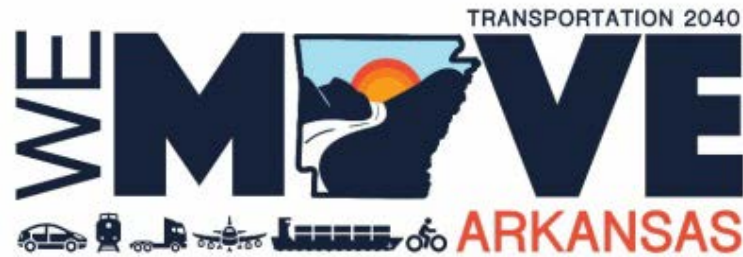


ARKANSAS

Long Range Intermodal Transportation Plan



TRB Scenario Planning
Conference

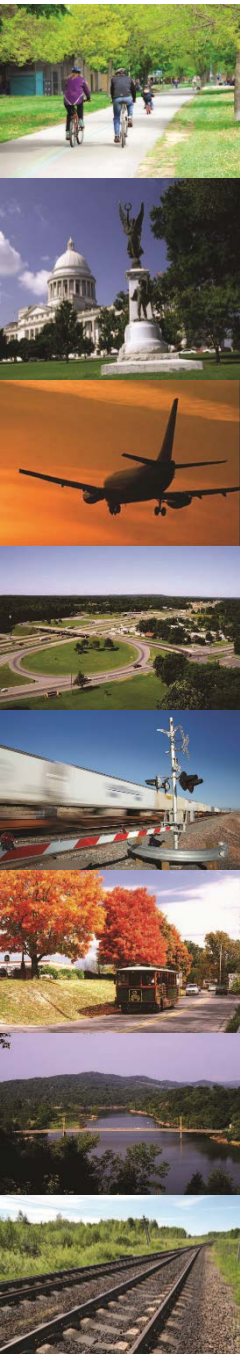
Jessie Jones, PE
Transportation Planning and
Policy
Arkansas State Highway and
Transportation Department

Kevin Ford
Decision Lens



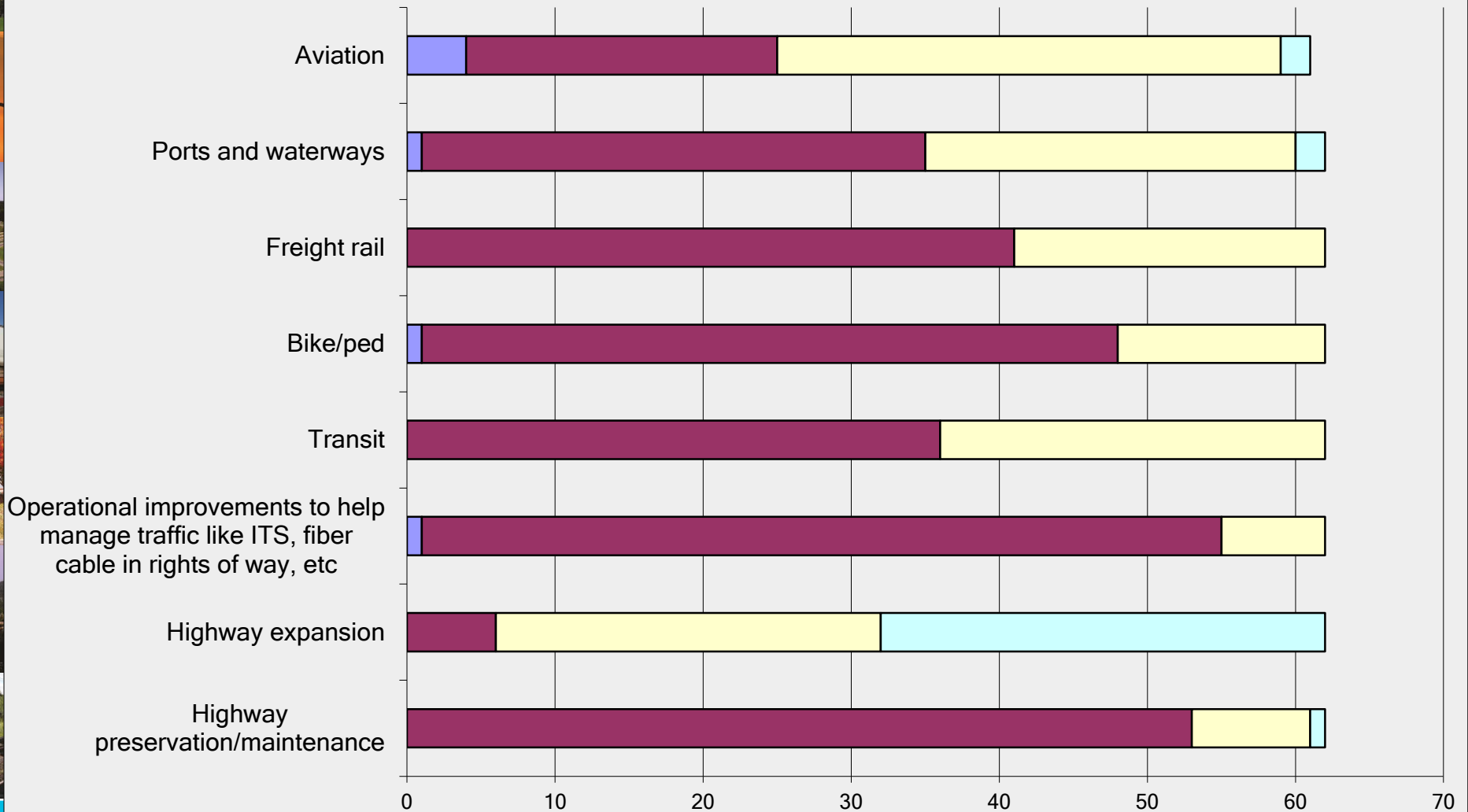
August 15, 2016

Visioning Workshop



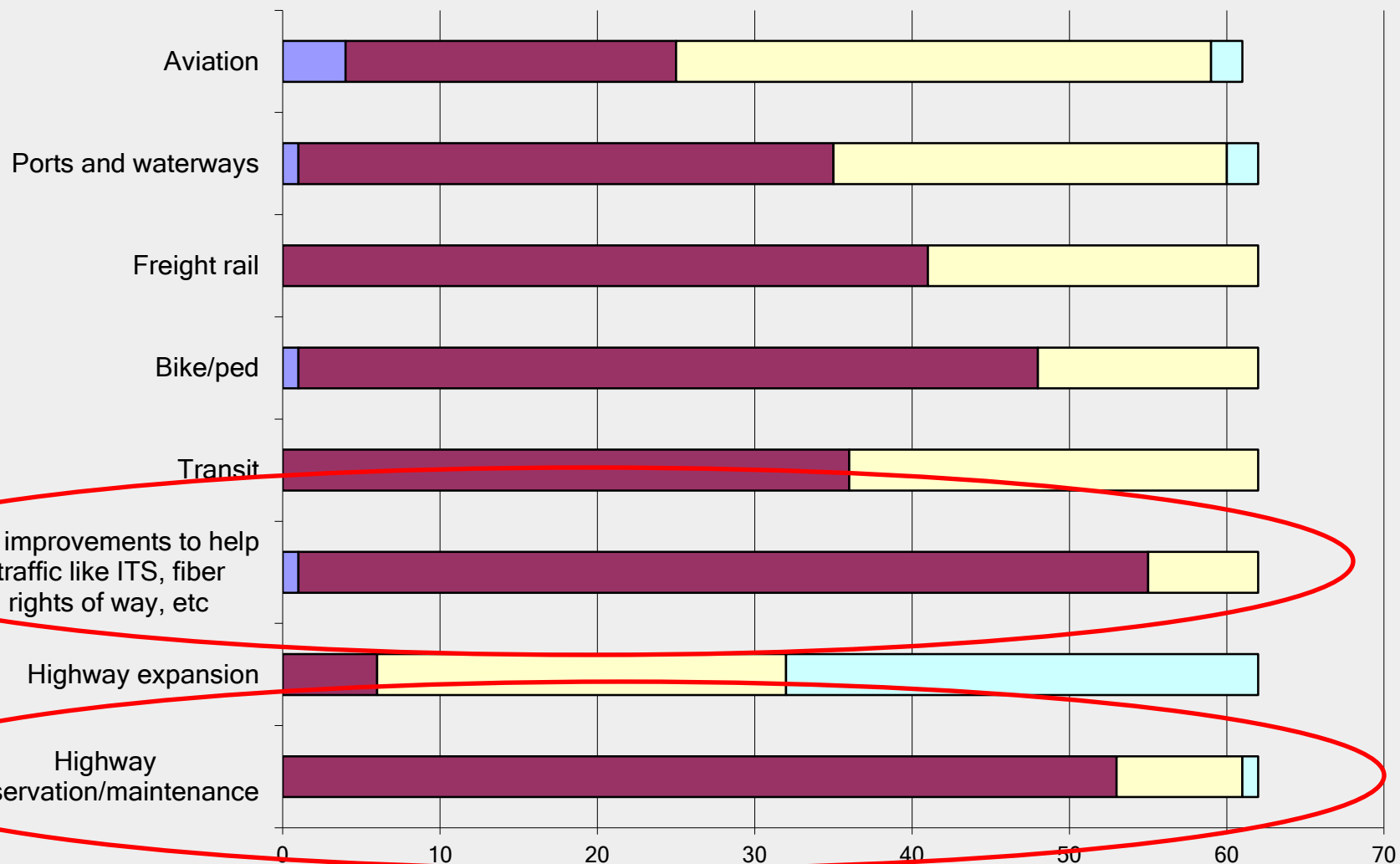
Based on the workshop discussion and thinking about all of the scenarios, do you think the importance of each of the following over the next 25+ years will decrease, remain about the same or increase?

■ Don't know
 ■ Increase
 ■ Remain about the same
 ■ Decrease



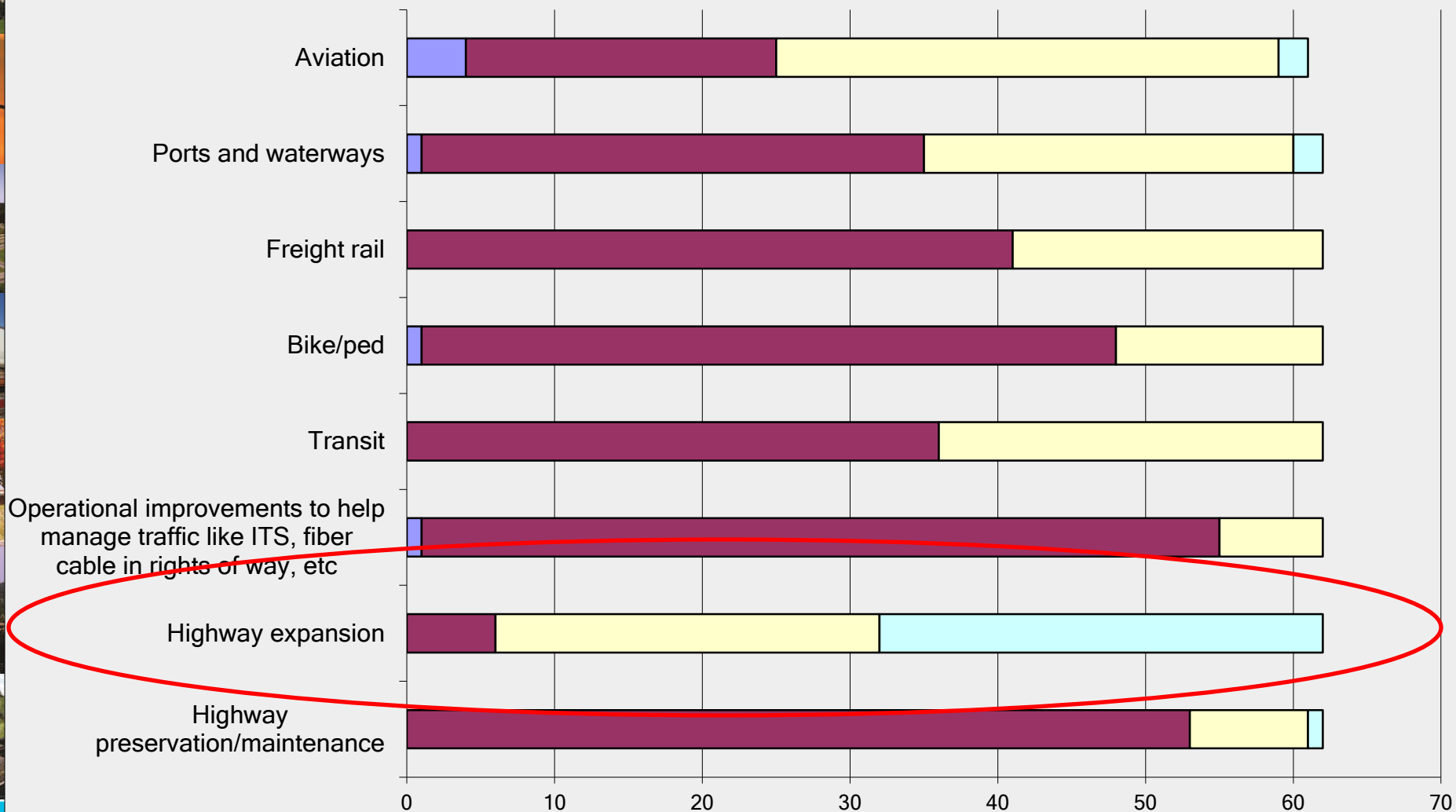
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 ■ Increase
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 ■ Decrease



Based on the workshop discussion and thinking about all of the scenarios, do you think the importance of each of the following over the next 25+ years will decrease, remain about the same or increase?

■ Don't know ■ Increase ■ Remain about the same ■ Decrease



Long Range Intermodal Transportation Plan Goals



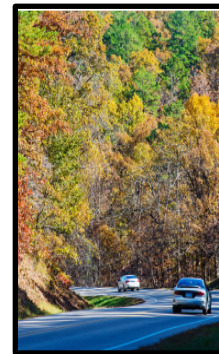
Safety and Security



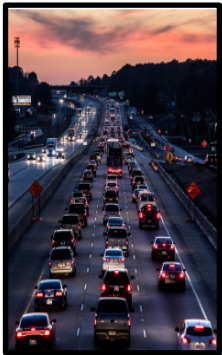
Economic Competitiveness



Infrastructure Condition



Environmental Sustainability

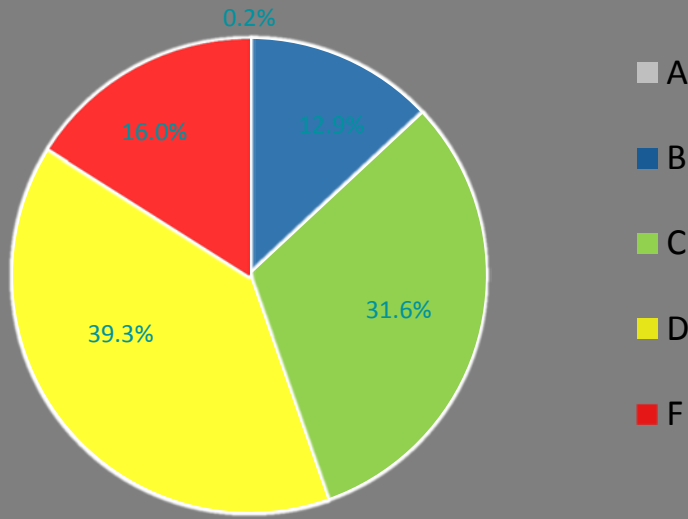


Congestion Reduction,
Mobility and System
Reliability

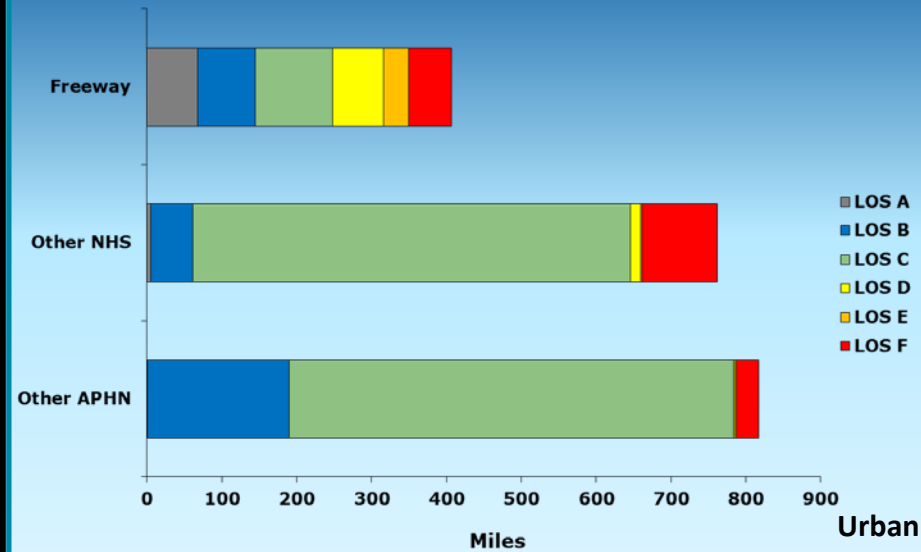


Multimodal Transportation
System

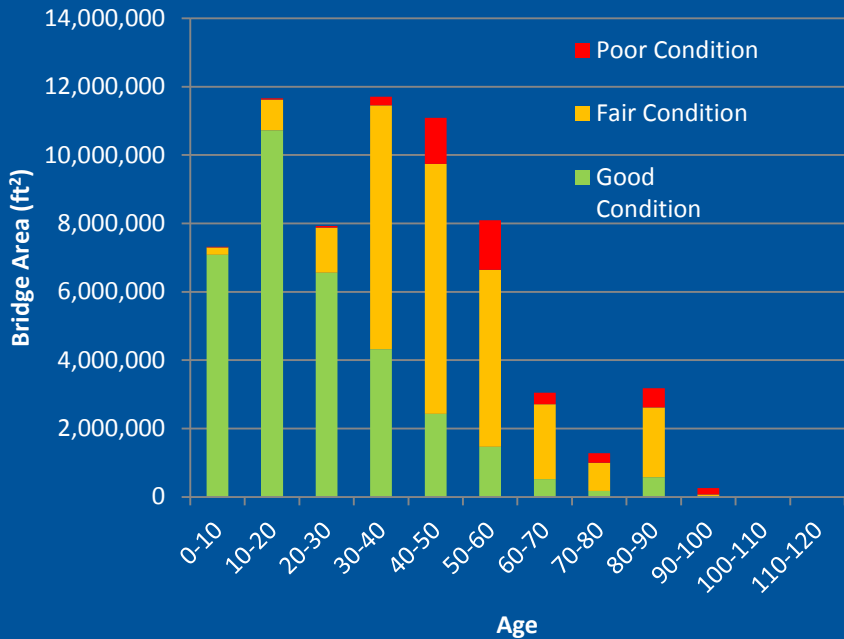
Highway System Condition



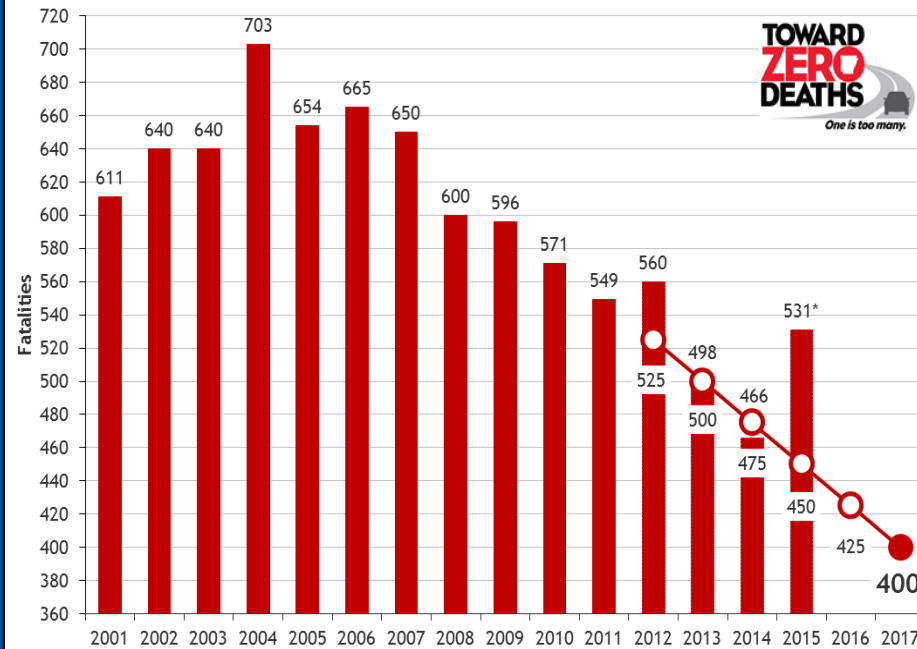
Congestion Levels



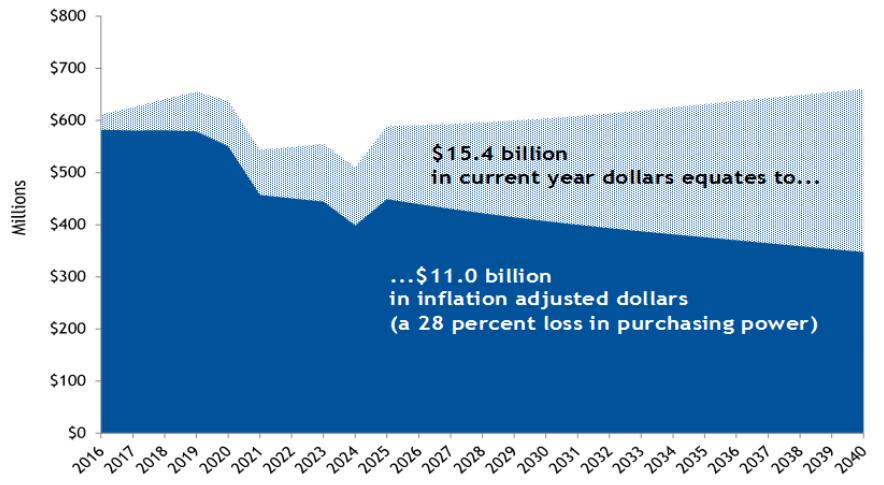
Bridge Condition



Annual Traffic Fatalities



Highway Funding Gap



Needs

\$53.7 Billion

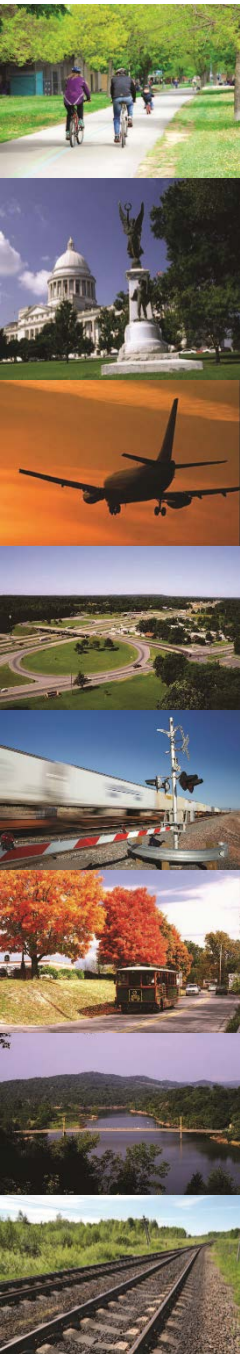
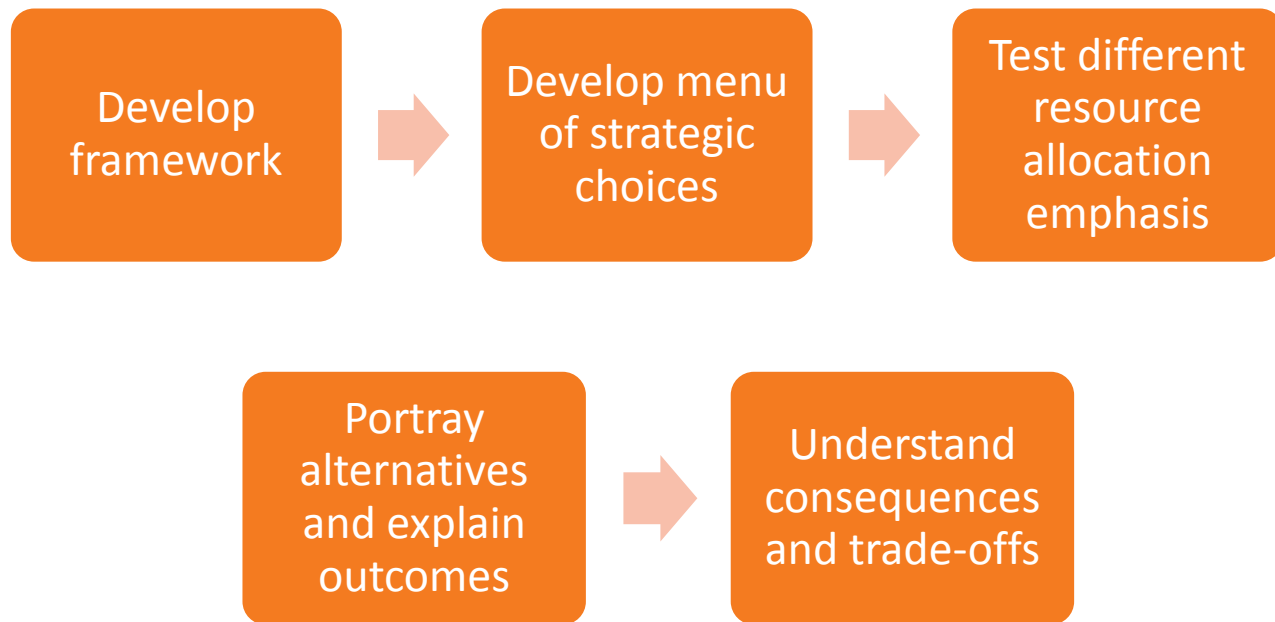
Revenue

\$10.5 B

Highway Funding Gap = \$43.2 Billion
Annual Highway Funding Gap = \$1.7 Billion

\$0 \$10 \$20 \$30 \$40 \$50 \$60

Alternative Future Scenarios



Keep it Smooth – Preserve the Investment

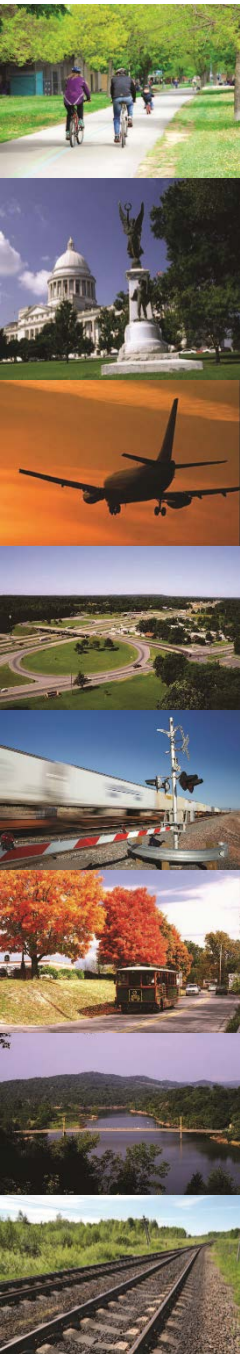
- Focus
 - Maintain and preserve the existing highway and bridge system
 - Higher priority on highway and bridges on the National Highway System (NHS)



Think Locally – Trade Globally

- Focus

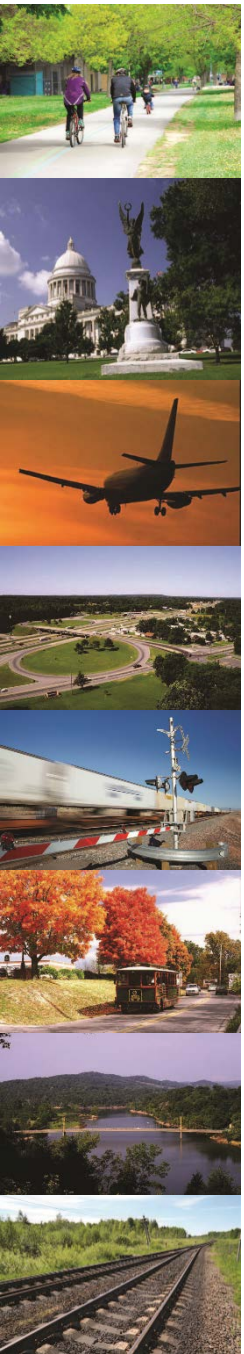
- Enhance infrastructure investments that support industry retention and attraction
- Allocate funds to increase capacity and improve system conditions on key corridors to improve freight efficiency and connectivity



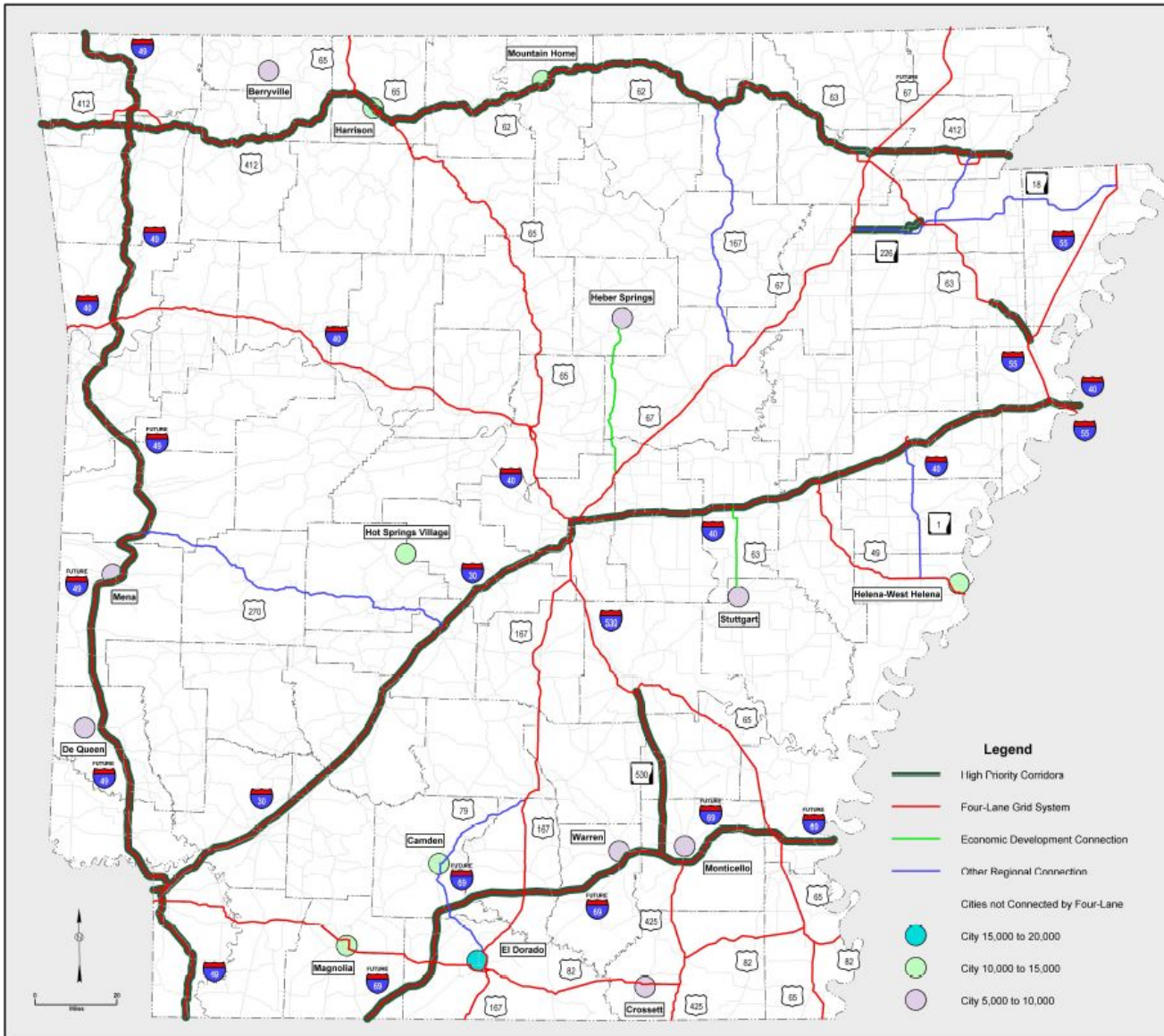
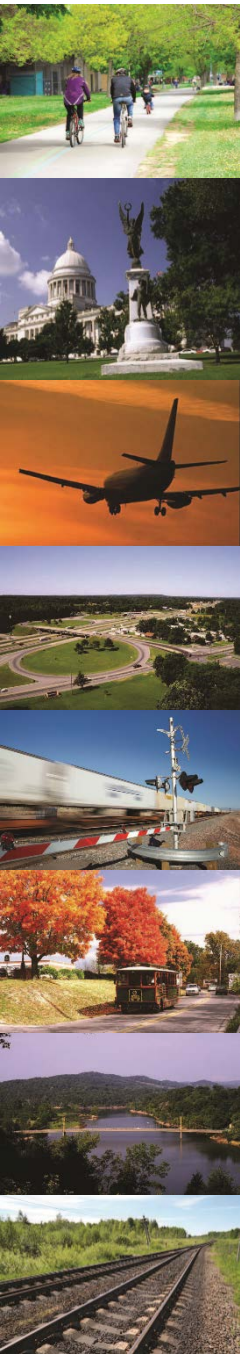
Connecting Communities – Forging Opportunities

- Focus

- Increase capacity to improve economic competitiveness.
- Allocate funds to complete the Four-Lane Grid System.



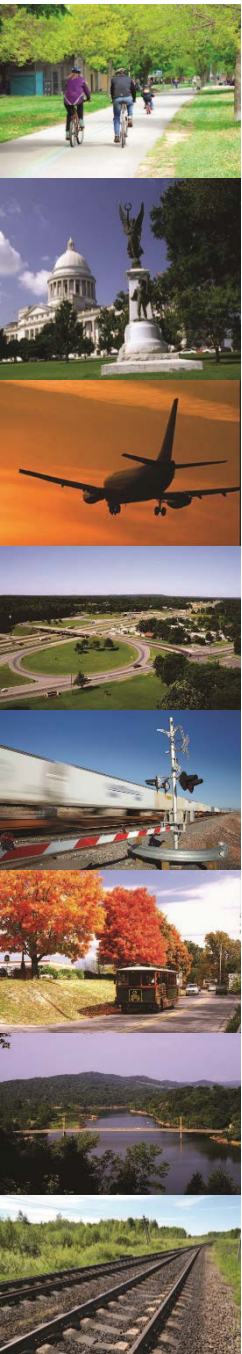
Four-Lane Grid System



FOUR-LANE GRID SYSTEM

2014

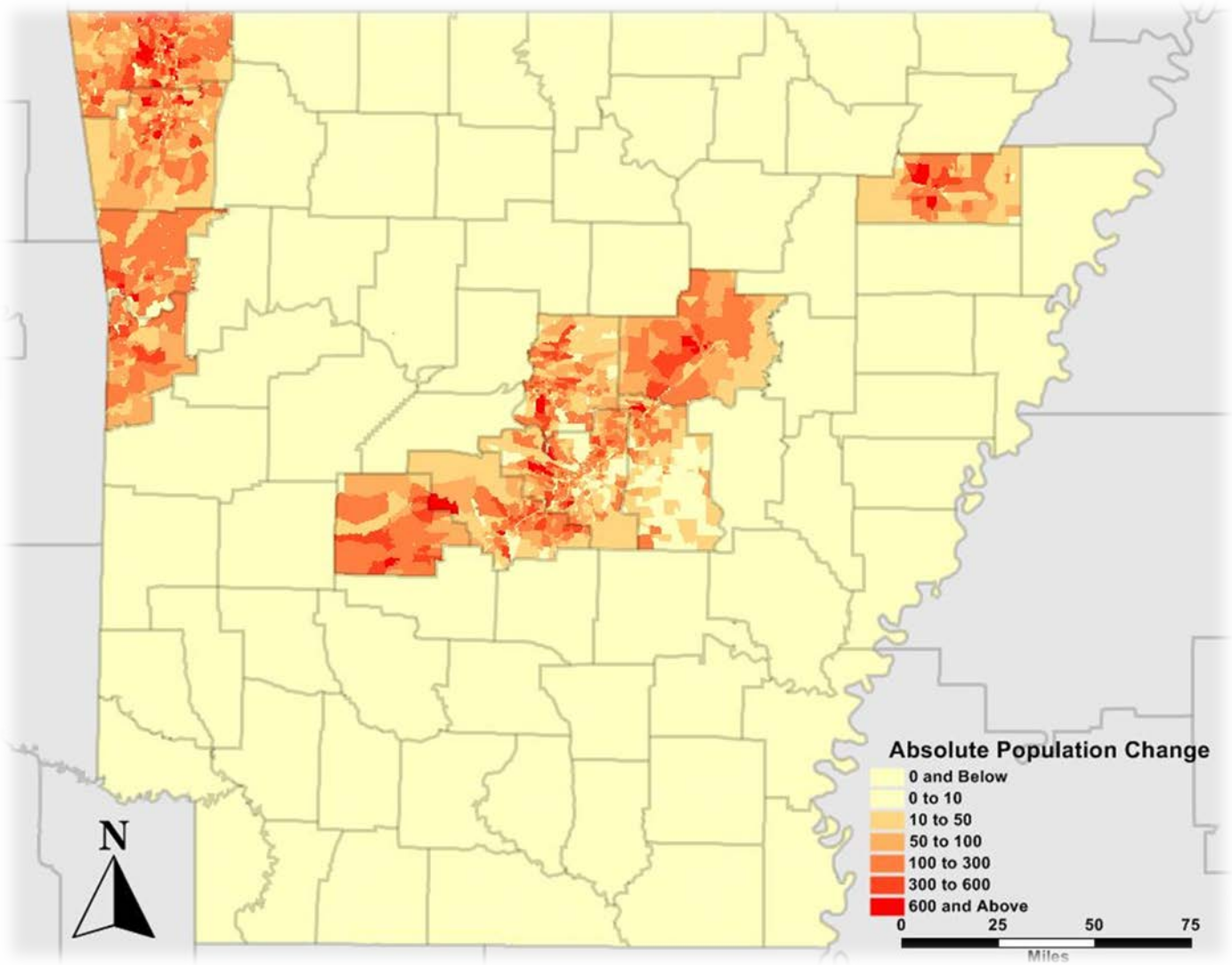
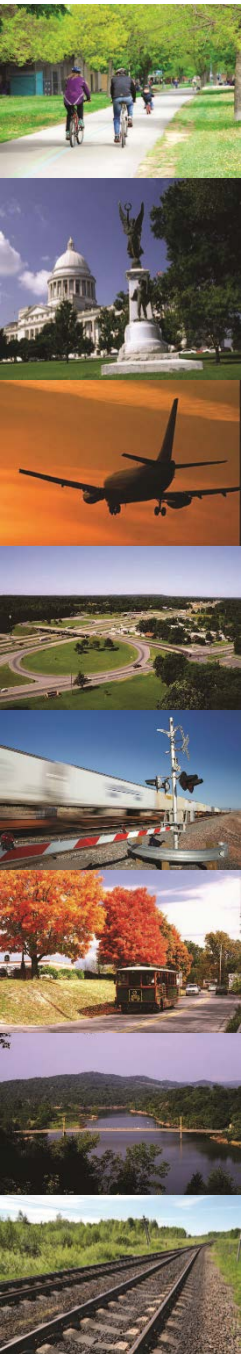
Bigger Cities – More Mobility



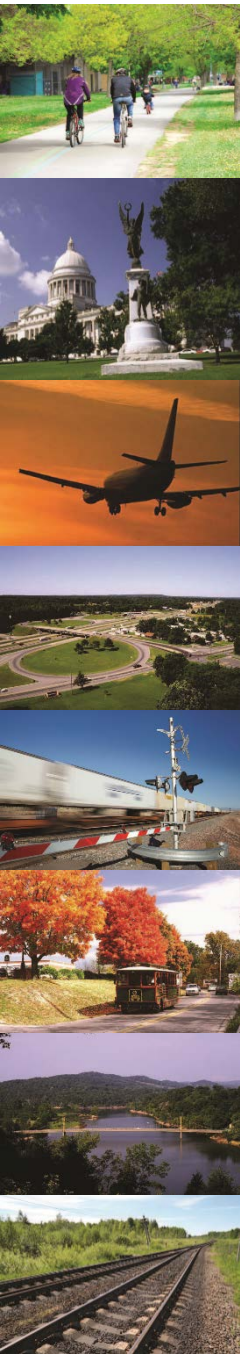
- Focus

- Allocate funds to alleviate urban congestion
- Emphasis on:
 - Congested corridors
 - Increasing transit operations
 - Preserving the existing urban system
 - Addressing gaps in the bicycle and pedestrian network

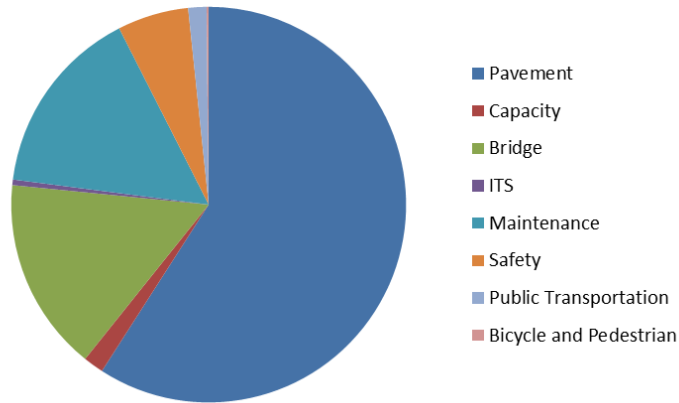
Bigger Cities Growth Scenario



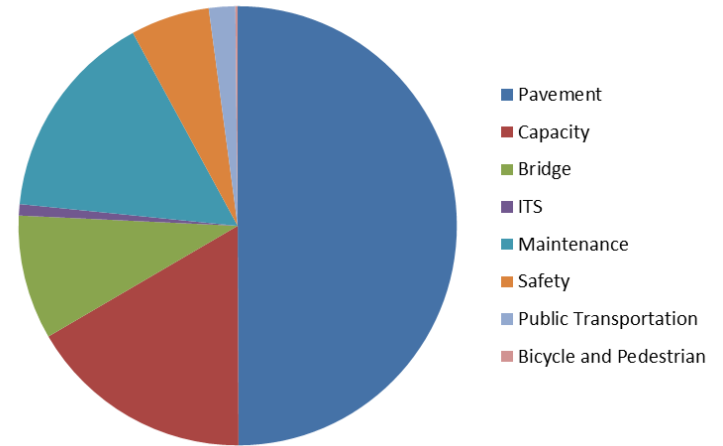
Funding Scenarios



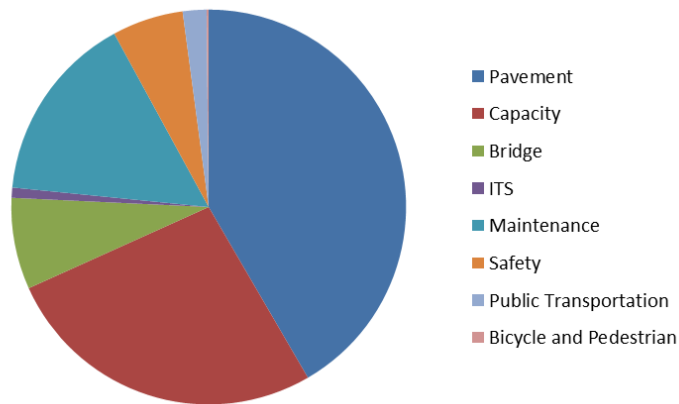
Keep it Smooth – Preserve the Investment



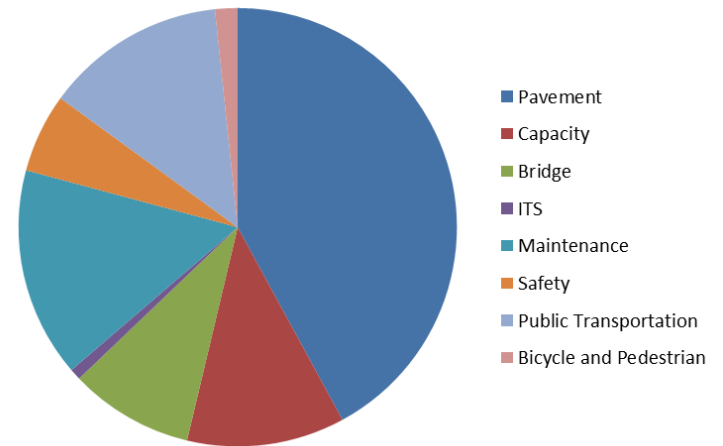
Think Locally – Trade Globally



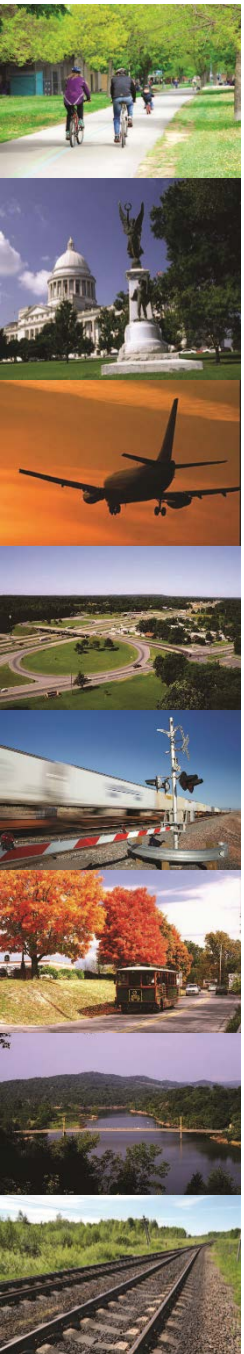
Connecting Communities – Forging Opportunities



Bigger Cities – More Mobility

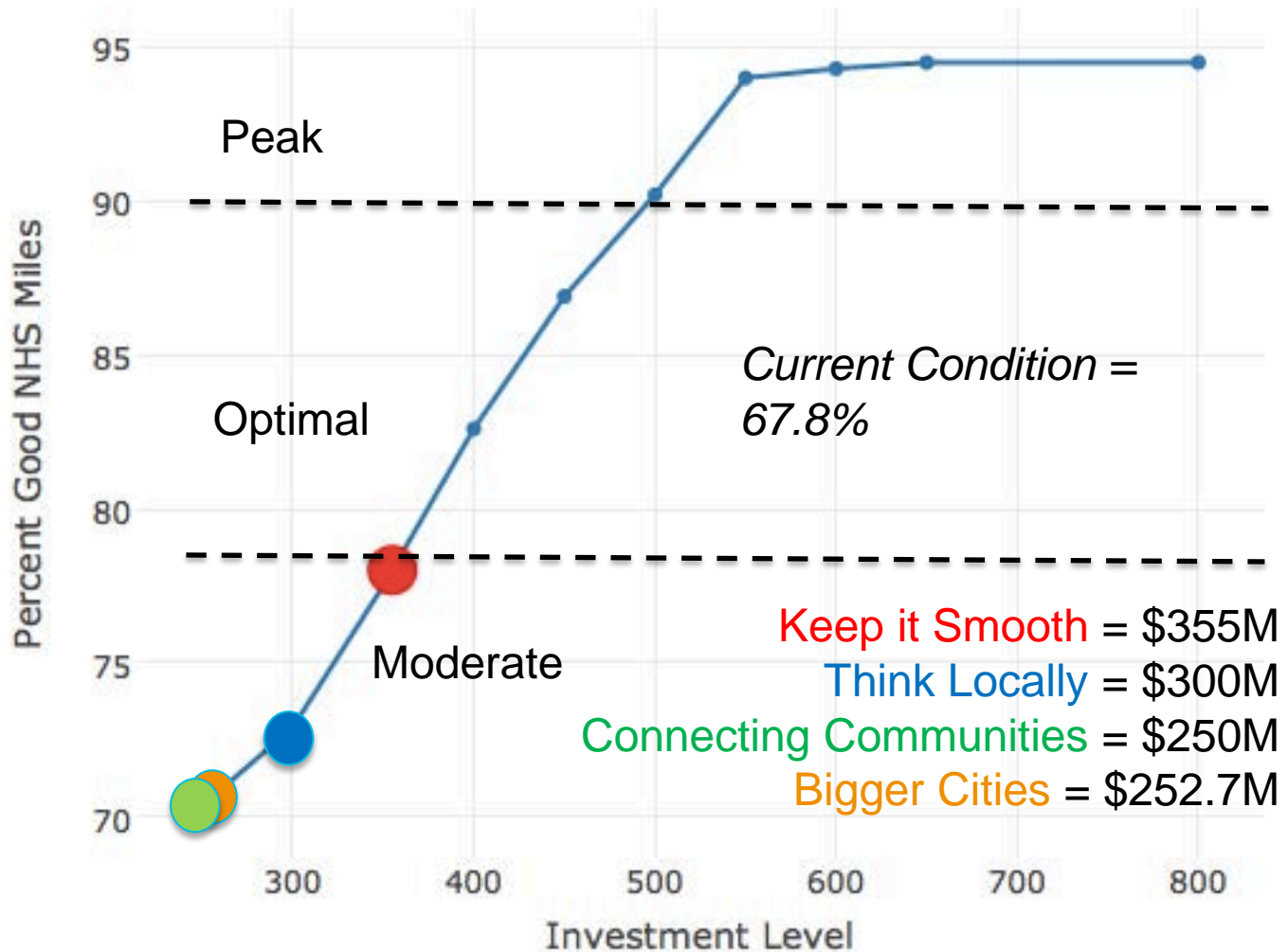


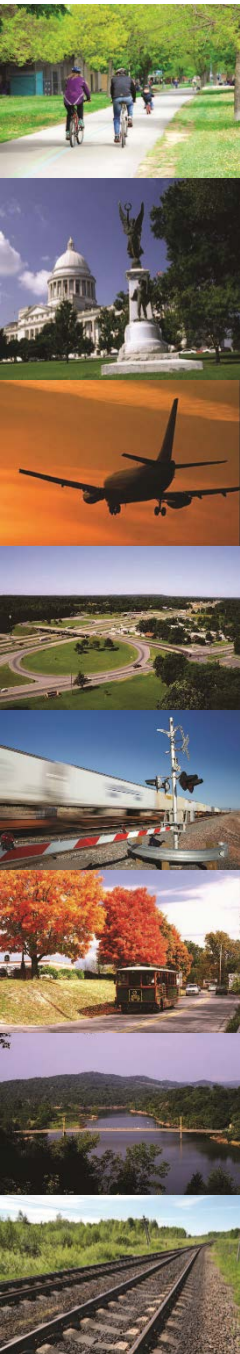
2040 Pavement



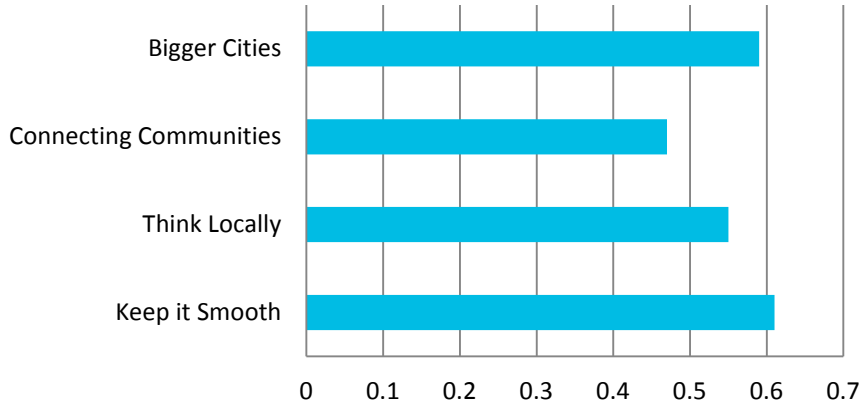
Pavement

Annual Pavement Needs = \$10.8B



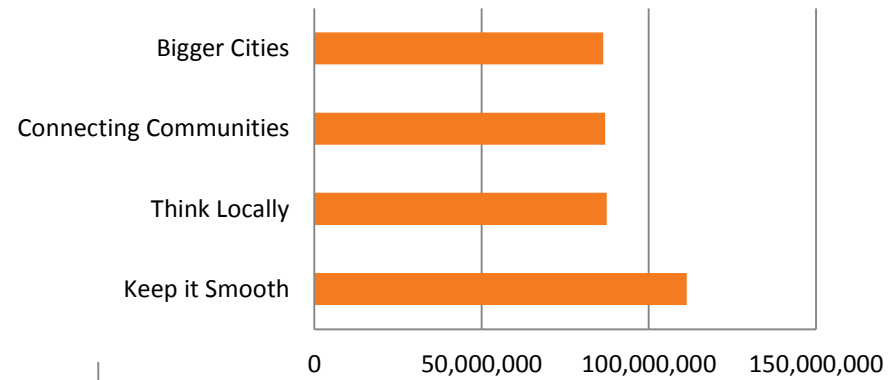


Regional Congestion Index

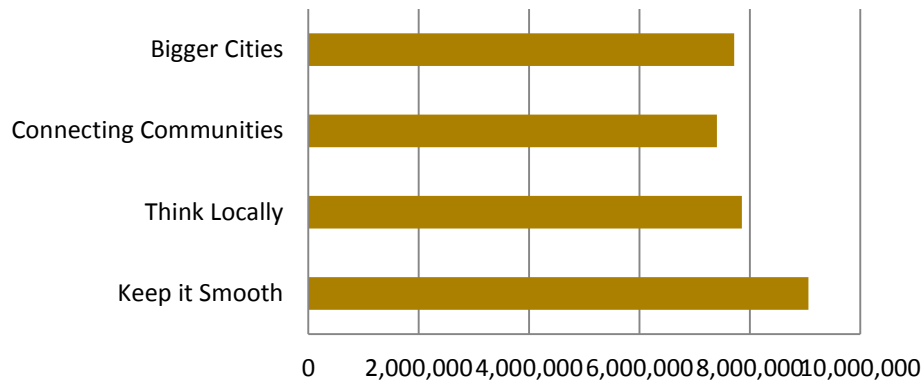


2040 Capacity

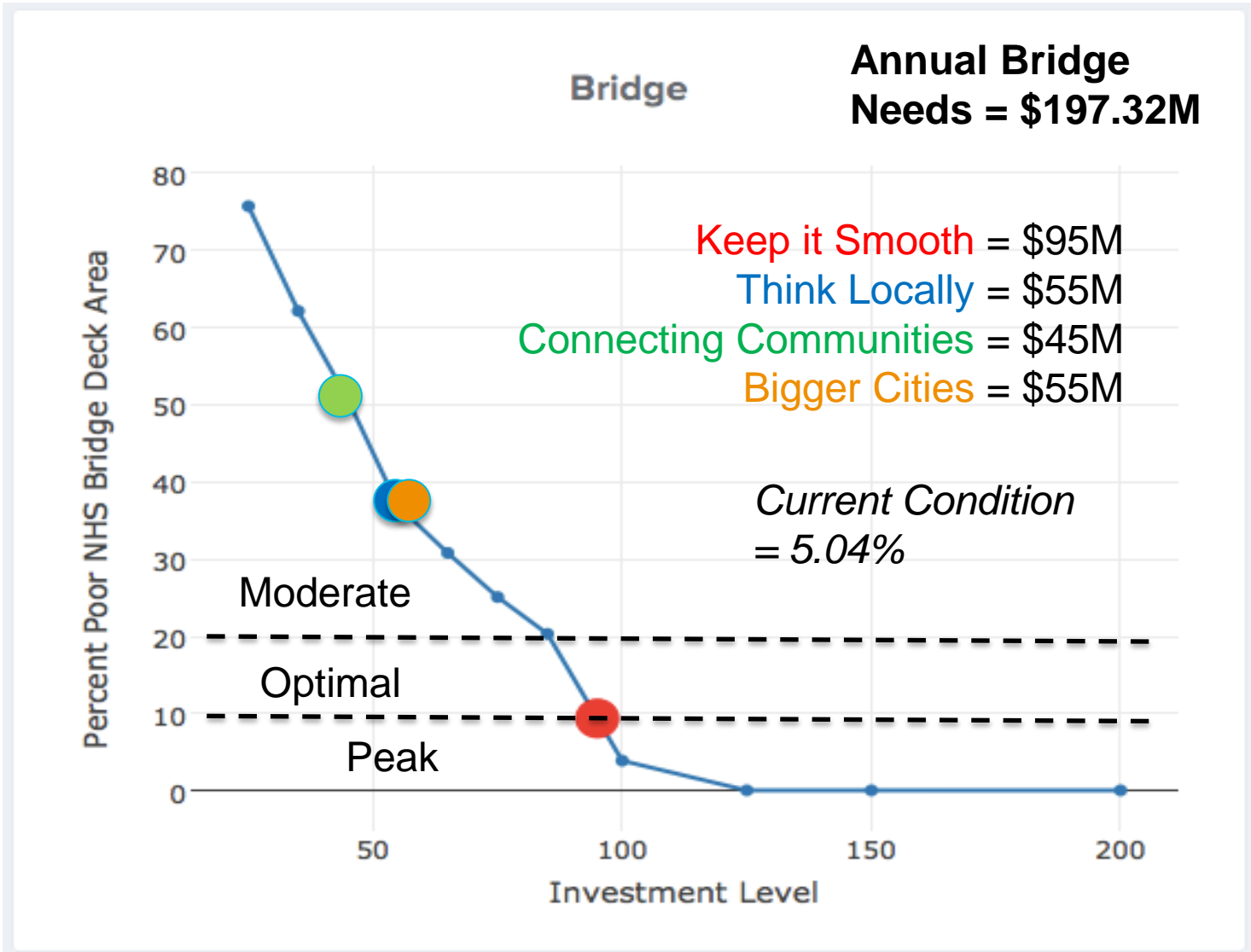
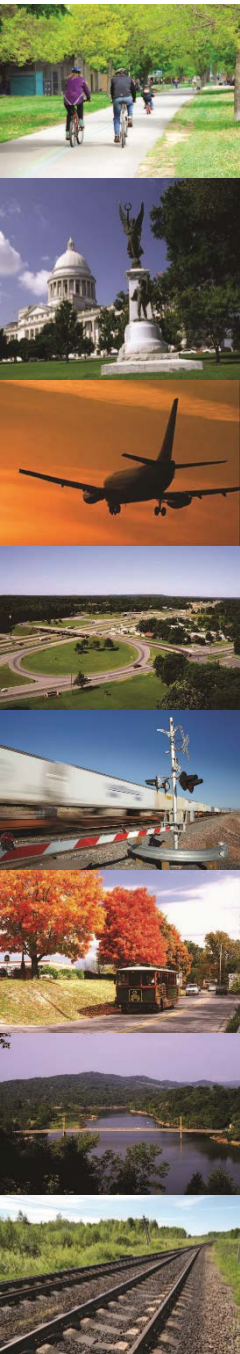
Annual Hours of Non-Truck Delay



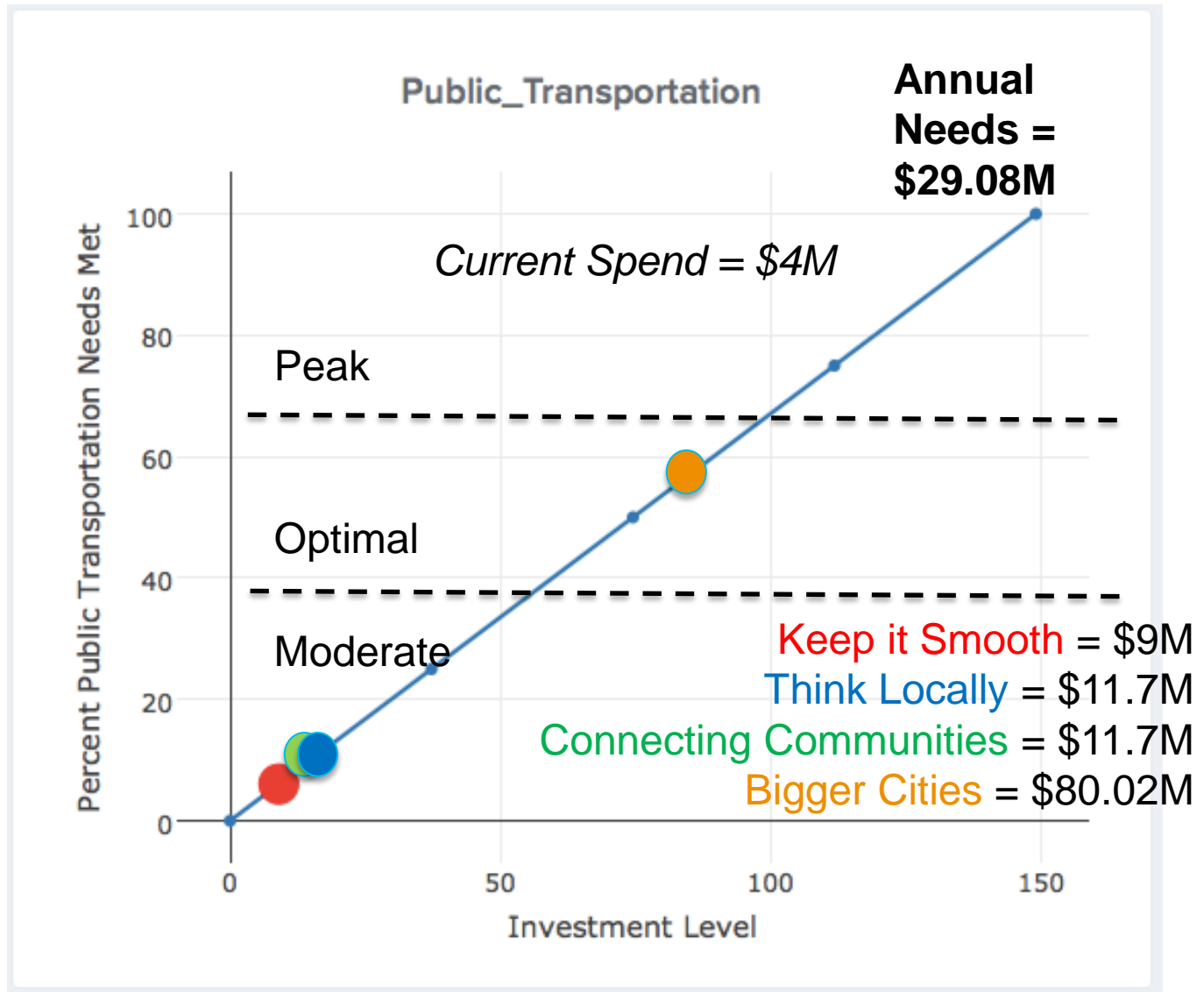
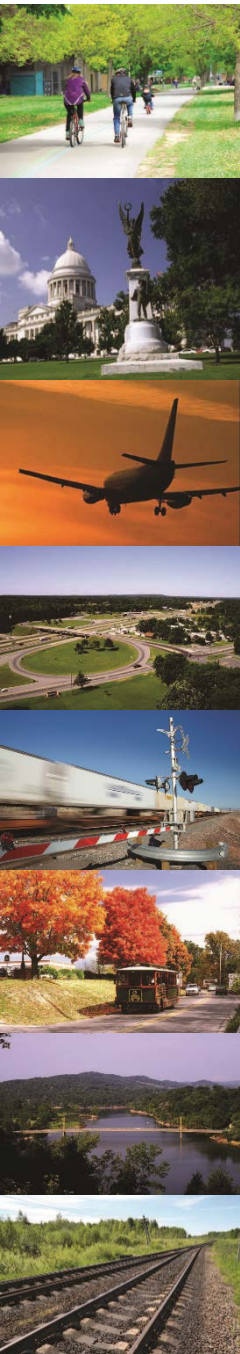
Annual Hours of Truck Delay



2040 Bridges



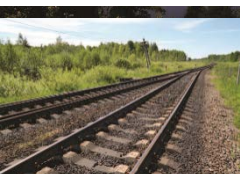
Public Transportation



Scenario Comparison



Strategy Name	Keep it Smooth	Think Locally - Trade Globally	Connecting Communities	Bigger Cities
Strategy Cost	\$ 600.7 M	\$ 600.7 M	\$ 600.7 M	\$ 600.7 M
Percent Good Interstate Miles	98	98	98	98
Percent Good NonInterstate NHS Miles	77.23	71.9	67.1	67.36
Percent Good NHS Miles	78.01	72.9	70.35	70.49
Percent Poor Interstate Deck Area	9.03	41.39	60.8	41.39
Percent Poor NonInterstate NHS Bridge Deck Area	9.69	32.97	41.64	32.97
Percent Poor NHS Bridge Deck Area	9.38	36.92	50.63	36.92
Reduction in 2040 NonTruck Delay Million Hours	4.17	28.13	28.6	27.24
Percent Peak LOS D or Better Miles	99.62	99.76	99.76	99.75
Regional Congestion Index	0.62	0.55	0.43	0.59
Reduction in 2040 Freight Congestion Cost in Millions	28.7	179.2	253.1	185.6
Reduction in 2040 Truck Delay Thousand Hours	224	1432	1880	1455
Average Freeway Speed in mph	53.16	55.62	56.22	54.98
Change in 2040 Freeway Million VMT	0.32	1.51	3.49	0.22
Percent Maintenance Needs Met	30.62	30.62	30.62	30.62
Percent ITS Needs Met	77	142	142	142
Percent Public Transportation Needs Met	6.04	7.85	7.85	53.69
Percent Bike Ped Needs	2.5	2.5	2.5	25



Performance-based Scenario Development

Portfolio Goal: Optimize LRITP Programmatic Investment Areas

Safety and Security

Infrastructure Condition

% of Bridge Deck Area on the Interstate in Poor Condition

% of Bridge Deck Area on the Non-Interstate NHS in Poor Condition

% of Pavement on the Interstate in Good Condition (based on PSR/IRI)

% of Pavement on the Non-Interstate NHS in Good Condition (based on PSR/IRI)

Congestion Reduction, Mobility and System Reliability

Change in 2040 Annual Hours of Non-Truck Delay Relative to No-Build

Change in % Lane-Miles with Level-of-Service D or Better during Peak Hours Relative to No-Build

Change in Regional Congestion Index Relative to No-Build

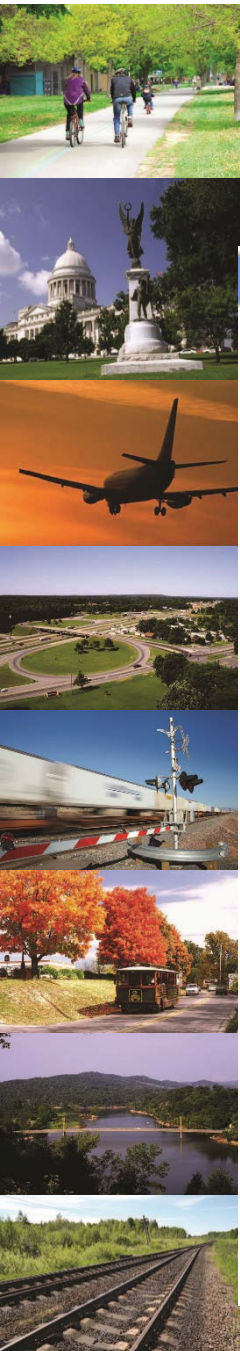
Economic Competitiveness

Change in 2040 Freight Congestion Cost Relative to No-Build

Change in 2040 Annual Hours of Truck Delay Relative to No-Build

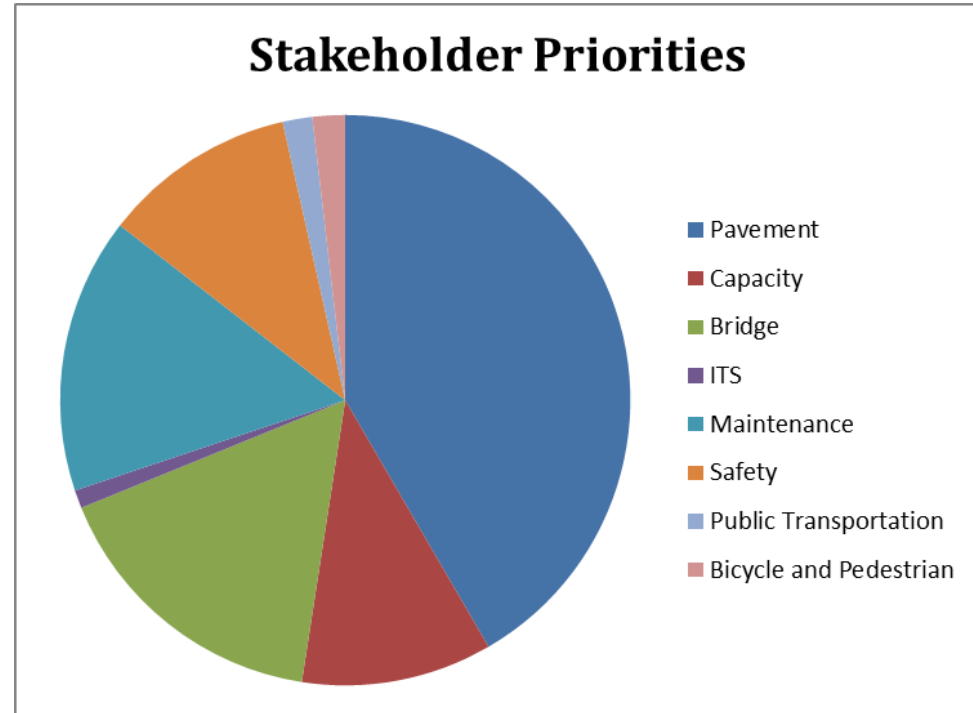
Environmental Sustainability

Multimodal Transportation System

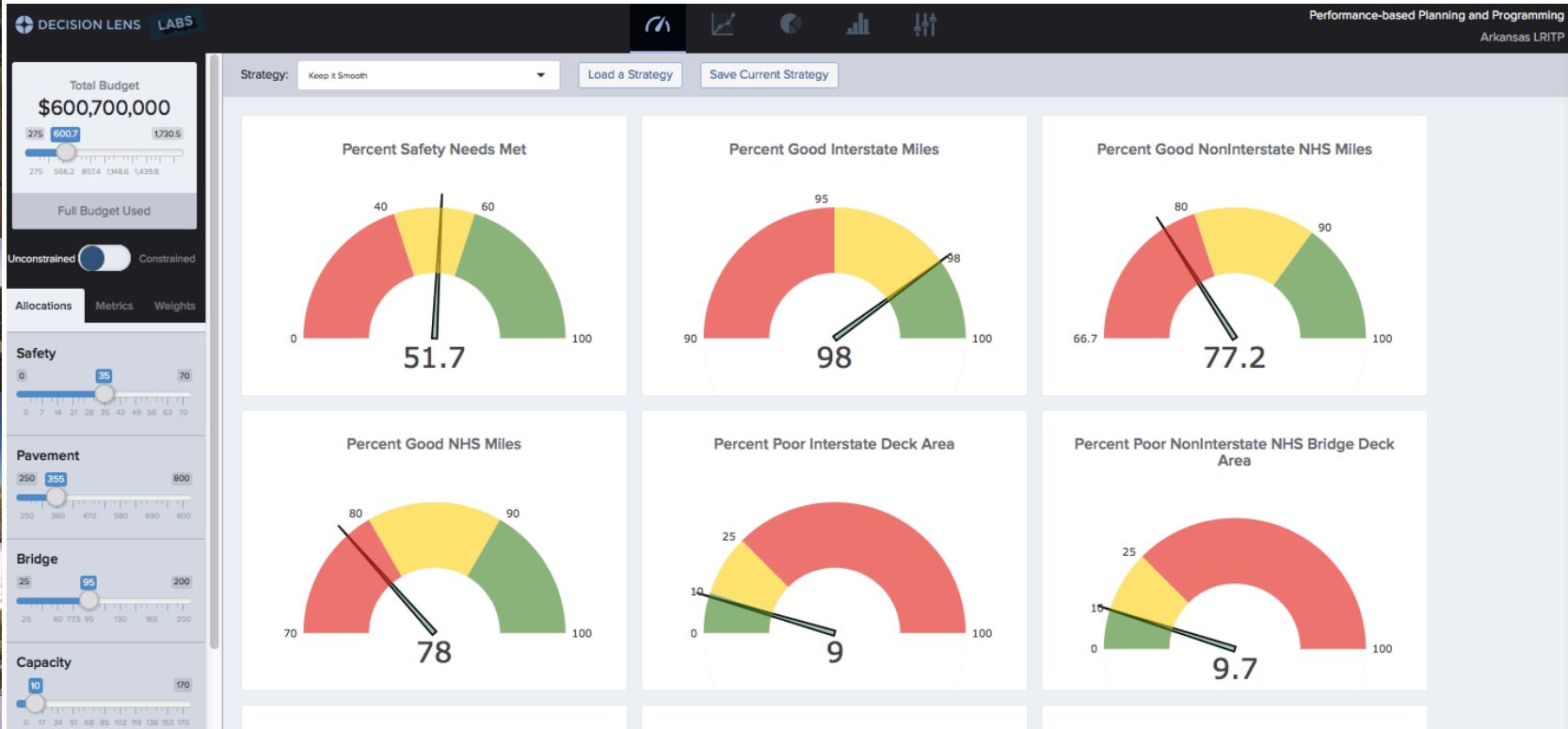


Priority Driven Scenario

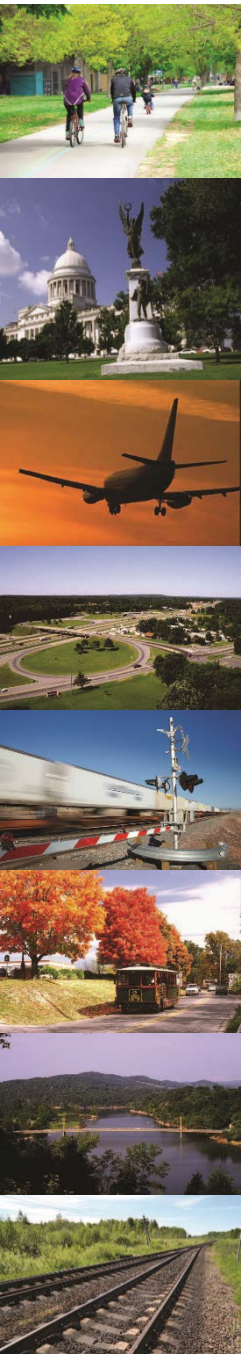
- Scenario represents the optimal allocation of resources given
 - Stakeholder priorities
 - Must-hit Performance Targets
 - Program equity constraints



Trade-offs

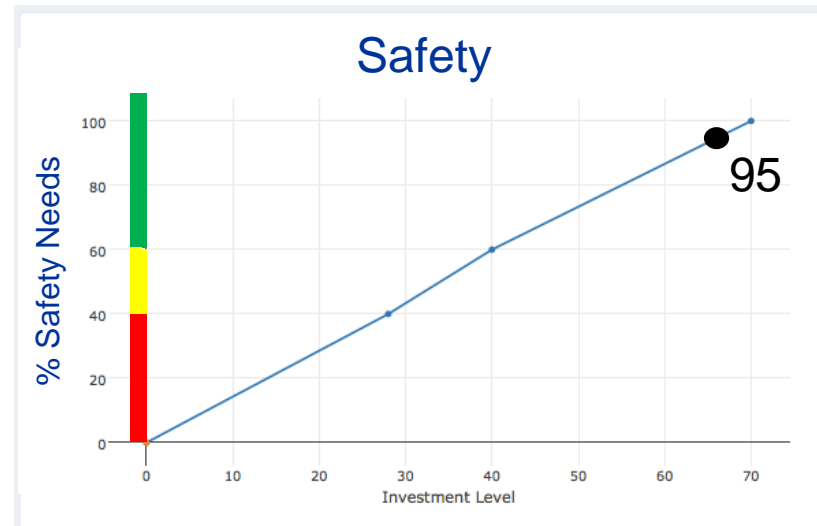
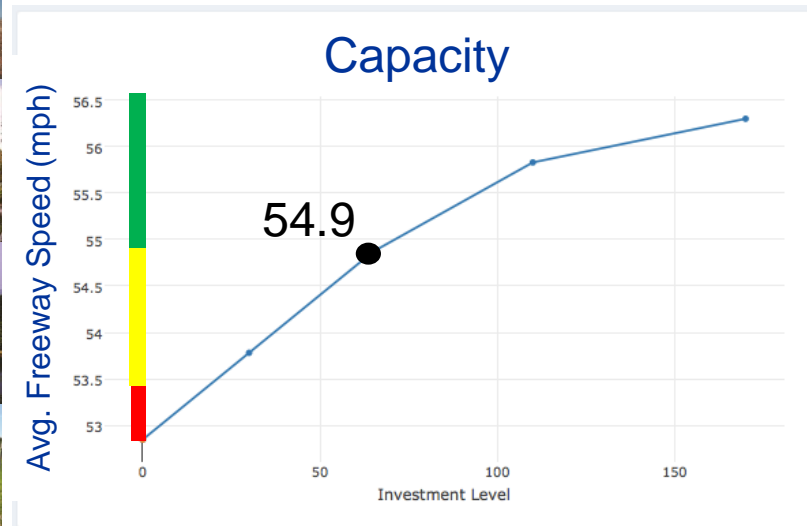
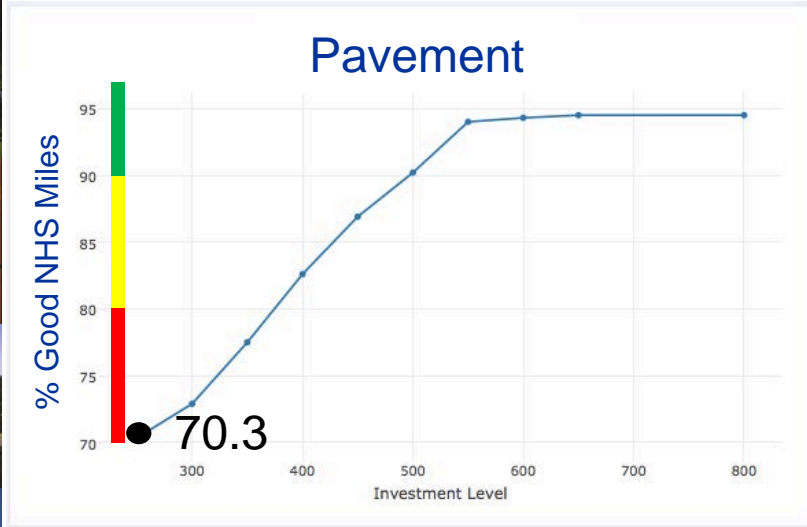
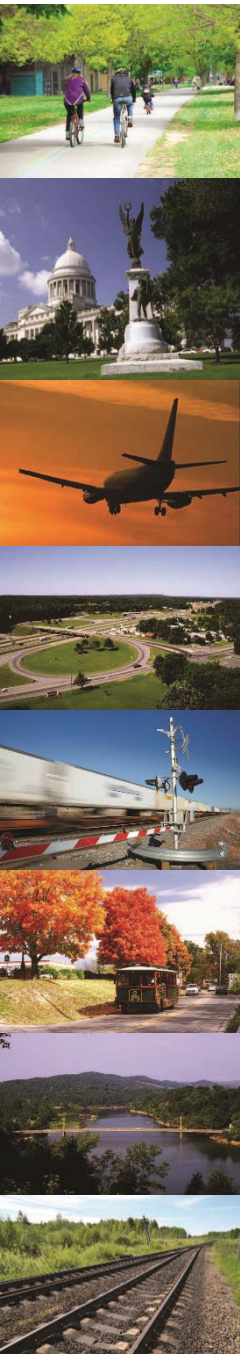


- Interactive Controls enable exploratory tradeoff & financially-constrained analyses



Decision Lens Live Demo

What if? Analysis

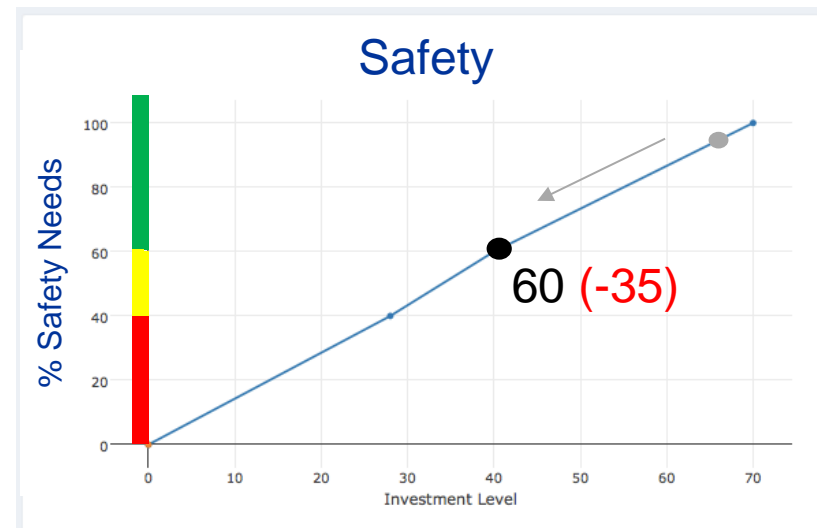
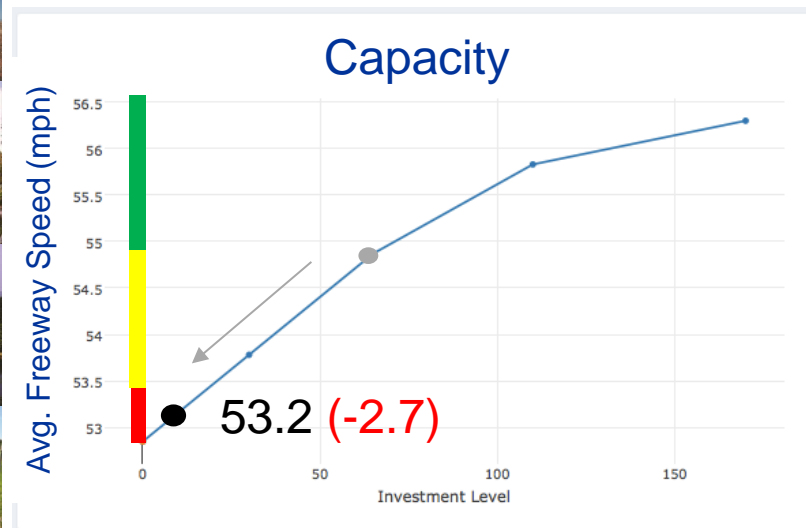
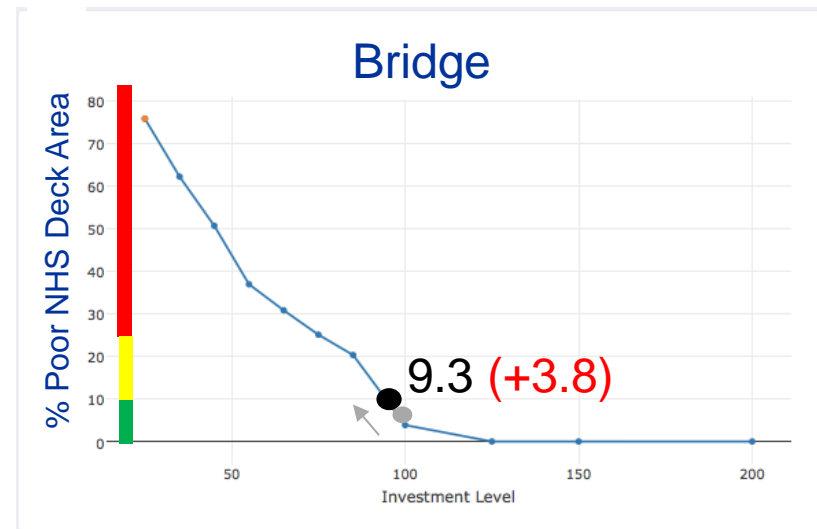
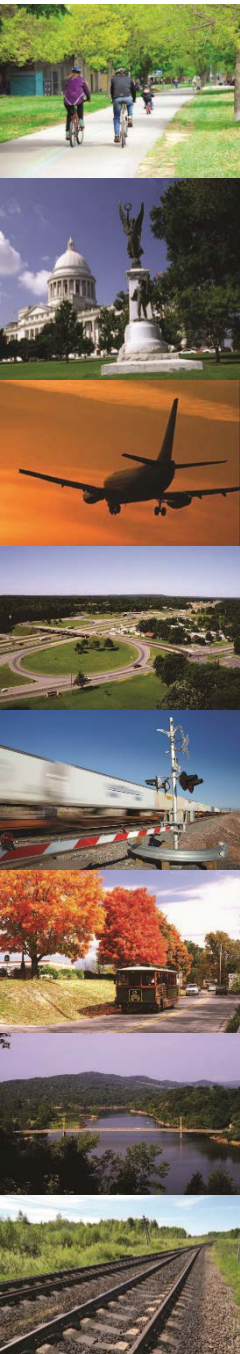


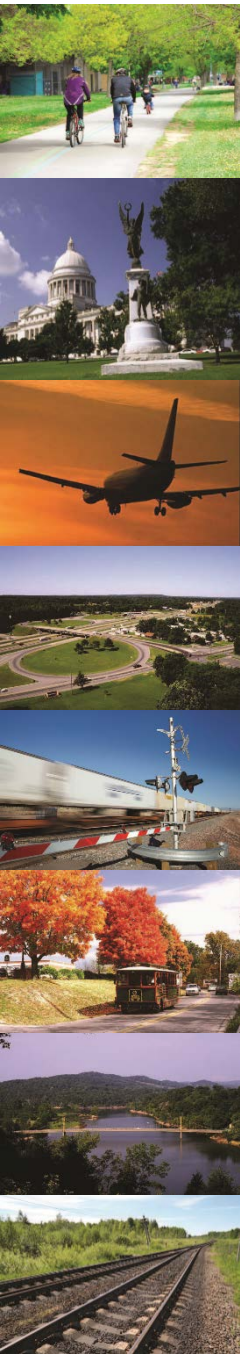
Budget = \$600.72M

~~-\$100.00M~~

\$500.72M

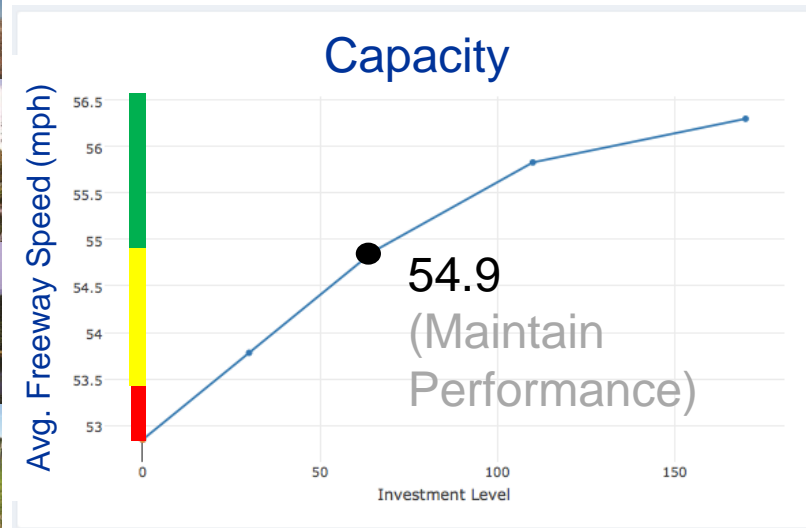
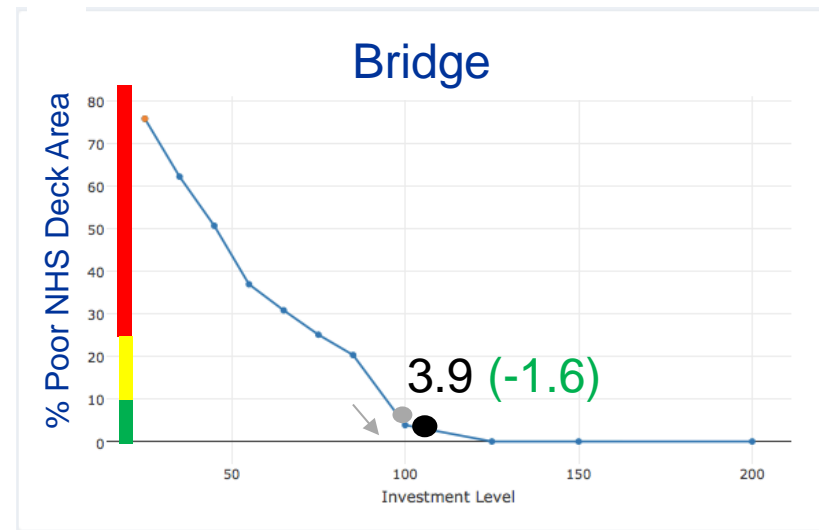
What if? Budget Reduction

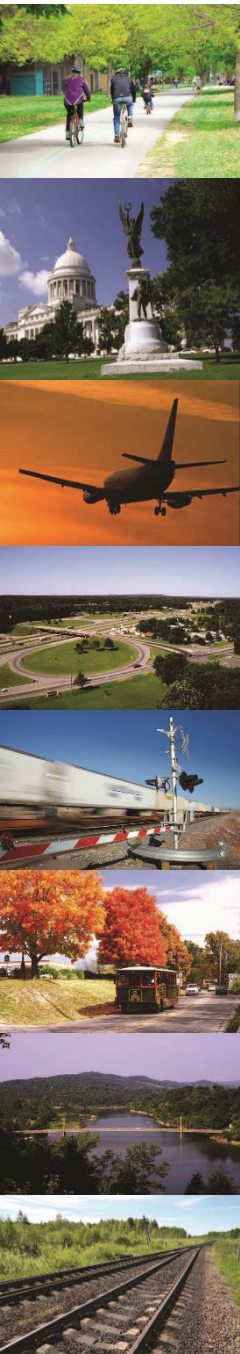




What if? Budget Increase

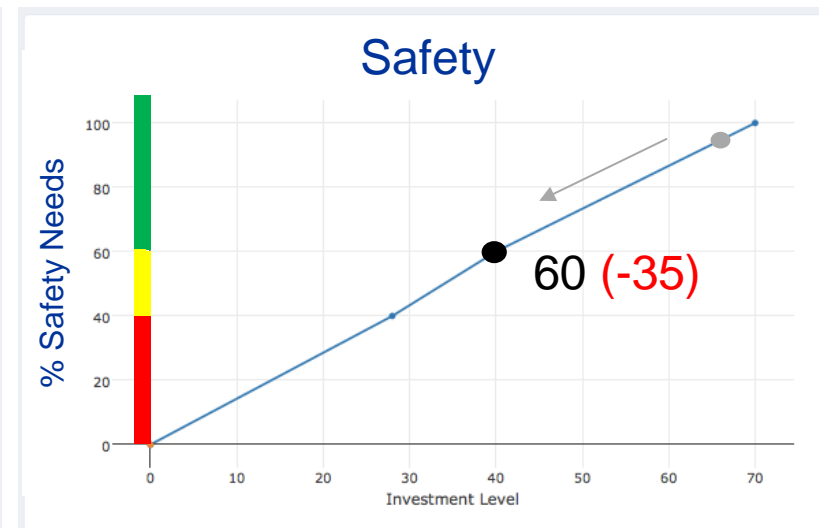
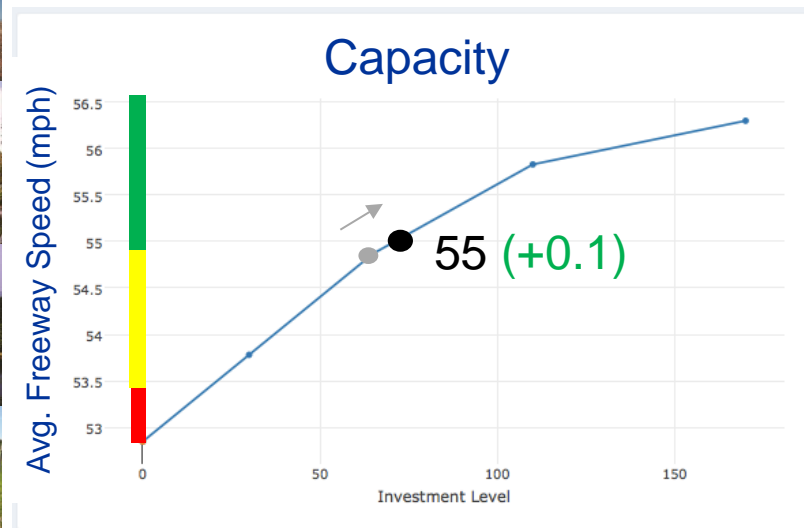
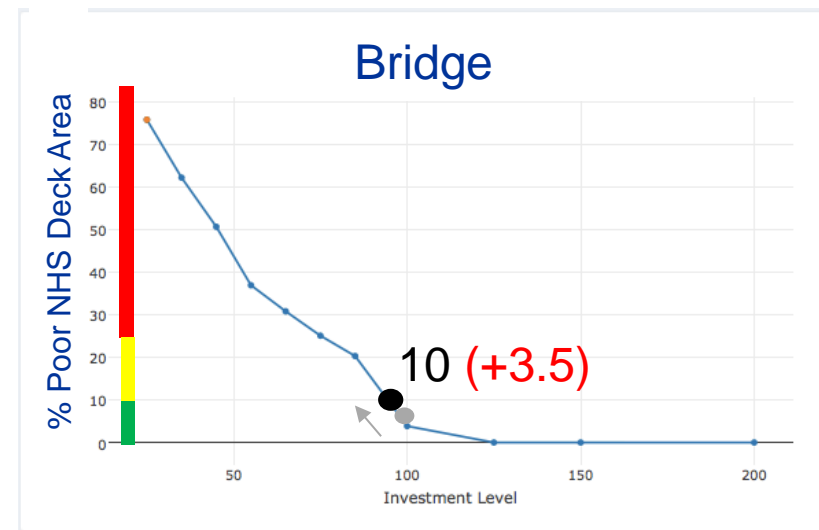
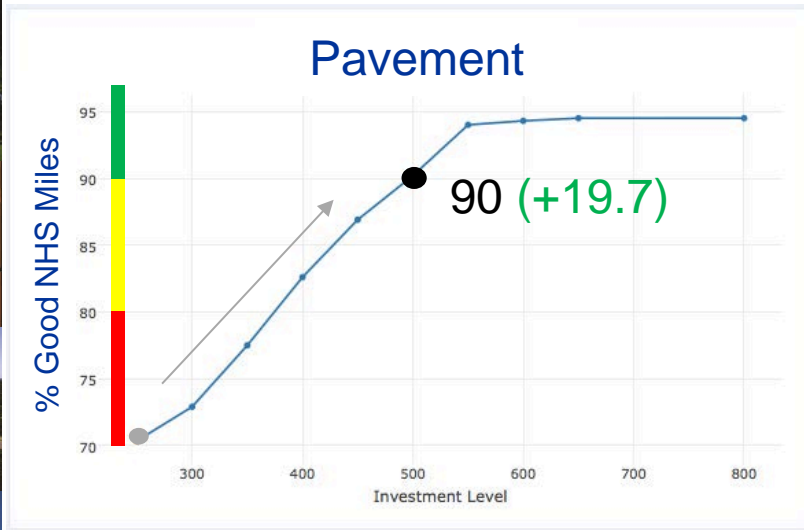
Budget = \$600.72M
+\$100.00M
\$700.72M





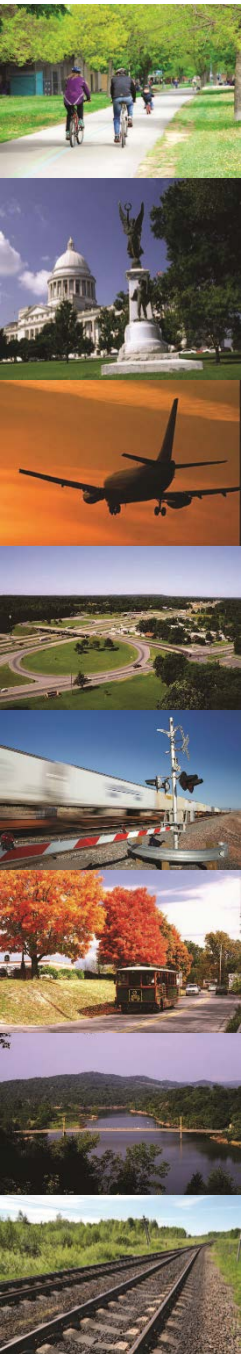
What if? Wanted Peak

Budget = \$600.72M
+\$539.30M
 Min Required = \$1140.72M



Summary

- Using scenario planning to engage stakeholders and the public
- Linking resource allocation to system performance
- Setting realistic priorities and targets
- Understanding trade-offs
- Informs leadership



Questions

Jessie Jones, PE

Arkansas State Highway and Transportation Department

jessie.jones@ahtd.ar.gov

Kevin Ford

Decision Lens

kford@decisionlens.com

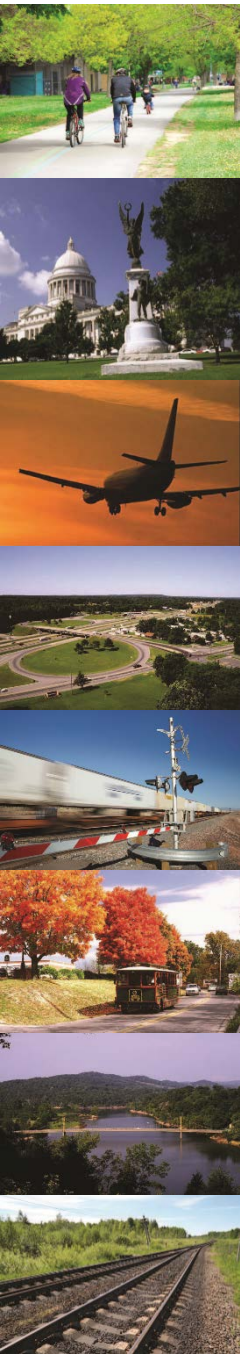


Project Website

<http://www.wemovearkansas.com>



Online Engagement



Arkansas LRITP Progress

WELCOME GOAL RANKING SCENARIOS FUNDING WRAP UP

3 Scenarios What to do Next Task

PRESERVE TO SERVE LOCAL/GLOBAL FREIGHT MAKING CONNECTIONS ON THE MOVE

PRESERVE TO SERVE
 "Keep it Smooth – Preserve the Investment" focuses on the existing transportation assets to maintain the safe & efficient movement of people & goods.

Please rate this scenario: ★ ★ ★ ★ ★

More about this

Safety +
 Pavement →
 Bridge ←
 Highway Congestion ←
 Highway Maintenance →
 Smart Transportation →
 Public Transportation →
 Bicycle & Pedestrian →

Reduced Performance ← Improved Performance

Help Privacy About MetroQuest

Arkansas LRITP Progress

WELCOME GOAL RANKING SCENARIOS FUNDING WRAP UP

3 Scenarios What to do Next Task

PRESERVE TO SERVE LOCAL/GLOBAL FREIGHT MAKING CONNECTIONS ON THE MOVE

LOCAL/GLOBAL FREIGHT
 "Think Locally - Trade Globally" focuses on investments that support local industry retention and attraction.

Please rate this scenario: ★ ★ ★ ★ ★

More about this

Safety +
 Pavement →
 Bridge ←
 Highway Congestion →
 Highway Maintenance →
 Smart Transportation →
 Public Transportation →
 Bicycle & Pedestrian →

Reduced Performance ← Improved Performance

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Arkansas LRITP Progress

WELCOME GOAL RANKING SCENARIOS FUNDING WRAP UP

3 Scenarios What to do Next Task

PRESERVE TO SERVE LOCAL/GLOBAL FREIGHT MAKING CONNECTIONS ON THE MOVE

MAKING CONNECTIONS
 "Connecting Communities - Forging Opportunities" increases roadway capacity to improve efficiency, connectivity, and economic competitiveness.

Please rate this scenario: ★ ★ ★ ★ ★

More about this

Safety +
 Pavement →
 Bridge ←
 Highway Congestion →
 Highway Maintenance →
 Smart Transportation →
 Public Transportation →
 Bicycle & Pedestrian →

Reduced Performance ← Improved Performance

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Arkansas LRITP Progress

WELCOME GOAL RANKING SCENARIOS FUNDING WRAP UP

3 Scenarios What to do Next Task

PRESERVE TO SERVE LOCAL/GLOBAL FREIGHT MAKING CONNECTIONS ON THE MOVE

ON THE MOVE
 "Bigger Cities - More Mobility" focuses on the allocation of funds for multimodal investments to alleviate urban congestion.

Please rate this scenario: ★ ★ ★ ★ ★

More about this

Safety +
 Pavement →
 Bridge ←
 Highway Congestion →
 Highway Maintenance →
 Smart Transportation →
 Public Transportation →
 Bicycle & Pedestrian →

Reduced Performance ← Improved Performance

Help Privacy About MetroQuest

Funding and Performance

