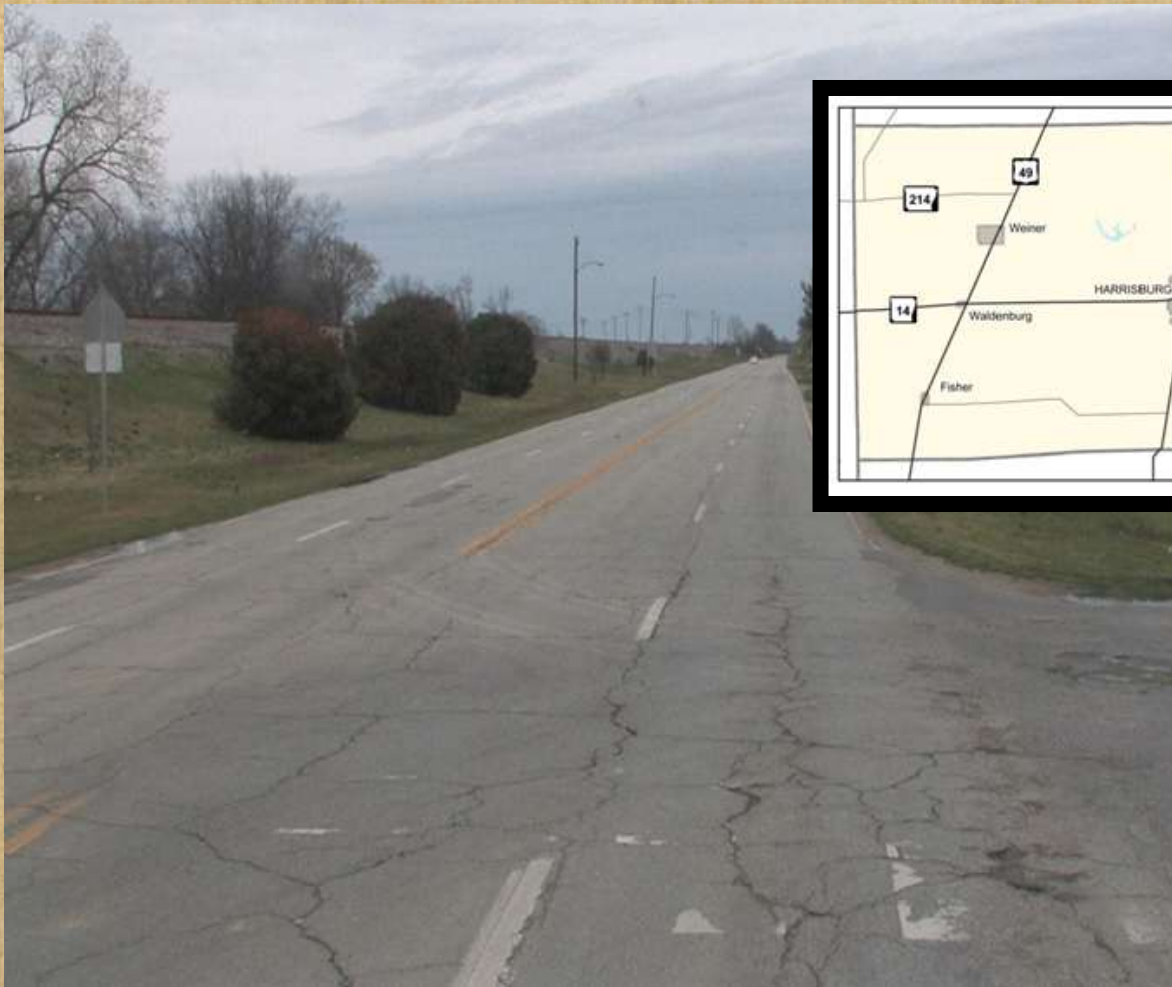
Excellent

Good

Fair

Poor





**Ranking
#54**



Business

Rutting: 0.29 inches

IRI: 190 inches / mile

Cracking: 66

PCI: 67

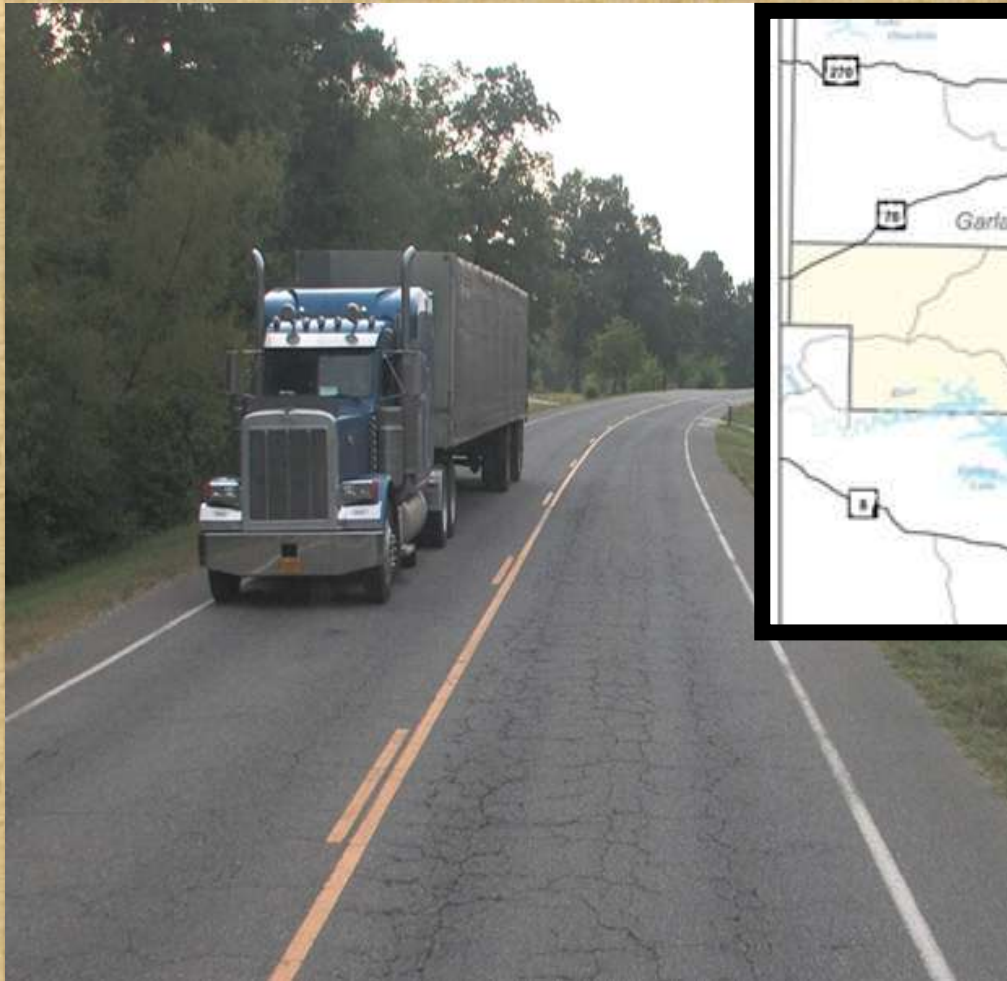
ADT: 7,600

Excellent

Good

Fair

Poor



Ranking #6

Rutting: 0.89 inches

IRI: 146 inches / mile

Cracking: 80

PCI: 78

ADT: 530



Excellent

Good

Fair

Poor





Ranking #5

Rutting: 0.39 inches

IRI: 200 inches / mile

Cracking: 92

PCI: 79

ADT: 330



Excellent

Good

Fair

Poor





Ranking #2



Business

Rutting: 0.56 inches

IRI: 320 inches / mile

Cracking: 63

PCI: 82

ADT: 180

Excellent

Good

Fair

Poor





Ranking #1

Rutting: 0.69 inches	IRI: 240 inches / mile
Cracking: 84	PCI: 86
ADT: 80	



Excellent Good Fair Poor

System Preservation - Pavements

Highway System Type	Current Grade	Goal Grade	Cost Per Year for 10 Years to Reach Goal Grade
Interstate System	B	A	\$ 0*
National Highway System	C+	B	\$ 80,000,000
Other Arkansas Primary Highway Network	C-	C+	\$ 71,000,000
Non Arkansas Primary Highway Network	D-	C-	\$ 155,000,000
Total For Arkansas State Highway System**			\$ 306,000,000

*Financed through the Interstate Rehabilitation Program

**Plus Right-of-Way and Utility Relocation Costs

System Preservation - Bridges



**District 4
Ozark Bridge**

Before Paint

After Paint



System Preservation - Bridges

District 6 White River Bridge Deck

Hydro Demolition



After Hydro Demolition



System Preservation - Bridges



**Typical Failed
Bridge Joint**

**Bridge
Joint Replacement**



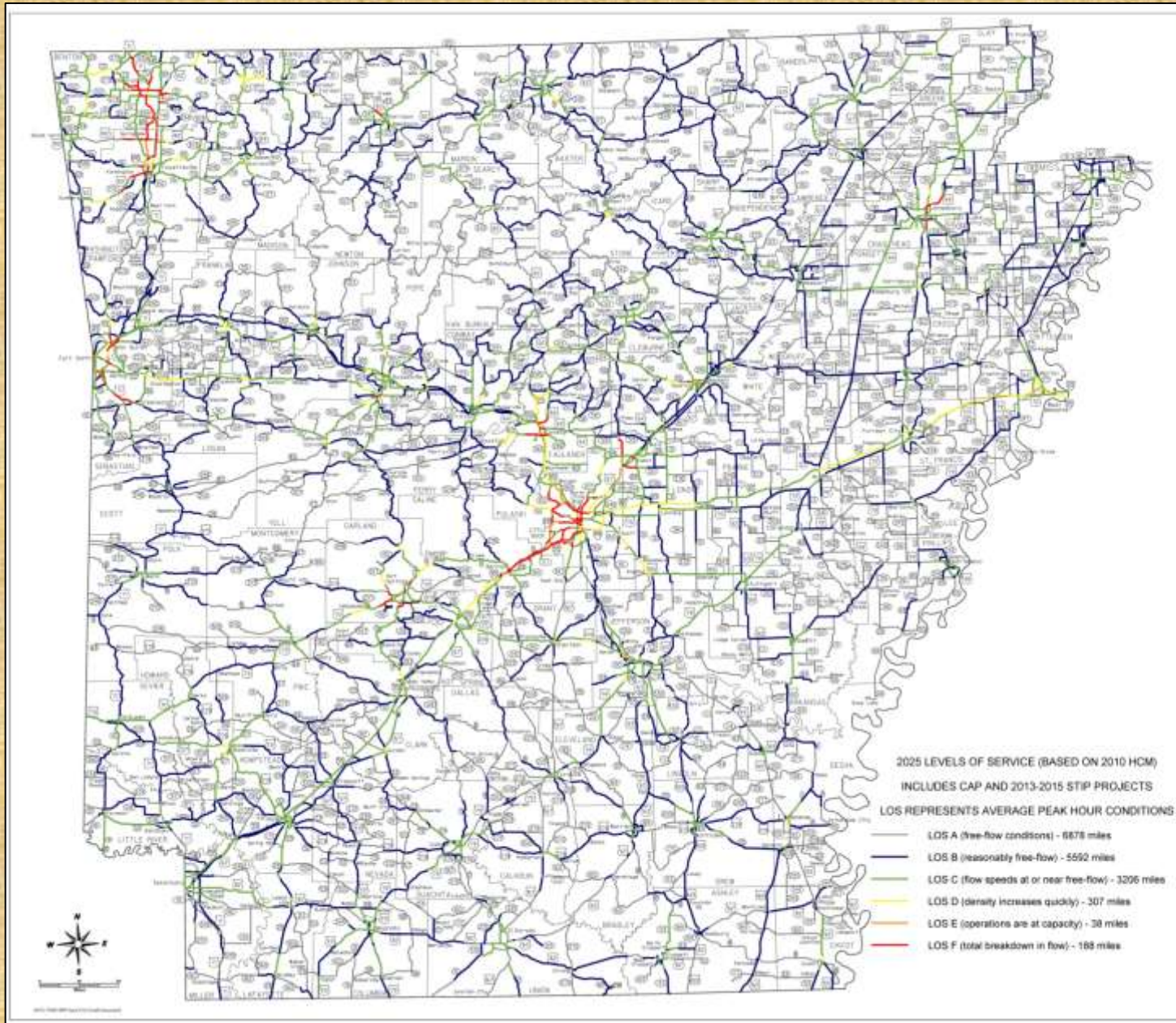
System Preservation - Bridges

IMPROVEMENT	NUMBER BRIDGES	COST (Next 10 Years)
Structurally Deficient and Posted Bridge Replacement	450	\$760,000,000
Bridge Preservation Treatments (\$19 M/year)	TBD	\$190,000,000
Total*	450	\$950,000,000

*Plus Right-of-Way and Utility Relocation Costs

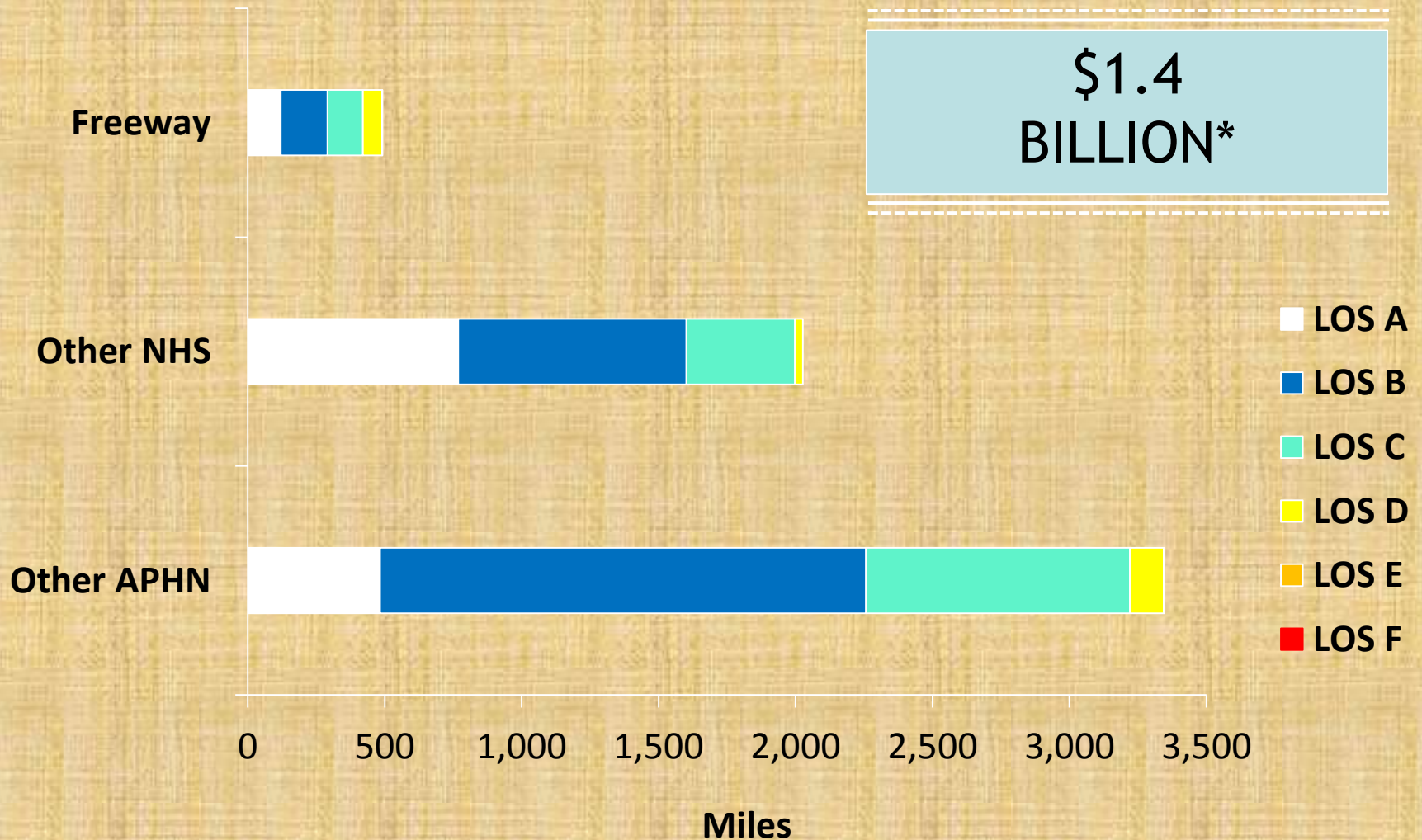
Capacity Needs - Congestion Relief

Level of Service Arkansas State Highways



Capacity Needs - Congestion Relief

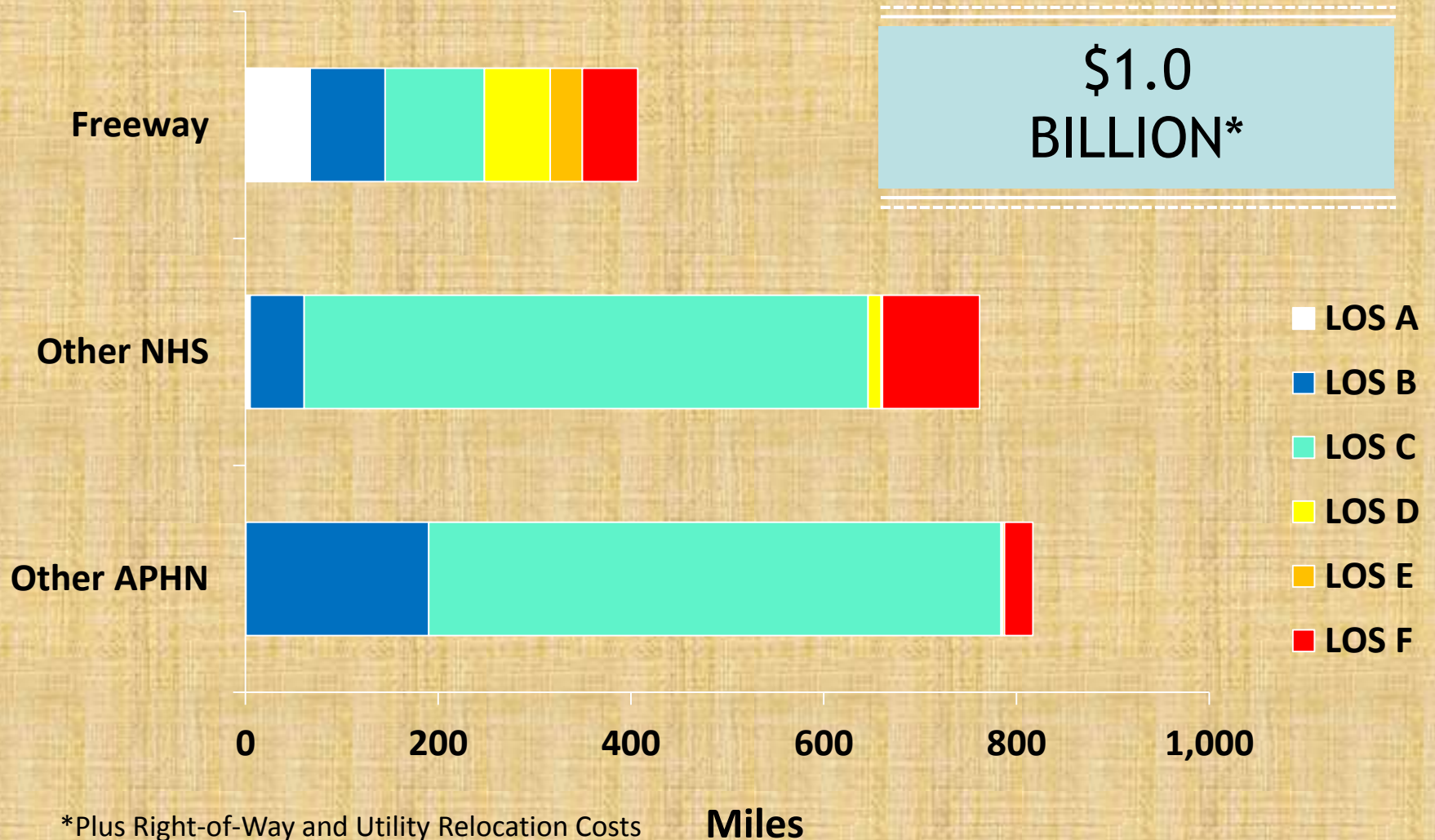
RURAL



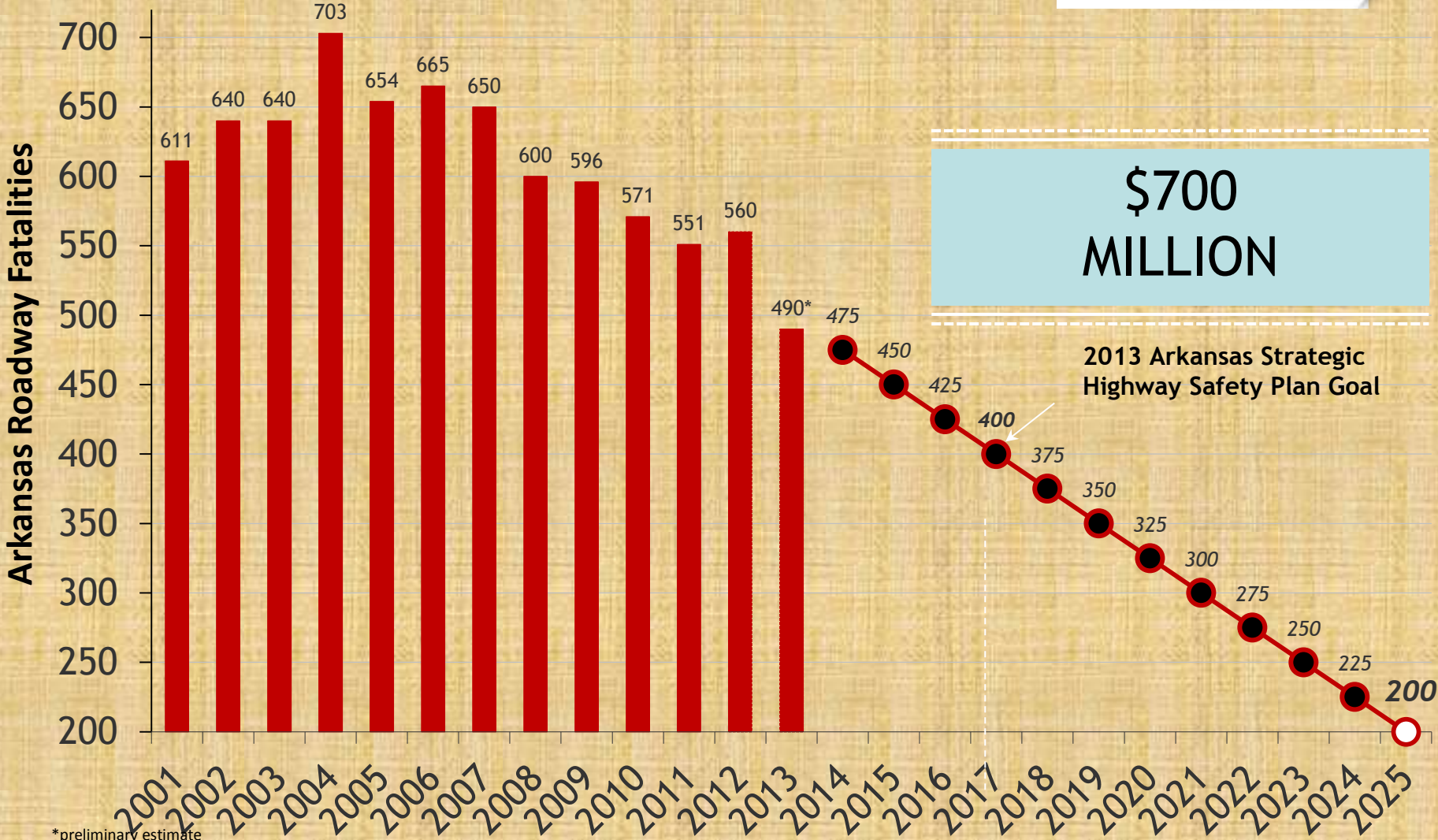
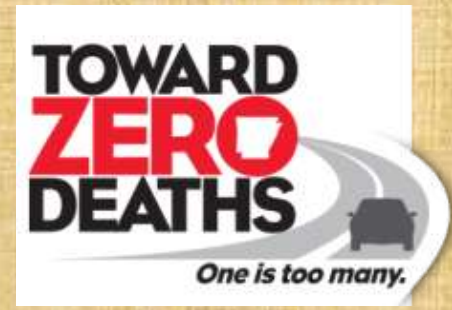
*Plus Right-of-Way and Utility Relocation Costs

Capacity Needs - Congestion Relief

URBAN



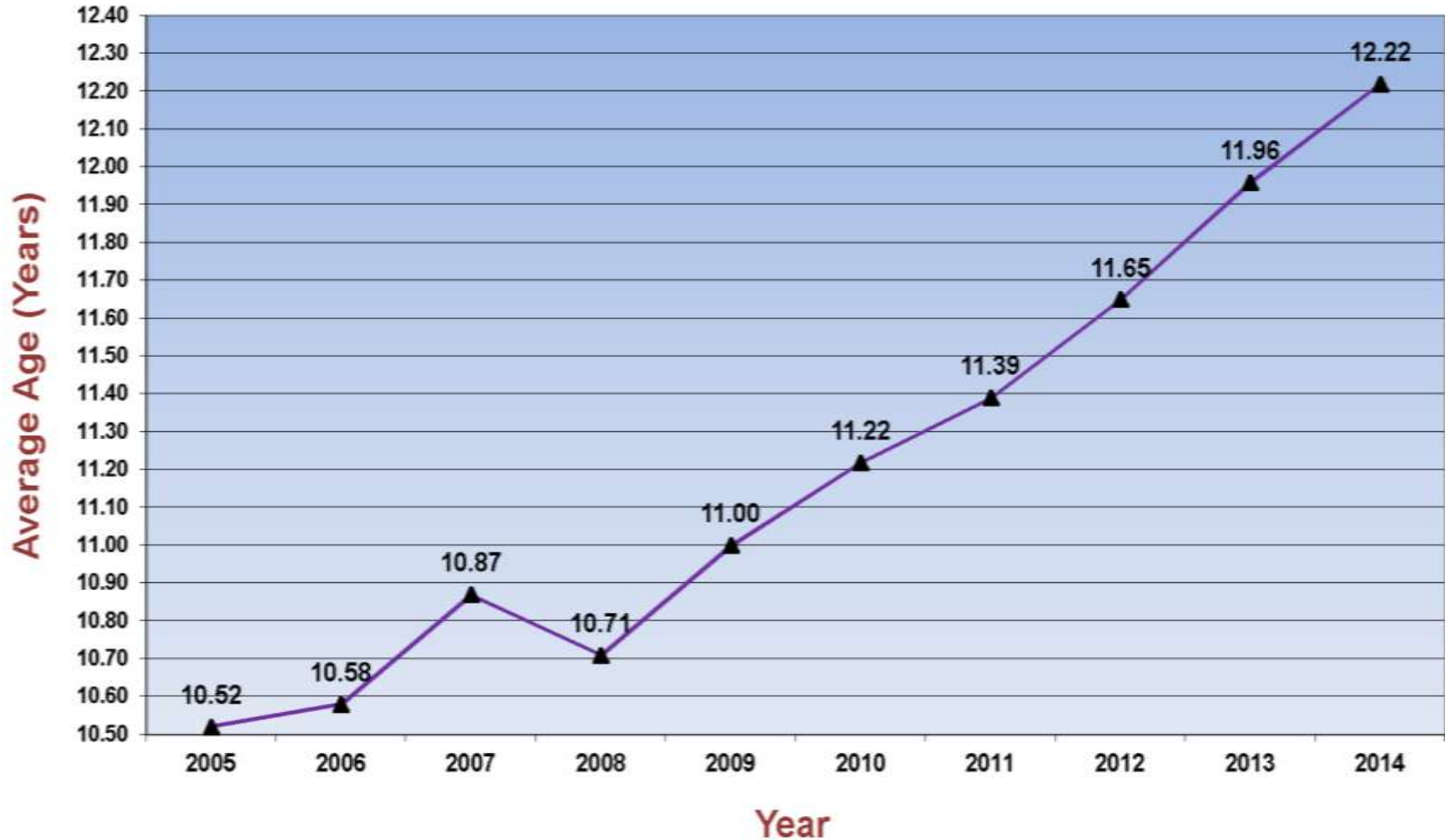
Safety Needs



*preliminary estimate

Maintenance Needs - Equipment

Average Age of AHTD Equipment Fleet



Maintenance Needs - Equipment

- Equipment Management System
- Current Investment \$12 M annually



Maintenance Needs - Equipment

- **\$61 million to Achieve Optimum Age of Fleet**



- **Plus Annual Expenditures**

Maintenance Needs - Equipment



- Optimum Age
- 10 Year Cost \$260 M
- 3 Proposals Developed

Maintenance Needs - Equipment

AHTD EQUIPMENT NEEDS ANALYSIS
(Average Age 10 Year Projection of Equipment Fleet)





New Belly Plow



Maintenance Needs: Facilities – Resident Engineers Office



Conway RE #84

Maintenance Needs: Facilities – Area Headquarters



Lawrence County (District 10)

Maintenance Needs - Facilities

FACILITY	NUMBER	COST
Central Headquarters ⁽¹⁾ , Sign Shop, Central Shop	3	\$10,000,000
District Headquarters (5 ⁽¹⁾ & 6)	2	\$17,500,000
Resident Engineer Offices	10	\$4,800,000
Area Headquarters	10	\$24,000,000
Total⁽²⁾	25	\$56,300,000

(1) Needs Assessment soon to be underway

(2) Plus Property Costs

Maintenance Needs: Intelligent Transportation Systems (ITS)

Traffic Management Center (TMC)



- Collect and Disseminate Traffic Information
- Monitor and Operate ITS Devices
- Coordinate with Other Agencies
- Could Serve as Statewide Emergency Operations Center

Maintenance Needs: Intelligent Transportation Systems (ITS)

Dynamic Message Signs

Installed in strategic locations to display:

- Travel Times
- Traffic Advisories
 - ✓ Unplanned Incidents
 - ✓ Maintenance or Construction Activities
- Weather Advisories/Alerts
- Morgan Nick/AMBER Alerts



Maintenance Needs: Intelligent Transportation Systems (ITS)

Traffic Cameras



- Observe Traffic Flows
- Used in Conjunction with Traffic Monitoring to Verify Incidents Effecting Traffic Flow
- Incident Management
- Monitored from TMC
- Public Access via Web (view only)
- Pan/Tilt/Zoom Access for Other Agencies

Maintenance Needs: Intelligent Transportation Systems (ITS)

Highway Advisory Radio

- Disseminate more detailed information than Dynamic Message Sign:
 - ✓ Cause of traffic problem
 - ✓ Advise Alternate Routes
 - ✓ Expected Length of Delay
 - ✓ Morgan Nick/AMBER Alerts with detailed information



Maintenance Needs: Intelligent Transportation Systems (ITS)

Road Weather Information Systems (RWIS)



- Collects Real Time Weather Information
- Placed at Strategic Locations
- Data Collected:
 - ✓ Air Temperature
 - ✓ Wind Speed & Direction
 - ✓ Precipitation Type
 - ✓ Visibility & Fog Detection
 - ✓ Relative Humidity
 - ✓ Pavement Surface Temperature and Condition (Wet, Dry, Frozen)
 - ✓ Subgrade Temperature
- Management Can Use RWIS Data for Winter Weather Treatment Plans

Maintenance Needs: Intelligent Transportation Systems (ITS)

Bridge De-icing Systems

- Applies De-icing Chemical to Bridge Deck
- Works with Data from RWIS
- Automatic or Remote Activation by TMC
- Can be Installed During Construction or Retrofitted



Maintenance Needs: Intelligent Transportation Systems (ITS)

EQUIPMENT	NUMBER	COST
Traffic Management Center (Little Rock)	1	\$5,000,000
Dynamic Message Signs	50	\$5,000,000
Traffic Cameras	250	\$2,500,000
Highway Advisory Radios	20	\$500,000
Roadway Weather Information Systems	100	\$4,000,000
Bridge De-Icing Systems	200	\$10,000,000
Total	621	\$27,000,000

Summary of Needs

NEEDS CATEGORY	COST (x \$1 M)
SYSTEM PRESERVATION	
Pavement	3,060
Bridges	1,102
CAPACITY	2,880
SAFETY	700
MAINTENANCE	
Equipment	180
Facilities	62
ITS	27
TOTAL	8,011

Initial Recommendations for 2014-2015 Budget

CATEGORY	2013-2014 BUDGET	2014-2015 PROPOSED BUDGET	DIFFERENCE
	x \$1 Million		
EQUIPMENT	\$ 12.0	\$ 18.0	\$ 6.00
ROUTINE MAINTENANCE (Materials)	\$ 31.0	\$ 40.0	\$ 9.0
FACILITIES	\$ 3.5	\$ 5.6	\$ 2.1
ITS	\$ 0.0	\$ 2.7	\$ 2.7
TOTAL	\$ 46.5	\$ 66.3	\$ 19.8

Note: Investments for Congestion Relief, Pavement and Bridge System Preservation, and Safety to be Considered in Development of Next STIP.

Needs Assessment Update

- **Subsequent Considerations**
 - **Capital Improvements for Economic Development**
 - **New Location Routes**
 - **Major Widening**
 - **New Interchanges**
 - **Congressionally-Designated High Priority Corridors**

Needs Assessment Update

➤ Capital Improvements for Economic Development

❖ Four Lane Grid System

✓ Congressionally Designated High Priority Corridors

✓ Future Interstates

✓ Other

✓ Remaining Four-Lane Grid System Widening

✓ Other Regional Connections

✓ Economic Development Connections

❖ New Location Routes/New Interchanges

❖ Other Major Widening

FOUR-LANE GRID SYSTEM



Summary of Remaining Cost

Capital Improvements for Economic Development

IMPROVEMENT CATEGORY	COST (x \$1 M)
Four-Lane Grid System	
High Priority Corridors (Future Interstates)	6,250
High Priority Corridors (Other)	2,250
Remaining Four-Lane Grid	2,000
Other Regional Connections	500
Economic Development Connections	300
New Location Routes / New or Modified Interchanges	820
Other Major Widening	230
TOTAL	12,350

Improvements vs. Revenues

10 Year Projection

(x \$1 million)	
(Revenue and Needs are in 2014 Dollars)	
ESTIMATED FEDERAL-AID AND STATE REVENUE	\$ 3,555
NEEDS	AMOUNT
PAVEMENT	\$ 3,060
BRIDGES	\$ 1,102
CAPACITY	\$ 2,880
SAFETY	\$ 700
EQUIPMENT	\$ 180
FACILITIES	\$ 62
ITS	\$ 27
SUB-TOTAL	\$ 8,011
CAPITAL IMPROVEMENT	AMOUNT
FOUR LANE GRID SYSTEM	\$ 11,300
NEW LOCATION / NEW OR MODIFIED INTERCHANGES	\$ 820
OTHER MAJOR WIDENING	\$ 230
SUB-TOTAL	\$ 12,350
GRAND TOTAL	\$ 20,361
SHORTFALL	\$ (16,806)

Strategies to Sustain/Increase Revenue

– ALTERNATIVE FUEL BILL

- Uniformity in Tax Rate - Level Playing Field

- Gasoline and Diesel Fuels
- Equivalent Rate for Natural Gas Fuels

- Progression of Tax Rates

- July 1, 2014 5¢ per gallon (current rate)
- July 1, 2015 8¢ per gallon
- July 1, 2016 11¢ per gallon
- July 1, 2017 17¢ per gallon
- July 1, 2018 21½¢ per gallon on compressed natural gas fuels
22½¢ per gallon on liquefied natural gas fuels
21½¢ per gallon on other alternative fuels

Strategies to Sustain/Increase Revenue

WITH Alternative Fuel Tax Equivalent

Fiscal Year	Percent Increase Consumption A	Consumption With "Gallon Equivalent" Change ⁽¹⁾ B	Progressive New Tax Rates C	Total Alternative Fuel Tax D (B*C)
2015	0%	697,879	\$0.050	\$ 34,894
2016	30%	907,243	\$0.080	\$ 72,579
2017	30%	1,179,416	\$0.110	\$ 129,736
2018	30%	1,533,241	\$0.170	\$ 260,651
2019	30%	1,993,213	\$0.215	\$ 428,541
TOTAL				\$ 926,401

(1) Change in equivalent rate from 100 cubic feet per 1 gallon of gasoline to 125 cubic feet per 1 gallon of gasoline.

WITHOUT Alternative Fuel Tax Equivalent

Fiscal Year	Percent Increase Consumption A	Consumption Without "Gallon Equivalent" Change B	Existing Rates C	Total Alternative Fuel Tax D (B*C)
2015	0%	872,349	\$0.050	\$ 43,617
2016	30%	1,134,054	\$0.050	\$ 56,703
2017	30%	1,474,270	\$0.050	\$ 73,713
2018	30%	1,916,551	\$0.050	\$ 95,828
2019	30%	2,491,516	\$0.050	\$ 124,576
TOTAL				\$ 394,437

Net Increase WITH \$ 531,964

Strategies to Sustain/Increase Revenue

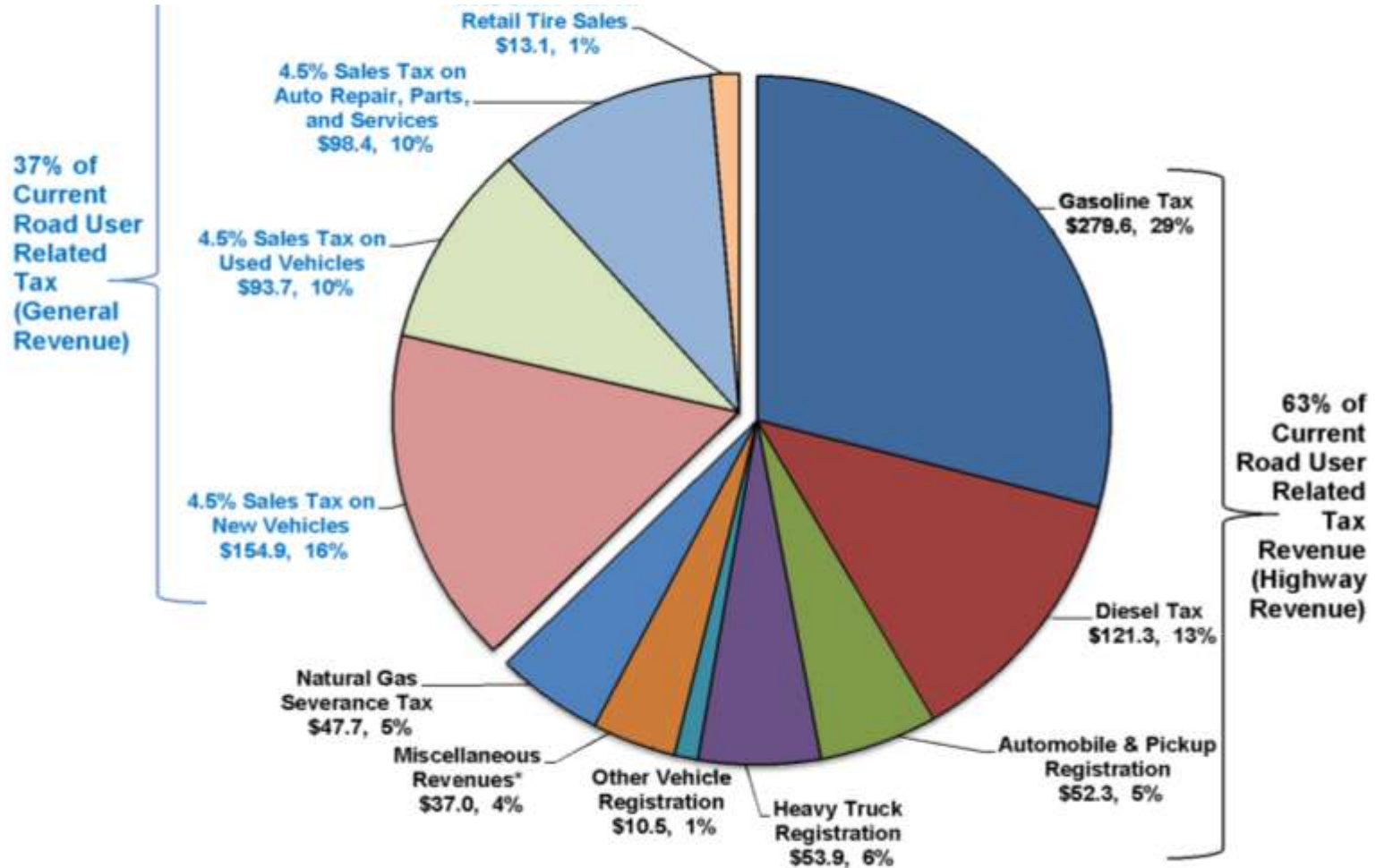
Index Motor Fuel Excise Taxes

- Long Term Solution
 - Protects Purchasing Power
 - 2¢ per Gallon per Year Cap
 - “Road User” Based
 - Utilizes Existing Tax Collection System

Additional Net Revenue Generated 2016-2025 (in millions)			
	Existing Flat Tax	Indexed	Difference
AHTD	\$2,413	\$3,140	\$727
Counties	\$517	\$673	\$156
Cities	\$517	\$673	\$156
Total	\$3,447	\$4,486	\$1,039

Road User Related State Tax Revenue

FY 2013
(in millions)



*Miscellaneous Revenues includes: LP/CNG, Oversize/Overweight Permits, Title Transfer Fees, Driver Search Fees, Interest, Other Fees.

Strategies to Sustain/Increase Revenue

– REVENUE TRANSFER

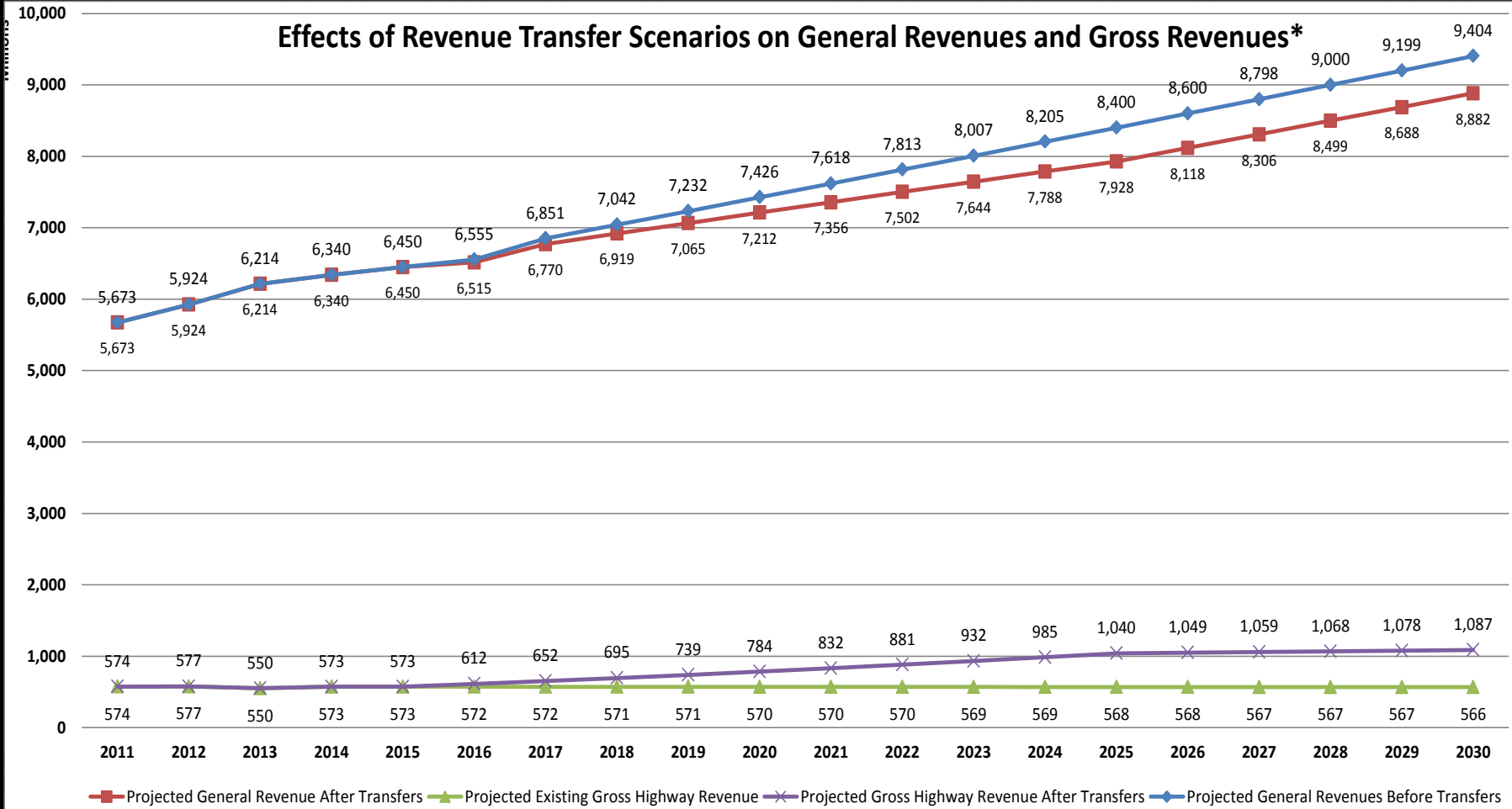
- Long Term Solution
 - Not a Tax Increase
 - Transfer of Revenue on “Road User” Items
- Progression of Transfer

Revenue from Transferring 6% of the Gross Sales and Use Tax (Representing Road-User Related Sales and Use Tax) and the 4.5% Sales and Use Tax on the Sale of New and Used Vehicles (in millions)

Revenue	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
AHTD	\$23	\$47	\$ 72	\$98	\$126	\$155	\$185	\$217	\$250	\$285	\$1,458
Counties	\$ 5	\$10	\$ 15	\$21	\$ 27	\$ 33	\$ 40	\$ 47	\$ 54	\$ 61	\$313
Cities	\$ 5	\$10	\$ 15	\$21	\$ 27	\$ 33	\$ 40	\$ 47	\$ 54	\$ 61	\$313
Total	\$33	\$67	\$102	\$140	\$180	\$221	\$265	\$311	\$358	\$407	\$2,084

Strategies to Sustain/Increase Revenue

Effects of Revenue Transfer Scenarios on General Revenues and Gross Revenues*



*Data projections include 2013 Legislative Tax Cuts

Strategies to Sustain/Increase Revenue

\$250 - \$300 million to AHTD

FUNDING SOURCE	TOTAL GROSS AMOUNT	NET TO AHTD	NET TO COUNTIES	NET TO CITIES
Transfer Sales Tax (4.5%) on:				
New Vehicles	\$154.9 M	\$104.8 M	\$22.5 M	\$22.5 M
Used Vehicles	\$93.7 M	\$63.4 M	\$13.6 M	\$13.6 M
Auto Repair, Parts and Service	\$99.0 M	\$67.0 M	\$14.4 M	\$14.4 M
Retail Tire Sales	\$12.8 M	\$8.7 M	\$1.9 M	\$1.9 M
	\$360.4 M	\$243.9 M	\$52.4 M	\$52.4 M
Motor Fuel Tax Increase Per Gallon (22¢)	\$440.2 M	\$298.9 M	\$64.0 M	\$64.0 M
Transfer Sales Tax (4.50%) on:				
New Vehicles	\$154.9 M	\$104.8 M	\$22.5 M	\$22.5 M
Used Vehicles	\$93.7 M	\$63.4 M	\$13.6 M	\$13.6 M
Motor Fuel Tax Increase Per Gallon (12¢ - September - May) (Summer Fuel Tax Holiday)	\$184.4 M	\$125.2 M	\$26.8 M	\$26.8 M
	\$433.0 M	\$293.4 M	\$62.9 M	\$62.9 M
1% General Sales Tax	\$472.1 M	\$319.6 M	\$68.5 M	\$68.5 M
Remove Sales Tax Exemption on Motor Fuels	\$247.6 M	\$167.6 M	\$35.9 M	\$35.9 M
Transfer Sales Tax on New and Used Vehicles	\$248.6 M	\$168.2 M	\$36.1 M	\$36.1 M
	\$496.2 M	\$335.8 M	\$72.0 M	\$72.0 M

Marketplace and Internet Fairness Act

- **Supreme Court 1992 Decision**

- Only Congress has Authority to Regulate Interstate Commerce
- States Cannot Require Remote Retailers to Collect Sales and Use Taxes



- **Marketplace and Internet Fairness Act**

- Introduced in Senate on July 15, 2014
- Allows Enforcement of State and Local Sales Tax Laws
- Level the Playing Field with Main Street Businesses

Marketplace and Internet Fairness Act

– State Tax Revenue Increased

- \$11.4 Billion Annually Nationwide
- \$114 Million Annually to Arkansas



– Does **NOT** Create
New Taxes or
Increase Existing
Taxes

Strategies to Sustain/Increase Revenue

- New Excise Tax on Wholesale Price of Motor Fuels (\$37 million to AHTD for every 1%)
- Increase Vehicle Registration and License Fees (\$16 million to AHTD for every \$10 increase)
- State Highway System Reduction
- Vehicle Miles Traveled (VMT) Tax
- Public-Private Partnerships and Tolling



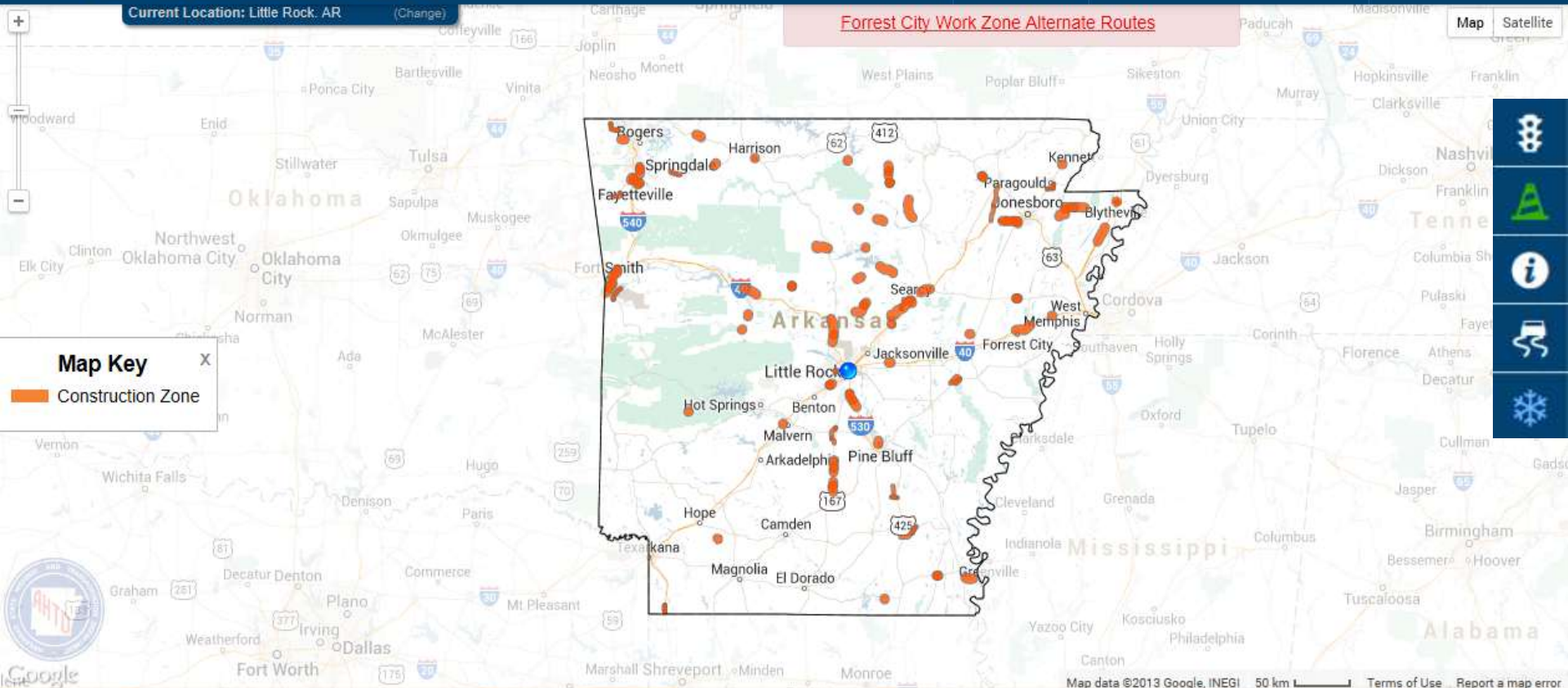
- ✓ **Live Traffic Conditions**
- ✓ **Construction Zones**
- ✓ **Alternate Routes**
- ✓ **Rest Areas**
- ✓ **Welcome Centers**
- ✓ **Park-and-Ride Lots**
- ✓ **Weight Restricted Roads & Bridges**
- ✓ **Weather Radar**
- ✓ **Live Traffic Cameras (Coming Soon)**

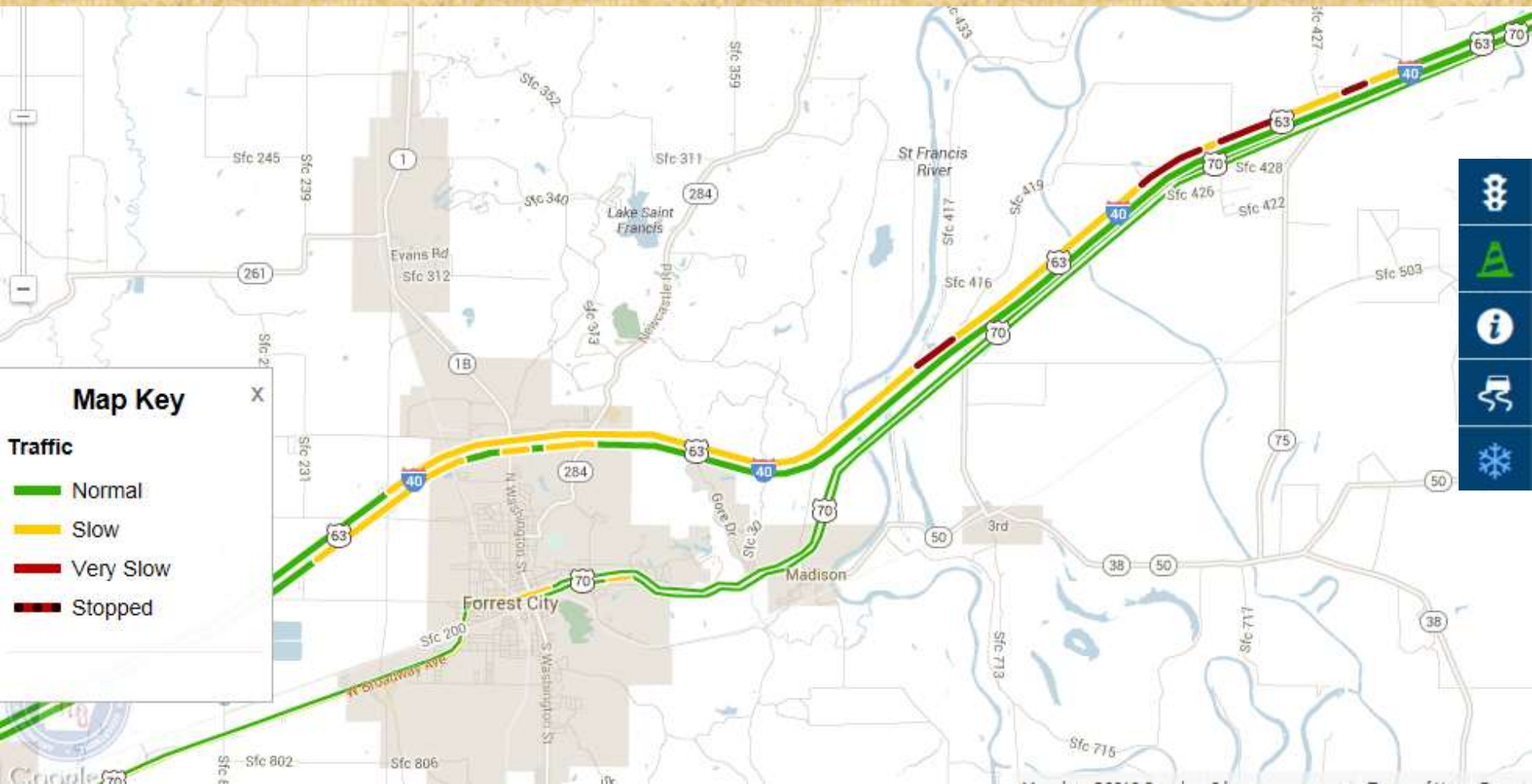


Current Location: Little Rock, AR (Change)

Forrest City Work Zone Alternate Routes

Map Satellite







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