



# Overview of key findings of NCHRP Synthesis 480



Economic and Development Implications of Transportation Disinvestment

# **Best Practices and Strategies for Assessing Economic Implications of Disinvestment or Right-sizing Scenarios**

---

- ▶ Decision makers would benefit from new data and analytical tools
  - ▶ Assess the impact of disinvestment and right-sizing of the transport network on national and regional growth, business formation and job creation
- ▶ TRB's Committee on Transportation and Economic Development (ADD10) examined these major policy issues in conferences and papers
  - ▶ Recognized the need for systematic synthesis of the current knowledge of this issue
  - ▶ 2014: Submitted proposal to NCHRP to conduct a synthesis study



# Objectives of the Webinar

---

- ▶ Examine the findings from NCHRP Synthesis 45-11 Economic and Development Implications of Transportation Disinvestment
- ▶ Focus how state DOTs and MPO are managing their transportation infrastructure network
  - ▶ Balancing competing maintenance and shrinking investment budgets while mitigating the economic consequences



## **Questions asked included**

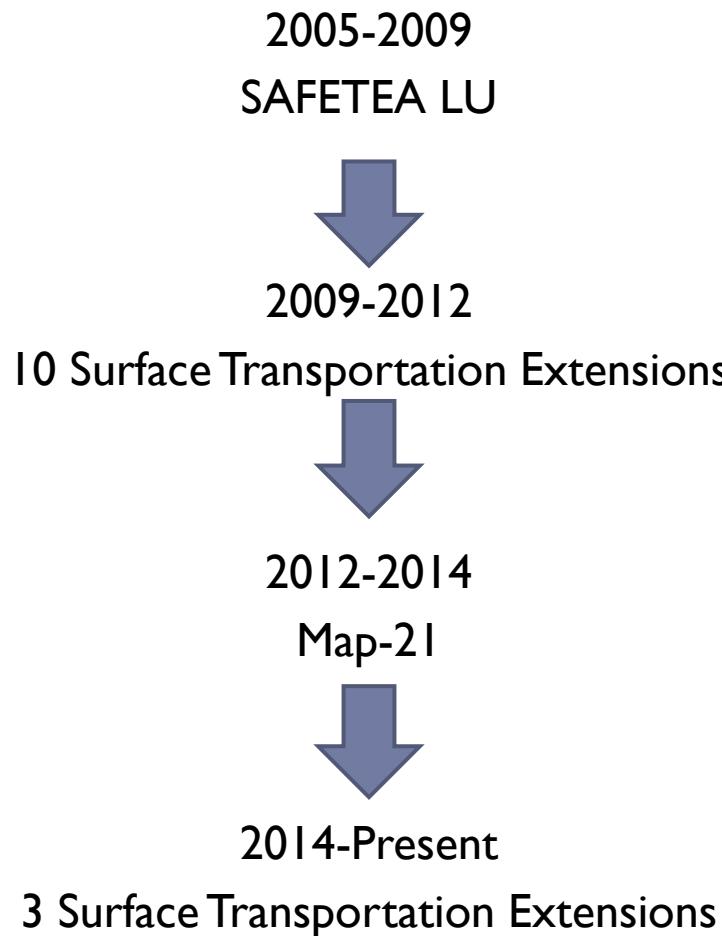
---

- ▶ How disinvestment affects linkages to key nodal points and capacities of different facets of the transport system;
- ▶ How to assess disinvestment impacts on national and regional economic growth, the distribution of income, and social and environmental sustainability;
- ▶ Can transportation analytical techniques currently being used ascertain the effects of disinvestment; and
- ▶ Are there new perspectives, new data, and analytical tools to assess the impact of disinvestment on growth, business formation and job creation

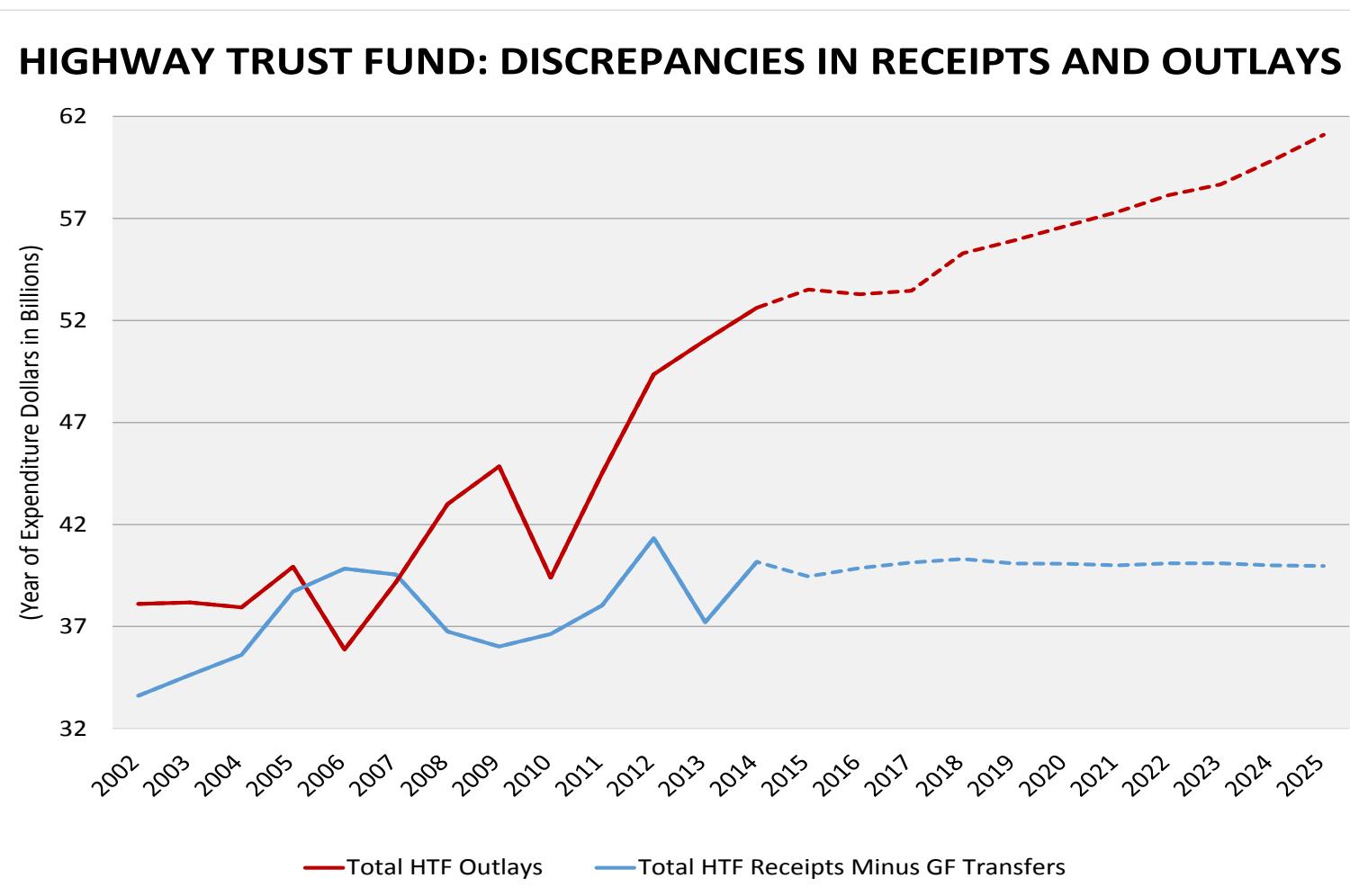


# Federal Transportation Funding Uncertainty

---



# Federal Transportation Funding Uncertainty



## CASH TRANSFERS FROM GENERAL FUND HAVE AVOIDED HIGHWAY TRUST FUND “FISCAL CLIFF”

---

- ▶ Sep 2008: \$8 billion General Fund transfer to HTF
- ▶ Aug 2009: \$7 billion General Fund transfer to HTF
- ▶ Mar 2010: \$19.5 billion General Fund transfer to HTF
- ▶ July 2012: \$2.4 billion Leaking Underground Storage Tank Trust Fund transfer
- ▶ Nov 2012: \$5.9 billion General Fund transfer to HTF
- ▶ Oct 2013: \$11.7 billion General Fund transfer to HTF
- ▶ Aug 2014: \$9.765 billion General Fund transfer to HTF
- ▶ Aug 2014: \$1 billion Leaking Underground Storage Tank Trust Fund transfer to HTF
- ▶ July 2015: \$8 billion General Fund transfer to HTF

**Total Transfers to Highway Trust Fund Since 2008:**

**Nearly \$75 billion Transferred to Keep the HTF Solvent**



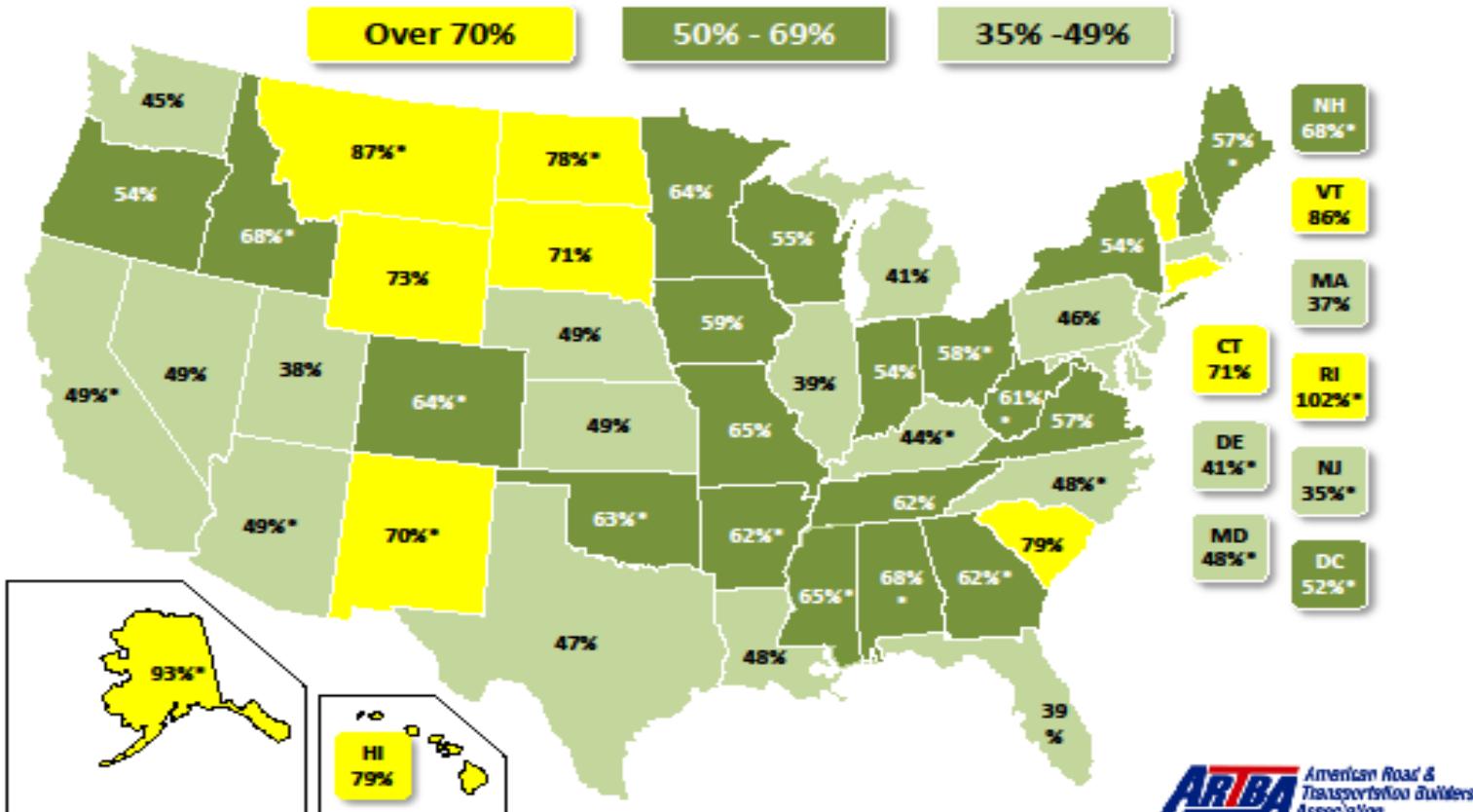
# State Transportation Funding

---

- ▶ Recently more than a dozen States have successfully increased revenue dedicated for transportation by either increasing existing taxes / user fees or tapping into new revenue sources.
  
- ▶ Several “red states” have successfully increased transportation-related taxes / user fees
  - ▶ Wyoming
  - ▶ Utah
  - ▶ Texas
  - ▶ Arkansas
  - ▶ Georgia



# Federal funds, on average, provide 52% of annual State DOT capital outlays for highway & bridge projects



Source: ARTBA analysis of "FHWA Highway Statistics" data, total 10-year average 2001-2011 from Tables SF-1 and SF-2. The percent is the ratio of federal-aid reimbursements to the state and total state capital outlays and is indicative of the importance of the federal-aid program to state capital spending for highways and bridges. Does not include local capital spending. Federal highway reimbursements are primarily used for capital outlays, including construction, right-of-way acquisition and engineering, but are also used for debt service for GARVEE bonds.

\* States that have issued GARVEE bonds before 2011.

## **Impact of Uncertainty and Underfunding**

---

- ▶ Approximately \$90 billion a year currently being spent on roads and bridges
- ▶ Most recent AASHTO Bottomline Report estimates we should be spending at least \$120 billion a year to maintain our roads and bridges
- ▶ States are having to make tough decisions
  - ▶ Underinvestment
  - ▶ Disinvestment
    - ▶ Jurisdictional Turnback
    - ▶ Abandonment



# **Economic Implications of Disinvestment and “Downsizing”**

Chandler Duncan

Economic Development Research Group, Inc.  
[www.edrgroup.com](http://www.edrgroup.com)

# From Underinvestment to Disinvestment

## Familiar Questions

- Where will investment pay off?
- Which projects to do?
- Where are there funding shortfalls?

## New Questions

- Which projects ‘not to do’?
- What are the effects of “not doing” something?
- Where will dis-investment allow better use of funds?

# **What is “Disinvestment?”**

*“Allowing an infrastructure asset to fall below previously accepted standards of condition or performance by either investing resources elsewhere, or simply investing less in the asset.”*

# What is Disinvestment?

## DISINVESTMENT IS NOT

- Simply “giving up” on a place, a population or an aspect of system performance.
- Temporarily neglecting needs for lack of funds.
- A necessary evil.

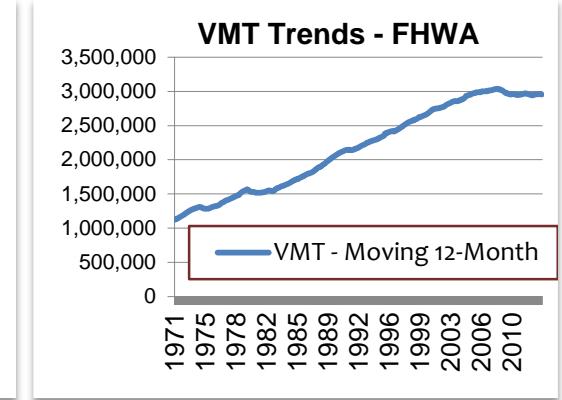
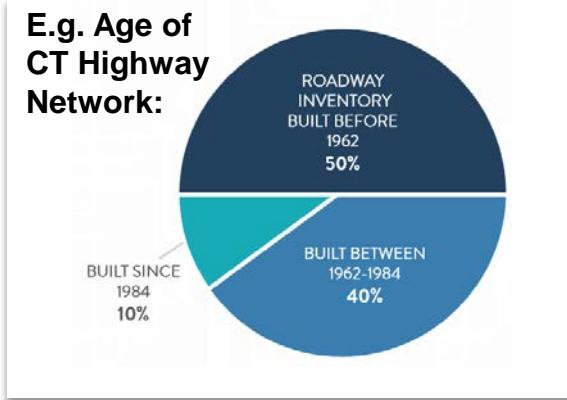
Goal: to achieve economic benefit by identifying and planning for disinvestment rather than simply “tolerating underinvestment”

## DISINVESTMENT IS

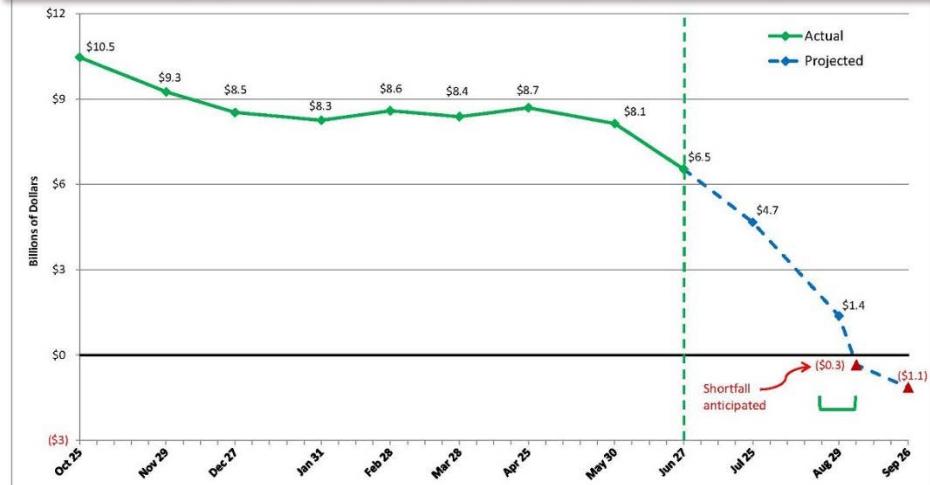
- Changing how assets are used and where revenues are invested to achieve realistic performance outcomes.
- Permanently making changes in how assets are used to reflect new transportation markets.
- A pro-active and meaningful choice.

# Driving Factors & Interdependencies

- Aging infrastructure
- Changing demand & technology
- Fiscal constraints
- Climate Change
  - Resilience planning putting a strain on limited resources
  - Affecting asset condition (increased incidence of severe weather, more advanced deterioration)



Based on current spending and revenue trends, the U.S. Department of Transportation estimates that the Highway Account of the Highway Trust Fund will encounter a shortfall before the end of fiscal year (FY) 2014.



# A New Planning and Investment Paradigm

## Expansion Paradigm

- Emphasis on building new facilities for expanding population and expanding auto dependency.

## Preservation/Asset Management Paradigm (Fix it First)

- Emphasis on maintaining existing facilities and limiting costs imposed by new or expanded systems.

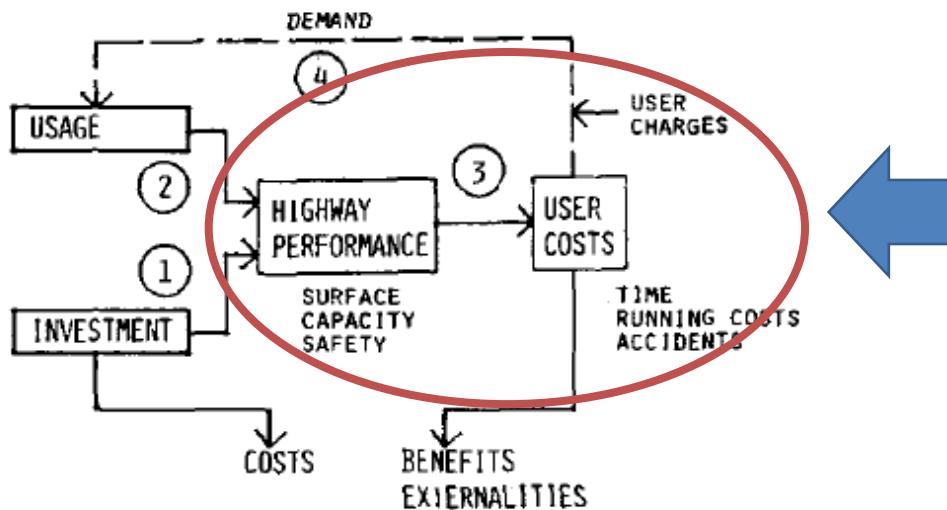
## Strategic Investment Paradigm

- Emphasis on efficiently adapting existing or new assets to changing needs over time.

# Understanding System Performance

Understanding disinvestment requires a framework for establishing the relationship between investment levels, system performance, user cost, and demand.

Agency savings from reduced preservation and maintenance need to be compared against increased user costs, increased failure risks and increased lifecycle costs.



- ▶ What are the economic costs of disinvestment?
- ▶ Can we benchmark economic performance of a transportation system?
- ▶ What are key system interdependencies?

Lee, D B. Monitoring and Evaluation of State Highway Systems.  
Transportation Research Record, Issue 891, 1982, p. 24-28.

# Impacts of Disinvestment: System & Economic Performance

Effects of Disinvestment	Economic Drivers
Reduced Use	Level of affected demand Relative user cost of alternate facilities (system redundancy)
Increased Risk	Likelihood and cost of “catastrophic failure” (system resilience)
Reduced Market Size	Effects on size of available workforce, inputs or markets; Elasticity of affected markets
Change in Locational Amenity	“Footloose” nature of dependent industries Comparative infrastructure in competing trade centers.

# What States Are Saying

- 41 of 50 States Participated in an NCHRP Survey
- Approximately Half had Confronted a “Disinvestment Decision” in the last 5 years
- 70% of agencies facing such decisions have had to decide about reducing funding for entire programs
- 50% had faced decisions about specific facilities
- Most (75%) made some effort to anticipate economic impacts, but felt more rigorous methods were needed.



# Case Study: I-84 in Hartford, CT

- Viaduct near the **end of its useful life** – more intense and more frequent maintenance & rehabilitation work; operational deficiencies
- **Replacement decision:** still needed? change functionality?
- Options: tunnel, at-grade, as-is, ***modernized design with smaller footprint*** (e.g. consolidate/rebuild access ramps)
- Historic context: the planning paradigm for urban interstates has evolved in the last 50 years – **changing understanding of performance** (transportation + economic development + urban design)
- **Economic considerations:** freed up land for development, local urban quality, impact on freight flows

# Long Range System Planning: The Michigan Example

Michigan considered alternative programmatic allocations for responding to their investment gap.

Some options had more revenue than others.  
Each one allocated revenue differently.

Summary of Four Investment Packages (\$2005)					
High-Level Category	Needs	Business as Usual	Change the Mix	Move Ahead	Flexible New Revenues
Aviation	\$5.28B	\$2.01B	\$2.01B	\$2.01B	\$2.01B
Freight	\$0.46B	\$0.22B	\$0.22B	\$0.27B	\$0.27B
Highway Expansion	\$16.81B	\$2.23B	\$2.23B	\$2.23B	\$3.55B
Highway Other	\$7.30B	\$5.27B	\$5.27B	\$5.27B	\$5.27B
Highway Preservation	\$30.92B	\$18.84B	\$16.02B	\$20.70B	\$27.54B
Highway Modernization	\$5.45B	\$2.67B	\$3.61B	\$3.72B	\$4.33B
Multi-modal Preservation	\$12.21B	\$5.78B	\$7.66B	\$9.02B	\$9.73B
Multi-modal Expansion	\$2.72B	\$0.02B	\$0.02B	\$0.02B	\$0.02B
Total	\$81.15B	\$37.03B	\$37.03B	\$43.24B (\$6.21B)	\$52.71B (\$15.68B)

# Long Range System Planning: The Michigan Example

Michigan considered alternative programmatic allocations for responding to their investment gap.

Each strategy accepted some unmet needs.

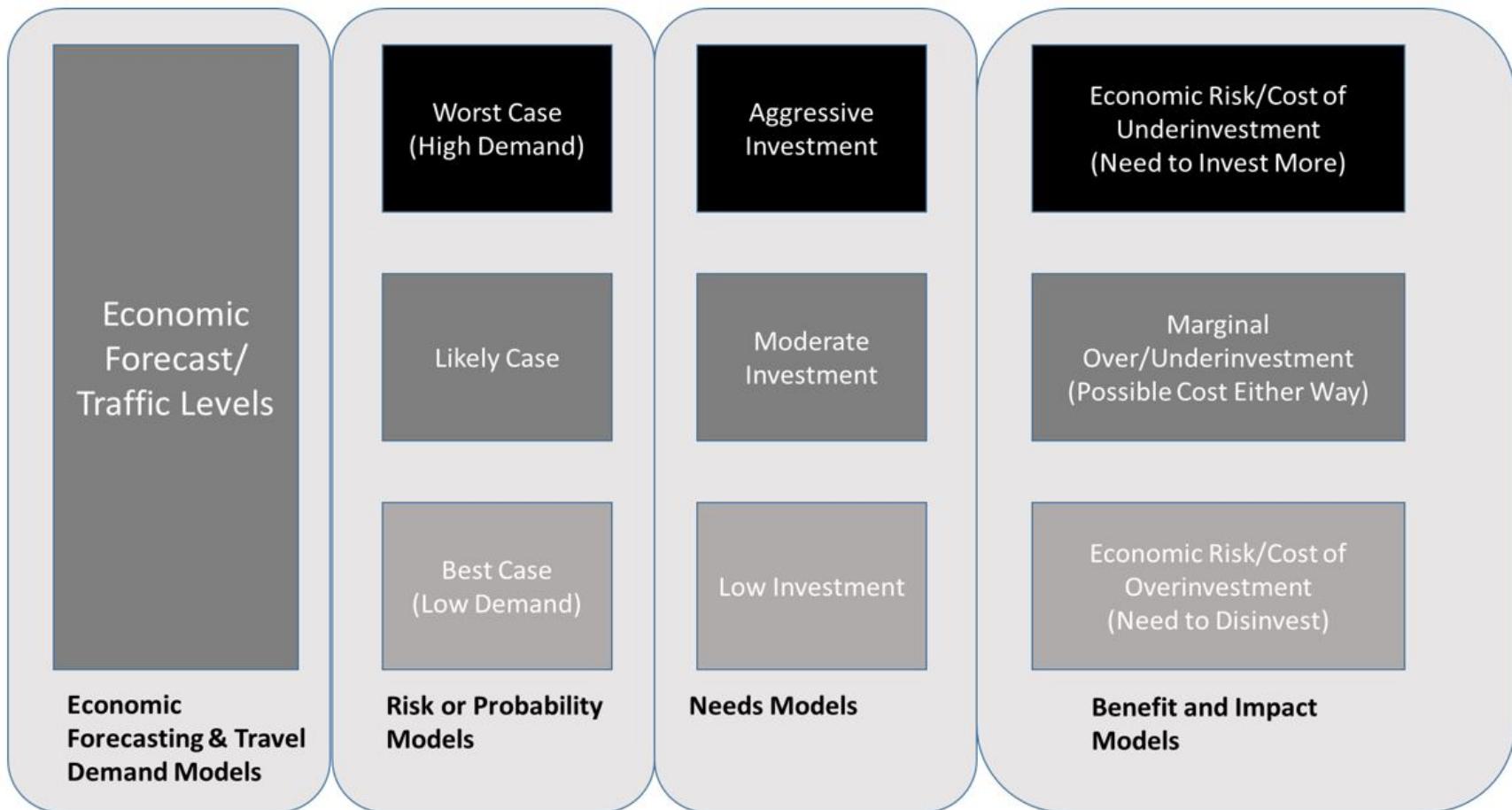
Summary of Four Investment Packages (\$2005)					
High-Level Category	Needs	Business as Usual	Change the Mix	Move Ahead	Flexible New Revenues
Aviation	\$5.28B	\$2.01B	\$2.01B	\$2.01B	\$2.01B
Freight	\$0.46B	\$0.22B	\$0.22B	\$0.27B	\$0.27B
Highway Expansion	\$16.81B	\$2.23B	\$2.23B	\$2.23B	\$3.55B
Highway Other	\$7.30B	\$5.27B	\$5.27B	\$5.27B	\$5.27B
Highway Preservation	\$30.92B	\$18.84B	\$16.02B	\$20.70B	\$27.54B
Highway Modernization	\$5.45B	\$2.67B	\$3.61B	\$3.72B	\$4.33B
Multi-modal Preservation	\$12.21B	\$5.78B	\$7.66B	\$9.02B	\$9.73B
Multi-modal Expansion	\$2.72B	\$0.02B	\$0.02B	\$0.02B	\$0.02B
Total	\$81.15B	\$37.03B	\$37.03B	\$43.24B (\$6.21B)	\$52.71B (\$15.68B)

# Long Range System Planning: The Michigan Example

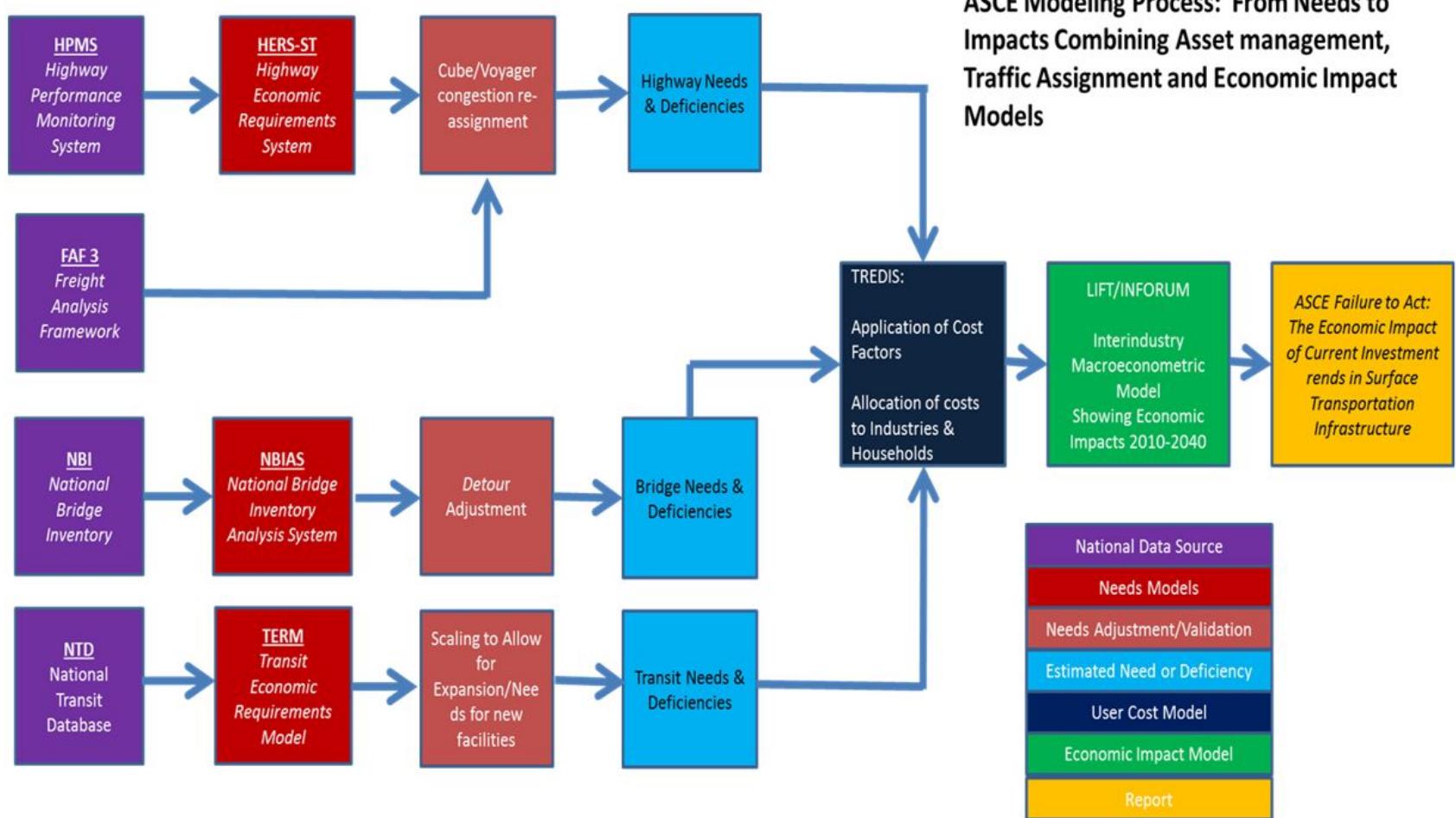
Economic Analysis demonstrates the comparative benefits and impacts of different investment strategies.

Economic Impacts and Benefits 2007-2030				
	Business as Usual (BAU)	Investing to Achieve Vision (IAV)	Diff. = IAV - BAU	% Increase IAV over BAU
Total Employment (in thousands permanent jobs)	30	43	13	43.3%
Gross State Product (in billion of 2005\$)	\$50.0	\$69.6	\$19.6	39.2%
Personal Income (in billion of 2005\$)	\$38.4	\$54.7	\$16.3	42.4%
Personal Travel Time Savings Benefits (in billions of 2005\$)	\$22.2	\$27.1	\$4.9	22.1%

# The Role of Different Model Types in Disinvestment Scenario Assessments



# Example of an Integrated Modeling Process (ASCE 2011)



# For Discussion: Disinvestment and Right-Sizing Research Needs Statement

- Practical examples of how to analyze a downsizing scenario using available data and models
- Transparently incorporate uncertainty and risks surrounding future demand forecasts and needs estimates.
- Assess the economic costs and impacts over-investing (or over-maintaining) versus under-investing (or under-maintaining)
- Consider the relative **efficiency** of a disinvestment scenario in contrast to a scenario where funding simply fails to materialize for planned investments (passive disinvestment)

*We welcome your feedback and suggestions!*

# Questions?

Feel free to email me at [cduncan@edrgroup.com](mailto:cduncan@edrgroup.com)

Or visit [edrgroup.com](http://edrgroup.com) for more information.

*We welcome your feedback and suggestions!*