

# Better Use of Public Dollars: Economic Impact Analysis in Transportation Decision Making



# William P. Eno Paper

Each spring, the Eno Leadership Development Conference brings a select group of the top graduate students in transportation and related disciplines to the Nation's Capital for an introduction to how transportation policy and programs are formed. During their week in Washington, D.C., the "Eno Fellows" meet with leaders from key transportation constituencies, including the U.S. Department of Transportation and its modal administrations, congressional committees, industry associations, and numerous advocacy groups.

The Eno Fellows are also invited to submit abstracts for the William P. Eno Research Paper, a competitive paper competition. There is no constraint on subject matter, but preference is given to papers that provide well-documented, specific and realistic recommendations for strategies to improve transportation. The goal of the paper is to expose a student to the complex nature of transportation policymaking while contributing to Eno's growing knowledge base. This paper is the first annual William P. Eno Research Paper.

## About William P. Eno



**William P. Eno**  
1858 - 1945

William Phelps Eno (1858-1945) was an internationally recognized pioneer in traffic control and regulation. Dubbed the "Father of Traffic Safety," Mr. Eno developed the first traffic plans for major cities including New York, London, and Paris, and is credited with helping to invent and popularize stop signs, taxi stands, pedestrian safety islands, and other traffic features commonly used throughout the world. His "rules of the road," adopted by New York City in 1909, became the world's first city traffic plan. He also wrote the first-ever manual of police traffic regulations.

Mr. Eno gradually embraced multimodal transportation interests. He developed a plan for subways in New York City long before anyone else seriously considered the concept. He also became interested in maritime activities, supported railroad development, and instigated research in the 1920s on the future impact of aviation. In 1921, he chartered and endowed the Eno Center for Transportation to attract the thinking of other transportation experts and specialists and to provide a forum for unbiased discussions that would lead to improvements in the movement of people and goods. Mr. Eno died in 1945 at the age of 86. Ironically, he never drove a car during his lifetime. The Father of Traffic Safety, an avid horseback rider, distrusted automobiles.

## About the Author

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# Introduction

## The Value of Transportation Investment

Since the founding of the nation, the federal government has played a role in shaping its transportation network. Canal systems, transcontinental railroads, interstate highways, airports, and transit systems all exist because the government made investments with the expectation that transportation improvements would deliver extensive social and economic benefits in return.

In today's climate of economic fragility and anemic job growth, policymakers often look to transportation investments as a way to spur the economy. One approach has been to fund projects that promise a high level of quick, short-term employment. Large, capital-intensive projects can put thousands of people to work.<sup>1</sup> However, ample research has shown that transportation system improvements also provide substantial economic benefits over the long term. A report<sup>2</sup> prepared in 2002 for the National Research Council identified the principal economic benefits of transportation investment:

- Creates jobs while boosting industrial competitiveness and productivity;

- Enhances household wellbeing;
- Strengthens local, regional, and state economies;
- Boosts state tax revenues;
- Facilitates business and leisure travel;
- Reduces economic losses associated with crashes; and
- Reduces economic losses associated with congestion.

To the extent that sound infrastructure investments support long-term economic growth, they can help solve larger problems such as budget deficits. Not all transportation spending, however, is created equal. Projects can have varying effects on the transportation network, and some projects provide greater economic benefits than others. Public investments in transportation are likely to be more effective when economic impact analysis informs the decision-making process. With limited budgets at all levels of government, finding investments that will maximize returns in terms of the benefits listed above will ensure that taxpayer dollars are used most effectively.

Improved modeling techniques and analytical tools mean that many methods are now available to estimate the impacts

<sup>1</sup> United States Department of Transportation, Chief Economist Jack Wells: *Transportation Spending, An Inefficient Way to Create Short-Term Jobs*, September 16, 2008. <http://fastlane.dot.gov/2008/09/chief-economist.html>.

<sup>2</sup> Cambridge Systematics, *The Benefits of Transportation Investment: Economic, Environmental, Community and Social, Congestion Reduction*, prepared for the National Cooperative Highway Research Program or the Transportation Research Board (Washington, D.C.: National Research Council, 2002). [http://www.transportation.org/sites/planning/docs/nchrp22\\_3.pdf](http://www.transportation.org/sites/planning/docs/nchrp22_3.pdf)

of transportation investment before construction begins. “Economic impact analysis” is a helpful tool for identifying the economic impacts that a certain project or improvement can have on a region. These impacts can be weighed against construction and maintenance costs over the life of the project; they can also be compared against the benefits of competing projects to determine which is the better investment. In a fiscal environment where every dollar matters, a strategic, long-term, accountable approach will help to ensure positive long-term economic outcomes and a better use of public dollars.<sup>3</sup>

## Transportation Policy Today

Most transportation infrastructure investments in the United States today are federally supported but locally implemented. States and localities typically select their own projects but receive a portion of the funding for these projects from the federal government. While some states and localities are content to make their own transportation planning decisions, there are others who contend, “this piecemeal approach prevents the smooth integration of local, state, and federal policies and hinders potential synergies across projects.”<sup>4</sup>

Applying economic impact analysis to transportation projects might seem an obvious part of the decision-making process, but today many transportation investments are made without considering these impacts. The Government Accountability Office (GAO) reported in 2010 that only 11 states cited economic analysis as being very important when deciding which projects to include in their statewide transportation plans.<sup>5</sup> Meanwhile, the federal surface transportation program distributes more than 80 percent of highway funding to states and localities using formula grants with little oversight.<sup>6</sup> Think tanks, transportation professionals, and Congressional leaders have criticized previous federal transportation authorization acts for failing to provide the leadership states may need to reach transportation-related goals.<sup>7</sup>



On the other hand, recent trends do point to increased use of economic impact analysis in transportation planning at all levels of government. Some states have made substantial progress in using economic impact analysis, while other states have shown willingness to move toward incorporating these tools in their decision-making processes.<sup>8</sup> The federal government has been reluctant to push states to adopt economic impact analysis, but there are some federal programs that use such analyses and offer models that could be useful in broader applications.

Current federal surface transportation policy is guided by the Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), which does not specifically address the use of economic analysis in transportation decision making. However, SAFETEA-LU includes competitive grant programs such as New Starts, as well as a competitive financing program called Transportation Infrastructure Finance and Innovation Act (TIFIA), that have economic analysis components. Also, the economic stimulus legislation passed in 2009 under the title American Recovery and Reinvestment Act (ARRA) contained a competitive grant program called Transportation Investment Generating Economic Recovery (TIGER).<sup>9</sup> All

<sup>3</sup> Bipartisan Policy Center, National Transportation Policy Project, *Performance Driven: Achieving Wiser Investment in Transportation*, 2011. [http://www.bipartisanpolicy.org/sites/default/files/BPC\\_Transportation\\_0.pdf](http://www.bipartisanpolicy.org/sites/default/files/BPC_Transportation_0.pdf); Kahn Matthew E. and David Levinson, Brookings Institution, *Fix it First, Expand it Second, Reward it Third: A New Strategy for America's Highways*, 2011. [www.bipartisanpolicy.org/sites/default/files/BPC\\_Transportation\\_0.pdf](http://www.bipartisanpolicy.org/sites/default/files/BPC_Transportation_0.pdf).

<sup>4</sup> Bill Bradley et al., *Road to Recovery: Transforming America's Transportation*, July 2011. Carnegie Endowment for International Peace Leadership Initiative on Transportation Solvency. [http://carnegieendowment.org/files/road\\_to\\_recovery.pdf](http://carnegieendowment.org/files/road_to_recovery.pdf)

<sup>5</sup> Government Accountability Office, *Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight*, December 2010. <http://www.gao.gov/new.items/d1177.pdf>.

<sup>6</sup> Bill Bradley et al., *Road to Recovery: Transforming America's Transportation*, July 2011. Carnegie Endowment for International Peace Leadership Initiative on Transportation Solvency [http://carnegieendowment.org/files/road\\_to\\_recovery.pdf](http://carnegieendowment.org/files/road_to_recovery.pdf); <http://carnegieendowment.org/2011/07/11/road-to-recovery-transforming-america-s-transportation/3e1h>.

<sup>7</sup> Several agencies have criticized previous federal funding programs. A March 2008 GAO report (08-400) recommended that Congress consider refocusing transportation programs under SAFETEA-LU to be much more performance-based. The U.S. Chamber of Commerce issued a report in 2010 (USCOC Transportation Performance Index 2010) that examined the relationship between infrastructure investment and sustained economic growth. This study found “significant reforms” were needed to strategically target investment so that it will better boost long-term economic growth.

<sup>8</sup> <http://www.gao.gov/newitems/d1177.pdf>

<sup>9</sup> See USDOT Office of Innovative Program Delivery TIFIA Program Guide (2011) for more information on TIFIA loan project criteria and eligible transportation projects under the TIFIA program.



of these programs go further than typical formula programs in considering returns on transportation investment as part of federal decision making about where to spend transportation dollars.

In November 2011, the Senate Environment and Public Works Committee released a draft bill titled “Moving Ahead in the 21<sup>st</sup> Century” or MAP-21. As currently written, MAP-21 seeks to improve state and metropolitan planning processes to incorporate a more comprehensive, performance-based approach to decision making, using economic impacts as one of the performance criteria.<sup>10</sup> Such bipartisan efforts point to policy-makers’ interest in directing transportation funds to projects that maximize desired economic outcomes. However, most of the funding under MAP-21 would still be distributed to states with only limited consideration of economic impacts, and the bill does not explicitly tie funding to economic performance.

### Paper Purpose and Goal

There is broad consensus among policy-makers, advocates, and thought-leaders that the federal government needs to use available transportation funds more effectively. This coincides with a public desire for greater accountability and

transparency in government spending more generally. The next three sections of this paper explore the role that economic impact analysis can play in accomplishing these goals:

**1. The history of economic impact analysis at the federal level.** The first section provides a chronological account of how economic analysis has factored into federal transportation policy to date. It describes changes introduced as part of several recent transportation reauthorization bills, as well as current directions in the use of economic impact analysis. This section also reviews three current discretionary programs that utilize economic impact analysis.

**2. Four case studies of states that are actively using economic impact analysis to prioritize transportation investments.** The second section details examples from states that have incorporated economic impact analysis in their decision-making processes.

**3. Potential policy and program solutions.** The last section draws on lessons learned from the federal programs and state case studies to recommend ways to improve decision making in transportation.

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<sup>10</sup> U.S. Senate, *MAP-21: Moving Ahead for Progress in the 21<sup>st</sup> Century*, Bipartisan Bill Outline. <http://t4america.org/wp-content/uploads/2011/07/map-21-outline.pdf>.



# Federal Policy Background

## Pre-1990: Early Federal Program and the Interstate Era

For much of the early 20<sup>th</sup> century, elected leaders gave strong support to federal investments in transportation infrastructure as a way to promote commerce and enhance national competitiveness. During this time, transportation engineers invented some of the first engineering-based measures for evaluating project impacts and incorporated these measures in the project selection process. However, economic impact analysis was rarely used in the project selection process. When it came to spending public dollars, it was often assumed that any expenditure on transportation infrastructure was worth the investment.<sup>11</sup>

Efforts to link economic growth directly to transportation investment did not begin in earnest until after the initial construction of the Interstate Highway System in 1956. In 1963, a pioneering study examined long-term employment trends and found dramatically higher job growth in areas with access to an interstate highway.<sup>12</sup> State and local governments around the country performed numerous studies

on the Interstate Highway System and on bypass roads. State departments of transportation also undertook several predictive studies and interview studies on the long-term economic returns from transportation investment.<sup>13</sup> The Urban Mass Transportation Act of 1964 created a discretionary program that distributed grants based in part on return on investment; this eventually became the transit New Starts program.<sup>14</sup> Despite these early efforts, however, economic impact considerations were not incorporated more broadly in transportation planning or investment decisions prior to 1990.

## 1991-2008: ISTEA, TEA-21, and SAFETEA-LU

The Interstate Highway System was declared complete in 1991, changing the direction of the federal transportation program. The first bill of the new era was the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, signed into law by President George H.W. Bush. The stated goal of this authorization bill (and of the bills that followed) was to “develop... a System that is economically efficient... to provide the foundation for the nation to compete in

<sup>11</sup> Federal Highway Administration, *Benefits of Interstate Highways*, 1970. Washington, D.C.

<sup>12</sup> U.S. Department of Transportation, *Social and Economic Effects of Highways*. 1974.

<sup>13</sup> Richards, Rebecca T., and Matthew Fisher. *Highway Improvements and Rural Growth: An Annotated Bibliography*. Department of Sociology, University of Montana. January 2001. [http://www.mdt.mt.gov/other/research/external/docs/research\\_proj/hiway\\_improve.pdf](http://www.mdt.mt.gov/other/research/external/docs/research_proj/hiway_improve.pdf).

<sup>14</sup> Urban Mass Transportation Act of 1964, Public Law 88-365 (78 Stat. 302)

the global economy, and to move people and goods in an energy efficient manner.”<sup>15</sup> Unfortunately, insufficient effort was made to develop and implement a process for measuring “economic efficiency” and comparing projects on that basis. As a result, the majority of federal dollars continued to be distributed according to formulas that did not directly incorporate economic impact data. While states were able to select projects that they felt were important, the federal government had few opportunities to direct funding to projects that were likely to have the most impact on the national economy.

Signed by President Bill Clinton in 1997, the Transportation Equity Act for the 21<sup>st</sup> Century, or TEA-21, established a national framework for transportation decision making but did not specifically include economic analysis in the decision-making process. Under TEA-21, there were very few federal requirements for evaluating the economic costs and benefits of highway and transit investments. Federal-aid highway projects continued to receive funding largely through formula programs that allocated resources based on vehicle miles traveled, population, and other demographic and engineering-related considerations.<sup>16</sup>

On August 10, 2005, President George W. Bush signed SAFETEA-LU into law. This law built on the decision-making foundation established by TEA-21, refining the programmatic framework for investments needed to maintain and grow the nation’s transportation infrastructure.<sup>17</sup> Unfortunately, SAFETEA-LU still lacked mandates for rigorous economic analysis and contained no criteria for distributing funding based on economic impact. A GAO report published in 2008 found that project selection under SAFETEA-LU did not promote the efficient use of federal funds:

*Moreover, programs often do not employ the best tools and approaches; rigorous economic analysis is not a driving factor in most project selection decisions and tools to make better use of existing infrastructure have not been deployed to their full potential.*<sup>18</sup>

Regardless, there were—and still are—some discretionary programs within the federal surface transportation program that incorporate economic impact analysis in the grant-making process. While these programs have their critics, they do offer some lessons in terms of how public dollars could be



used more effectively and how investment could be targeted to projects with the greatest benefits.

### Existing Federal Programs That Incorporate Economic Impact Analysis

Several existing federally-administered programs show potential for bringing economic impact analysis into the project decision-making process. Within the Federal Transit Administration (FTA), the New Starts program, TIFIA, and TIGER provide examples of programs that distribute loans and grants in part based on economic considerations. These programs provide a useful framework for developing a comprehensive, standardized policy that achieves economic impact goals. Each program is explored in detail below.

#### FTA New Starts

The Major Capital Investment Grants program, also known as New Starts, is a discretionary grant program that funds

<sup>15</sup> Section 2, Declaration of Policy, “Intermodal Surface Transportation Efficiency Act of 1991,” H.R. 2950 (Enrolled Bill), Public Law 102 240, 105 Stat. 1914.

<sup>16</sup> Federal Highway Administration, *Transportation Equity Act for the 21<sup>st</sup> Century: A Summary*. [www.fhwa.dot.gov/tea21/sumenvir.htm](http://www.fhwa.dot.gov/tea21/sumenvir.htm).

<sup>17</sup> Federal Highway Administration, *A Summary of Highway Provisions in SAFETEA-LU*, [www.fhwa.dot.gov/safetealu/summary.htm](http://www.fhwa.dot.gov/safetealu/summary.htm).

<sup>18</sup> Government Accountability Office, *Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs*, GAO-08-400, 2008. [www.gao.gov/new.items/d08400.pdf](http://www.gao.gov/new.items/d08400.pdf), “What GAO Found” p.1



new fixed guideway transit systems in every area of the country. It also funds extensions to existing systems. Eligible projects include commuter rail, light rail, heavy rail, bus rapid transit, streetcars, and ferries.<sup>19</sup> A recent report from the Bipartisan Policy Center describes the program as one that considers performance measures such as economic impacts: “[T]he New Starts program is one of the few discretionary, metropolitan-focused transportation grant programs that attempts to use performance criteria.”<sup>20</sup> New Starts has a long history, spanning over four decades, and is the largest federal discretionary transportation program, with \$2 billion in funding for FY2010.

New Starts features a detailed planning process in which the economic impacts of a proposed project are among the key factors considered. The aim is to conduct a rigorous and comprehensive review “through which FTA seeks to minimize risk and evaluate projects in a fair and transparent manner.”<sup>21</sup> The New Starts process has evolved since the beginning of the program and the types of criteria and the level of rigor applied in evaluating projects has varied over the years.

Many aspects of the New Starts approach are worth emulating. The evaluation process uses multiple criteria, including economic criteria. There is substantial shared decision-making between the executive and legislative branches of the federal government. The process used to screen projects for eligibility is often cited as one of the program’s best features: projects are not in direct competition because New Starts only considers projects that have demonstrated sufficient justification for funding.

Critics of New Starts cite the long, cumbersome application process; overly narrow evaluation criteria; and relatively restrictive eligibility requirements as significant burdens on potential grant recipients. Also, the New Starts process consumes a disproportionate amount of FTA funds: “In dollar terms, New Starts constitutes less than 20 percent of the overall FTA program, but it consumes a much larger proportion of agency staff time.”<sup>22</sup> This is a common characteristic of programs that include a rigorous review process. On the other hand, rigorous review has also been effective in targeting funds to projects that make the most sense for the country.



### Transportation Infrastructure Finance and Innovation Act (TIFIA)

In 1998, Congress added TIFIA to TEA-21. It authorized the U.S. Department of Transportation (USDOT) to provide secured (direct) loans, lines of credit, and loan guarantees to public and private applicants for eligible surface transportation projects of regional or national significance.<sup>23</sup> Highway, passenger rail, transit, and intermodal projects (including intelligent transportation systems) are eligible to receive credit assistance under TIFIA up to a maximum of 33 percent of eligible project costs. Applicants for TIFIA credit assistance must identify a dedicated revenue source to repay the TIFIA loan and secure public approval for their proposed project.

Lawmakers intended the process of allocating TIFIA funds to be informed by economic and non-economic considerations. The most important criterion for receiving a grant under this program is the ability to demonstrate that a project “is nationally or regionally significant, in terms of generating economic benefits, supporting international commerce, or otherwise enhancing the national transportation system.”<sup>24</sup> This includes “contributing to the economic competitiveness of the U.S. by improving the long-term efficiency and reliability in the movement of people and goods.”<sup>25</sup> One-fifth (20 percent) of a project’s score is based on economic competitiveness. TIFIA has become a popular program, with more worthwhile projects in its pipeline than

<sup>19</sup> Federal Transit Administration. *New Starts Fact Sheet*. April 2012. [www.fta.dot.gov/12304\\_2607.html](http://www.fta.dot.gov/12304_2607.html)

<sup>20</sup> Bipartisan Policy Center. *New Study Analyzes Federal Transit Administration New Starts Program*. Press Release. February 5, 2010.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides Federal credit assistance to nationally or regionally significant surface transportation projects, including highway, transit, and rail.

<sup>24</sup> 23 United States Code Section 602, Determination of Eligibility and Project Selection, [www.fhwa.dot.gov/ipd/pdfs/tifia/03\\_tifia\\_chapter\\_5.pdf](http://www.fhwa.dot.gov/ipd/pdfs/tifia/03_tifia_chapter_5.pdf)

<sup>25</sup> Federal Register, Vol. 74 No. 231. Department of Transportation Office of the Secretary of Transportation Docket No. FHWA-2009-0123. <http://edocket.access.gpo.gov/2009/pdf/E9-28860.pdf>.

available funding, and it can provide lessons for expanding economic impact analysis to other federal programs.

While TIFIA has enjoyed increasing bipartisan support of late, its project selection process has critics. Some observers claim that TIFIA loans are increasingly going to public-private toll roads, putting public dollars at risk of private default; others have criticized the program for lacking transparency.<sup>26</sup> Nonetheless, the most recent versions of both the House and Senate transportation authorization bills included a substantial increase in TIFIA funding.

### Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Program

As noted in an earlier section of this paper, the TIGER program was introduced as part of economic stimulus legislation passed in 2009. Its purpose was to preserve and create jobs, promote economic recovery, and fund transportation infrastructure investments that would provide economic benefits. The program allowed USDOT to award competitive grants to transportation agencies for projects that could be shown to have significant national or regional impacts while also creating jobs. Congress appropriated \$1.5 billion for TIGER grants in FY2009, \$600 million in FY2010, and \$527 million in FY2011. The program was highly competitive: the first round of grants drew more than 1,400 applications, for a combined total of nearly \$60 billion in requested funding. After initial evaluations, 166 highly rated projects, or 11 percent of the total, were advanced for further review.

Based on the broad legislative goals noted above, USDOT applied two types of primary selection criteria for the 1) long-term outcomes and 2) jobs creation and economic stimulus. An economic analysis team, chaired by USDOT's Chief Economist, prepared a cost-benefit analysis for each project that advanced past the initial evaluation stage. Grant requests were not approved if the team concluded that project costs exceeded public benefits.<sup>27</sup>

While the TIGER program goes further than almost any other federal transportation program in using economic impact analysis to evaluate projects, the selection process has a few notable limitations. Critics cite a focus on short-term, rather than long-term economic benefits given the emphasis on selecting projects that “quickly create and preserve jobs and promote rapid increases in economic activity.”<sup>28</sup> The grant selection process has also been criticized for giving priority to projects in areas where the unemployment rate



is at least one percent greater than the national average or areas that are economically distressed as a result of special circumstances, such as the closing or restructuring of a major employer.<sup>29</sup> Projects that were “shovel ready”—i.e., further along in the project development phase—were also favored over projects that might have resulted in a greater long-term economic benefit to the nation.

Additionally the TIGER program did not specify a standardized methodology or approach for conducting the economic impact analysis grant applicants are required to provide. Applicants were left to develop their own processes and metrics for measuring economic impacts and USDOT then had to compare the varying metrics. Finally, the TIGER grant selection process lacked transparency. According to a GAO report, USDOT provided “little insight into project selections,” prompting GAO to recommend that the agency properly record and document its rationale for selecting certain projects over others in the future. Despite these shortcomings and limitations, however, the TIGER program represented a substantial step forward in giving economic impact analysis a central role in the transportation funding process.

### Reflection and Looking Forward

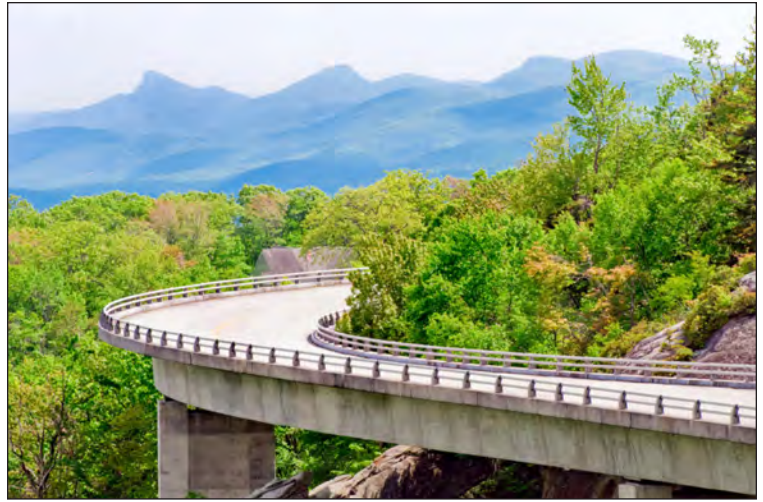
While the allocation of most federal transportation funding has only a limited relationship to economic impacts, programs such as New Starts, TIFIA and TIGER suggest that real strides are being made toward giving economic considerations greater weight in transportation investment decisions. Public support for these programs remains high and while their project selection processes are still imperfect, they have undoubtedly introduced a greater degree of rigor and analysis than has been typical of past programs.

<sup>26</sup> [www.aggman.com/transportation-project-loan-program-under-fire/](http://www.aggman.com/transportation-project-loan-program-under-fire/)

<sup>27</sup> US Department of Transportation, *TIGER Discretionary Grant Program Grant Selection Process Summary*, 2010. [www.dot.gov/recovery/docs/tigerprocess.pdf](http://www.dot.gov/recovery/docs/tigerprocess.pdf).

<sup>28</sup> US Department of Transportation, *TIGER III Discretionary Grants*, [https://ntl.custhelp.com/app/answers/detail/a\\_id/530/~/tiger-iii-discretionary-grants-%282011%29](https://ntl.custhelp.com/app/answers/detail/a_id/530/~/tiger-iii-discretionary-grants-%282011%29)

<sup>29</sup> Federal Highway Administration, *FHWA Supplemental Guidance on the Determination of Economically Distressed Areas Under the Recovery Act*, August 24, 2009. [www.fhwa.dot.gov/economicrecovery/guidancedistressed.htm](http://www.fhwa.dot.gov/economicrecovery/guidancedistressed.htm)



## Economic Impact Analysis at the State Level: Four Case Studies

While the use of economic impact analysis has been limited at the federal level, some states have taken it upon themselves to assess economic impacts as part of their transportation decision-making processes. Because states often have a greater ability to improvise, they can serve as laboratories for public policy reform and set new examples for other states, localities, and the federal government.

Nonetheless, finding states that are effectively using economic impact analysis in their decision making can be challenging. According to a recent GAO survey: “Eleven state DOTs reported that the results of economic analyses of STIP projects—such as benefit-cost, cost-effectiveness, or economic-impact analysis—were of great or very great importance in selecting projects.”<sup>30</sup> This next section examines four state-level case studies that demonstrate how incorporating economic considerations has led to better transportation investments.

### Case Study Selection

While the abovementioned GAO report cites only eleven states, many states and metropolitan planning organizations (MPOs) are in some way using economic impact analysis in their decision-making processes. For purposes of this report, we selected only those case studies where the approach to economic impact analysis included these features:

- **Data-Driven**—Economic impact analysis is based on empirical economic data.
- **Transparent**—Methodology is transparent to the public.

- **Generally Supported by the Public**—Public generally supports the economic analysis being used.

Four case studies were selected: 1) Kansas Department of Transportation (KDOT) TWORKS Expansion Project Selection Approach; 2) Indiana Major Corridor Investment Benefit Analysis System; 3) Michigan DOT 2010–2014 Analysis Program; and 4) North Carolina Prioritization 2.0 Program. All four case studies involved attempts to incorporate long-term economic impact analysis in the decision-making process. And in each of these cases, economic determinations were made in a transparent, methodical, and data-driven way.<sup>31</sup>

### Case Study 1: Kansas DOT Expanded Highway Selection Program

#### *Background and Purpose*

The Kansas transportation community has long acknowledged growing transportation infrastructure needs on the one hand, and public uncertainty over the value of such infrastructure investments on the other. Recognizing these challenges, the Kansas Department of Transportation (KDOT) embarked on a multi-year experiment to reinvent transportation planning and project selection processes to achieve greater public support. From 2003 to 2011, Kansas Secretary of Transportation Deb Miller led the development of a new approach that, among other things, expanded the factors and criteria used in project selection to include broader issues of public concern.

<sup>30</sup> Government Accountability Office, *Statewide Transportation Planning: Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight*, December 2010. [www.gao.gov/newitems/d1177.pdf](http://www.gao.gov/newitems/d1177.pdf).

<sup>31</sup> The Transportation Research Circular Report #477, titled *Assessing the Economic Impact of Transportation Projects* and authored by Glen Weisbrod, helped focus attention on consistent themes prevalent in these case studies. Mr. Weisbrod’s excellent work provides useful guidance on an appropriate framework for understanding how various transportation agencies conduct and apply economic impact analysis.

**Table 1: Kansas DOT Highway Selection Program**

Program Components	Kansas DOT Highway Selection Program
Program Purpose	To determine economic impact considerations to help prioritize worthwhile projects
Geographic Study Area	Statewide and Regional
Program Study Time Period	30 Years
Impact Measures Analyzed	Gross State Product, Direct and Indirect State Employment, System User Benefits
Analysis Model/Software Used	TREDIS Economic Model
How Data Were Obtained Public Outreach Process	Local sponsors and KDOT District Engineering Staff KDOT staff posted final project rank list on website and held public outreach meetings throughout state to revise and improve economic determination process

To determine the priorities of Kansas citizens, KDOT began by first administering more than 900 stakeholder satisfaction surveys across the state. The results indicated that residents, local officials, legislators, and contractors were satisfied with the condition of the state’s highways but were dissatisfied with KDOT’s process for prioritizing and selecting transportation projects.<sup>32</sup> KDOT transportation engineers were widely perceived to be focusing too narrowly on engineering considerations (e.g., percent pavement in good condition) while failing to take other considerations into account (e.g., local input and long-term economic impact). It was clear from the surveys that KDOT needed a more expansive process for deciding transportation investments.<sup>33</sup>

KDOT developed a methodology that incorporated economic criteria along with traditional engineering factors and local support. Analysts assessed total job and gross regional product data for each new transportation project in the state’s long-range transportation plan. Points were allocated based on outputs generated using TREDIS economic modeling software; these outputs included anticipated change in study-area jobs by 2030 and anticipated change in gross regional product by 2030.<sup>34</sup> Table 1 summarizes important components of the reformed KDOT highway selection program.

Projects were weighted or “scored” based on how well they addressed three criteria: engineering factors, regional priorities, and economic benefit. Economic benefits were calcu-

lated using empirical data, which in turn helped to ensure that the analysis results were as accurate as possible. All stakeholders could use this information to evaluate the value of any or all of the projects under consideration. Economic impacts comprised 25 percent of a project’s overall score according to the formula developed by KDOT.<sup>35</sup>

### Program Highlights

Several aspects of the KDOT program made it successful:

- **Transparency**—KDOT officials used an open, transparent process in designing the state’s highway selection program. Estimates of long-term employment and income growth for each transportation project were posted on the agency’s public information website. In addition, KDOT disseminated its project list at numerous public information meetings and provided details to local elected officials and transportation stakeholders. Agency personnel were made available to answer any questions the public might have and meetings were scheduled if a community or stakeholder group had concerns or wanted to examine the process in greater depth. To facilitate increased participation and provide the public with timely and transparent information, KDOT launched its first-ever online community and made use of social networking media such as Twitter, Facebook, and YouTube. These efforts appear to have succeeded—KDOT’s planning process has won broad support from the state’s citizens. More than 800 Kansans participated in statewide meetings and most supported the notion that projects should be selected at least in part on the basis of their

<sup>32</sup> Information based on personal e-mail and phone correspondence with Julie Lorenz, former KDOT Director of Public Affairs, November 12, 2011.

<sup>33</sup> Lorenz, Julie. *Building Support for a New Transportation Funding and Financing Program*, 2011. Transportation Research Board, November 15, 2010.

<sup>34</sup> Kansas Department of Transportation 2001-2010. *A Decade of Projects, Progress, and Engagement*, p.46

[www.ksdot.org/PDF\\_Files/FINALKDOTREPORT.PDF](http://www.ksdot.org/PDF_Files/FINALKDOTREPORT.PDF)

<sup>35</sup> Kansas Department of Transportation, *Kansas T-LINK Project Selection Prioritization Process*, 2010. [www.kansastlink.com/downloads/Economic%20Development%20Program%20White%20Paper.pdf](http://www.kansastlink.com/downloads/Economic%20Development%20Program%20White%20Paper.pdf)

expected contribution to long-term economic growth.<sup>36</sup>

- **Improved Program Flexibility**—KDOT transportation professionals developed a system with enough flexibility that it could be changed when unforeseen obstacles arose. Unlike the previous project selection process, the new process made use of economic impact analysis, local and regional input, and extensive public input. For example, several factors outside the economic impact analysis—such as population, VMT, and miles of roadway—were also considered to address a concern on the part of some stakeholders that the economic criteria by themselves unfairly benefited urban transportation projects.<sup>37</sup>

- **Greater Collaboration with Stakeholders**—The decision-making approach that emerged from this process was much more collaborative. Economic impact analysis was added because it is helpful for directing funding to the most valuable projects and because people valued the process. Furthermore, KDOT officials worked closely with local communities and district engineers to design and implement the economic assessment process; in addition, local government stakeholders provided input on what measures and data were most meaningful.<sup>38</sup>

## Outcomes and Lessons Learned

The KDOT program provides an excellent example of how transportation agencies can factor long-term economic impacts into their investment decisions. KDOT chose to report only long-term jobs impacts because stakeholders indicated that their primary interest was in projects that could make a lasting difference to the Kansas economy. Since implementing this new project selection process Kansas lawmakers have passed a comprehensive transportation funding package, which includes, among other components, a \$20-per-vehicle increase in vehicle registration fees. More explicit and transparent inclusion of economic impacts in the transportation planning process and successful communication with the public about these changes appear to have been effective in convincing state legislators and citizens that their public dollars would be spent in a more targeted way. The KDOT program shows that incorporating economic impacts into the decision-making process can accomplish many things. Businesses and residents can gain a better understanding of the impact of transportation investments and are likely to support a data-driven process that will give them real results. Targeted investment can ensure that limited funds are directed to the most beneficial projects.

Increased public support for transportation spending can make it easier for lawmakers to increase tax revenues for that purpose.

## Case Study 2: Indiana Major Corridor Investment Analysis Program

### *Background and Purpose*

In the mid-1990s, the Indiana Department of Transportation (INDOT) developed plans to evaluate several major intercity corridors, including a complete overhaul of the existing four-lane US-31 corridor to bring it up to Interstate design standards. However, some state leaders questioned the costs of these projects and wanted more information on the development benefits. Transportation professionals needed to explore the economic implications of proposed major corridor improvements to fully evaluate the state's transportation plan.

The analytical tool INDOT used for this purpose was the Major Corridor Investment Benefit Analysis System or MCIBAS. MCIBAS uses a statewide travel demand model to estimate the direct impacts of a major highway system improvement on existing and future traffic volumes, speeds, and distances. These results can be used to compare the benefits of the proposed improvement (i.e., personal auto user benefits, economic benefits) against the costs (for construction, operation, and maintenance) and come up with a final benefit/cost ratio.<sup>39</sup>

MCIBAS generates several economic outputs:<sup>40</sup>

- The expansion of existing businesses in the corridor study area, as a result of the transportation system improvement.
- The movement of new businesses into the study area due to higher transportation accessibility and lower business costs derived from an improved transportation system.
- Increased tourism business as a result of increased access to a broader market area.

A subsequent study performed by INDOT in 1994 helps to illustrate Indiana's use of MCIBAS to explore the benefits of improvements along the US-31 corridor. Table 2 summarizes the evaluation process used.

INDOT began using MCIBAS in the 1990s, making Indiana one of the first states in the country to evaluate economic impacts for transportation planning purposes. As a case study, Indiana's program is especially valuable because its

<sup>36</sup> Information based on personal e-mail and phone correspondence with Julie Lorenz, former KDOT Director of Public Affairs, November 12, 2011.

<sup>37</sup> Kansas Department of Transportation, *Kansas T-LINK Project Selection Prioritization Process*, 2010. [www.kansastlink.com/downloads/Economic%20Development%20Program%20White%20Paper.pdf](http://www.kansastlink.com/downloads/Economic%20Development%20Program%20White%20Paper.pdf)

<sup>38</sup> Kansas Department of Transportation, KDOT T-LINK Quick Facts Presentation, 2010. [www.ksdot.org/pdf\\_files/QuickFacts09.pdf](http://www.ksdot.org/pdf_files/QuickFacts09.pdf)

<sup>39</sup> Kaliski, John and Glen Weisbrod. *Guide to MCIBAS and Its Economic Impact Analysis Component*, prepared for the Indiana Department of Transportation, 1998. [www.edrgroup.com/pdf/mcibas-system-intro.pdf](http://www.edrgroup.com/pdf/mcibas-system-intro.pdf)

<sup>40</sup> Indiana Department of Transportation, *INDOT 2030 Long Range Transportation Plan: The Planning Process*, [www.in.gov/indot/files/02\\_planning\\_process.pdf](http://www.in.gov/indot/files/02_planning_process.pdf)

**Table 2: MCIBAS Investment Analysis Program**

Program Components	MCIBAS Economic Determination Process
Program Purpose	Public information and Decision-making
Geographic Study Area	Corridor-level and regional
Program Study Time Period	30 Years
Impact Measures Analyzed	Disposable Income Change, Long-term employment growth, business sales increase
Analysis Model/Software Used	Benefit-cost Analysis; Net_BC, REMI Economic Model
How Data Were Obtained	Statewide travel demand data (traffic volumes & travel times)
Public Outreach Process	Posted findings and process online and held stakeholder meetings along US 31 corridor

longer history makes it possible to see how and to what extent INDOT professionals modified the analytical approach used. As an evaluation tool, MCIBAS has generally been seen as successful by transportation professionals and has been used to assess economic impacts for projects throughout Indiana.<sup>41</sup> Several elements of Indiana’s program are innovative and should be considered in developing economic impact determinations elsewhere.

**Program Highlights**

Several aspects of INDOT’s approach made it successful:

- **Broad Study Scope:** MCIBAS accounts for regional impacts, assuring that all economic components are considered. As state transportation professionals refined and enhanced this tool, they began to examine impacts on the state economy. The use of a consistent methodology made it possible to directly compare the economic value of different projects.

- **Incorporates Long-Term Economic Effects into Benefit-Cost Analysis:** Because there is usually a lag period before the full effects of a transportation improvement become evident, a comprehensive, long-term analysis can help ensure that the full economic benefits are accurately considered and that planners and decision makers are focused on the future.

- **Data-Driven:** MCIBAS was one of the first economic impact analysis systems that made use of comprehensive

local and regional economic data to inform transportation investment decision making. Whereas previous systems only calculated work-related travel elements (e.g. travel safety benefits), MCIBAS considers non-work travel and business impacts as well.<sup>42</sup> Although many updates and alternative analysis tools have since become available, MCIBAS still provides a valuable template for any DOT looking to incorporate important state and regional economic data elements into the economic analysis process.

**Outcomes and Lessons Learned**

INDOT officials learned valuable lessons implementing MCIBAS to evaluate transportation investments. As one of the first efforts to quantify economic impacts from such investments, Indiana transportation professionals started out only applying this analysis tool to one major corridor at a time. “This was problematic in the beginning because the study effects were really just forecasted on a few corridors,” Steven Smith, a principal transportation professional with INDOT, has said.<sup>43</sup> As interest in the MCIBAS process grew, the study area expanded to capture the effects on other transportation corridors in the state as well. With each new project, a wider impact area was studied to explore the economic impacts for the entire region. Eventually, MCIBAS became the standard tool for determining corridor economic benefits and costs in Indiana. “For states looking to incorporate a comprehensive statewide economic determination process, I’d start at your major corridors and then build out from there,” advises Smith.

<sup>40</sup> Indiana Department of Transportation, *INDOT 2030 Long Range Transportation Plan: The Planning Process*, [www.in.gov/indot/files/02\\_planning\\_process.pdf](http://www.in.gov/indot/files/02_planning_process.pdf).

<sup>41</sup> Indiana Department of Transportation, *INDOT 2030 Long Range Transportation Plan: The Planning Process*, [www.in.gov/indot/files/02\\_planning\\_process.pdf](http://www.in.gov/indot/files/02_planning_process.pdf).

<sup>42</sup> Kaliski, John and Glen Weisbrod. *Guide to MCIBAS and Its Economic Impact Analysis Component*, prepared for the Indiana Department of Transportation, 1998. [www.edrgroup.com/pdf/mcibas-system-intro.pdf](http://www.edrgroup.com/pdf/mcibas-system-intro.pdf)

**Table 3: MDOT 2010-2014 Highway Analysis Program**

Program Components	MDOT 2010-2014 Highway Analysis Program
Program Purpose	Public Information
Geographic Study Area	Statewide; Regional
Program Study Time Period	20 Years
Impact Measures Analyzed	Employment data by industry, Gross State Product, Cumulative Income Effects
Analysis Model/Software Used	MI BEST travel demand calculation tool, REMI
How Data Were Obtained	MDOT Sufficiency database and statewide travel demand data
Public Outreach Process	Posted final project rank list on website

By evaluating user impacts in depth, MCIBAS helps planners distinguish user impacts for residents who live near or are affected by a potential transportation project. Many project stakeholders welcomed this level of in-depth analysis. Prominent political leaders praised the INDOT program and its ability to strategically evaluate and target more investment toward projects that made the most sense economically. INDOT now uses MCIBAS for many more projects, in some cases as a screening tool to decide whether more extensive engineering and planning for a proposed improvement should be pursued in the first place. Increased confidence in INDOT’s ability to make sound investment decisions also helped bolster the argument (backed by the Indiana logistics and transportation industry) for a gas tax increase in 2003.<sup>44</sup>

### Case Study 3: Michigan DOT 2010–2014 Highway Analysis Program

#### *Background and Purpose*

As the Michigan Department of Transportation (MDOT) developed its Five-Year Transportation Plan for FY2011–2015, transportation officials needed a way to estimate the economic impacts of the plan and communicate its benefits effectively to the public. To address this challenge, MDOT staff collaborated with the University of Michigan to create several specialized tools and one consistent methodology to help ensure that transportation spending was being directed in ways that promoted the state’s economy.<sup>45</sup>

The analysis approach they developed produced estimates of the transportation-related benefits of the Five-Year Plan, such as travel-time savings by households and businesses.

Benefits were measured by comparing transportation system performance after planned investments to a base case with little or no investment. See Table 3 for a brief summary of the MDOT approach.

#### Program Highlights

Several aspects of the MDOT approach contributed to its success:

- **Data-Driven:** The MDOT study used TRANSCAD transportation modeling software, which is known for its robust modeling capability. Outputs generated by TRANSCAD then served as inputs to REMI, the modeling tool used to estimate economic impacts. MDOT’s analysis of its Five-Year Plan also included statewide employment benefits by industry and cumulative effect on real income.
- **Use of Multiple Funding Scenarios:** MDOT’s study looked at the effect of different scenarios for federal and state funding in terms of the projects that could be undertaken and their impacts. A major motivation for documenting impacts was the MDOT’s concern that a reduction in state funding could lead to cuts in federal-matching aid.<sup>46</sup> Therefore, the agency’s analysis compared the economic effects of the current program to the benefits achievable through projects that could be pursued under an optimal funding scenario.
- **Collaborative:** MDOT officials worked with other state leaders, state legislative representatives, local communities, MPOs, and the general public to gather data and assess which projects should be examined for the study.

<sup>43</sup> Based on personal correspondence with Steven Smith, Principal Transportation Professional with INDOT, October 31, 2011.

<sup>44</sup> The Council of State Governments, *Knowledge Center: State Motor Fuel Taxes*, 2011. <http://knowledgecenter.csg.org/kc/content/state-motor-fuel-taxes>.

<sup>45</sup> Michigan Department of Transportation, *Economic Benefits of MDOT’s FY 2011-2015 Highway Program*, March 2011.

**Table 4: NCDOT Prioritization 2.0 Program Components**

Program Components	NCDOT Prioritization Program
Program Purpose	Decision-Making
Geographic Study Area	Regional MPO/Rural Public Organization (RPO) Level
Program Study Time Period	20 Years
Impact Measures Analyzed	Economic score generated based on wage increases, job growth, and increased productivity factors
Analysis Model/Software Used	TREDIS Economic Modeling Software
How Data Were Obtained	Change in VHT based on state travel demand data, project information from MPOs and local officials
Public Outreach Process	Post final project rank list on DOT website and present findings at local stakeholder meetings

### Outcomes and Lessons Learned

Michigan’s efforts produced several notable outcomes. One result was a comprehensive approach to economic impact analysis that helps transportation planners better align limited transportation funding with investments that will grow the state’s economy for the long term (this is critically important given the logistical demands of the state’s automotive industry). A recent report by the Pew Center on the States claimed that Michigan was “leading the way” in effectively targeting transportation investments to projects that facilitate or support business development and commerce.<sup>47</sup>

In sum, MDOT has established a framework that helps state officials identify data needs, establish economic impact measures, and set goals. As a result, long-term impacts can help inform long-term decisions. The tools developed to analyze Michigan’s 2011–2015 transportation plan made it possible to rule out projects that would have only modest impact and target available state and federal resources to achieve optimal results based on current funding projections.<sup>48</sup>

A primary motivation for adding an economic component to MDOT’s original analysis program was to demonstrate to the Michigan public that the agency was actively pursuing projects of regional and state significance. But what evolved was a basis for MDOT to argue for additional dollars from the state legislature. To leverage an increase in federal fund-

ing, MDOT needed more state funds. MDOT officials were careful not to advocate for revenue increases or enter into the political debate over possible tax and fee hikes. But they were effective at using empirical data to communicate the positive economic benefits of transportation investment<sup>49</sup> and at documenting the effect that infrastructure improvements undertaken within the past five years had had on the state and regional economy.<sup>50</sup>

### Case Study 4: North Carolina DOT Prioritization 2.0 Program

#### *Background and Purpose*

In 2010, stakeholders and transportation professionals in North Carolina agreed that the selection process for transportation projects needed to expand to incorporate factors outside of traditional engineering considerations.<sup>51</sup> In response, the North Carolina DOT (NCDOT) implemented a new approach to project selection.<sup>52</sup> The NCDOT Strategic Prioritization Process 1.0 was the state’s first attempt to create a clearly defined, robust process for prioritizing transportation projects. Under this new process, each project is classified under one of the Department’s three primary goals: safety, mobility, or infrastructure health.

As of 2011, NCDOT was in the process of rolling out Prioritization 2.0, an update to the original 2010 program. Prioritization 2.0 is intended to enhance and build on suc-

<sup>46</sup> Michigan Department of Transportation, *Economic Benefits of MDOT’s FY 2011-2015 Highway Program*, March 2011.

<sup>47</sup> *Methodologies of Evaluating Economic Impacts*, Wilbur Smith Associates, prepared for the Michigan Department of Transportation, March 2009.

<sup>48</sup> Michigan Department of Transportation, *2011-2015 Five Year Transportation Program*, 2011. [www.michigan.gov/documents/mdot/MDOT\\_5\\_Year\\_Program\\_216970\\_7.pdf](http://www.michigan.gov/documents/mdot/MDOT_5_Year_Program_216970_7.pdf)

<sup>49</sup> Based on personal correspondence with Michigan Department of Transportation Chief Administrative Officer Laura Mester, December 1, 2011.

<sup>50</sup> Ibid 27

<sup>51</sup> Based on personal correspondence with North Carolina Department of Transportation Officials, January 4, 2012.

<sup>52</sup> Ibid 27



successful elements of Prioritization 1.0. This new program will expand selection criteria based on relevant stakeholder input, examining total project benefits from 2012 to 2032.<sup>53</sup>

One of the new factors built into Prioritization 2.0 is an innovative economic competitiveness component. This addition was prompted by a public survey in which more than 60 percent of respondents identified economic impacts (e.g., job creation, increased wages, economic benefits) as a factor that should be considered in project selection.<sup>54</sup> As in the other case studies described here, NCDOT's selection process uses a robust input/output economic model to calculate impacts in terms of economic measures such as jobs created, wage increases, and productivity changes. The modeling software converts these measures to a final weighting factor. Table 4 summarizes the process.

### Program Highlights

Several aspects of the NCDOT program have contributed to its success:

- **Built on Public Input:** The Department held listening sessions to gather input from MPOs, RPOs, and the public. This input was then incorporated in the design of the final project selection process.
- **Data Driven:** NCDOT transportation professionals used input/output economic modeling to estimate the economic effects of transportation improvements.
- **Transparent:** During the Prioritization 1.0 process, NCDOT officials involved stakeholders as much as possible to ensure that methods and outcomes were effectively communicated. Of the four case studies summarized in this report, the NCDOT Prioritization 2.0 process will involve the largest number of stakeholders.<sup>55</sup>
- **Collaborative:** The Prioritization 2.0 process has been designed to be highly collaborative. NCDOT transportation professionals have provided TREDIS economic software to 17 North Carolina MPOs.<sup>56</sup>

### Outcomes and Lessons Learned

The North Carolina Prioritization Program has only existed for a few years so direct evidence of its success at improving economic outcomes is limited at this point. However, it should lead to investment that is strategically directed toward enhancing the long-term growth of North Carolina.

To that end, transportation professionals at NCDOT have sought to ensure that the needs of the business community

are well represented in the economic analysis and project selection process. Stakeholder input also played a major role in the design of the final economic determination process.

As noted above, NCDOT transportation professionals have provided TREDIS economic software to 17 of the state's MPOs. At the time of this writing, two North Carolina MPOs have sought out additional support because they see the benefit in selecting transportation projects based on their long-term economic impacts. At the time of this writing, two MPOs have sought out additional support because they see the benefit in selecting transportation projects based on their long-term economic impacts. Expanded use of Prioritization 2.0 will help to focus limited resources on specific projects and has the potential to justify future efforts to raise revenue for transportation investment.

### Case Study Economic Analysis Processes: Themes and Conclusions

These case studies provide four examples of transportation agencies that have successfully incorporated economic considerations in the planning and project selection process. Their experiences underscore the importance of several factors:

- The merits of incorporating economic benefits
- Demand from the public for these kinds of analyses
- The use of various methods to estimate benefits

The effort to integrate economic considerations in the project decision-making process proved beneficial in each of the case studies; in each case, the public also supported the state's approach.<sup>57</sup> Having developed estimates of economic impact, elected officials and the public could gauge the effectiveness of transportation investments. In fact, the results from some states' economic impact analyses were so compelling that they helped transportation agencies convince the public to invest even more in transportation. The public is likely to gain confidence in transportation leaders when those leaders are seen as applying a methodical and objective approach to selecting projects.

It is also telling that each of the programs described in these case studies has been expanded since it was first introduced. For example, the INDOT process was originally developed for a single corridor but since has expanded to encompass all the projects in the state. North Carolina has redeveloped and expanded its "1.0" program with a 2.0 version. In states that have taken a lead, localities and MPOs are adopting many of the same procedures for their projects.

<sup>53</sup> NCDOT Prioritization 2.0 Program, March 2011. [www.ncdot.org/download/performance/Prioritization2March2011.pdf](http://www.ncdot.org/download/performance/Prioritization2March2011.pdf).

<sup>54</sup> NCDOT Prioritization 2.0 Program Summary, [www.ncdot.gov/performance/reform/prioritization/](http://www.ncdot.gov/performance/reform/prioritization/).

<sup>55</sup> North Carolina DOT, Prioritization 2.0 Outreach Summary, December 2010. [www.ncdot.gov/download/performance/OutreachSummary.pdf](http://www.ncdot.gov/download/performance/OutreachSummary.pdf).

<sup>56</sup> NCDOT Prioritization 2.0 Program, March 2011. [www.ncdot.org/download/performance/Prioritization2March2011.pdf](http://www.ncdot.org/download/performance/Prioritization2March2011.pdf).

<sup>57</sup> Personal email and phone correspondence with Prioritization 2.0 Program Leaders Peter Alpeh and David Wasserman, NCDOT, January 12, 2012.



## Policy Recommendations

These four case studies showcase efforts to distribute limited transportation funds using economic considerations within the decision-making process. All of them provide ideas that could potentially guide future federal and state policies toward a more data-driven, transparent, and collaborative approach.

Both federal and state transportation programs currently lack adequate resources to address our nation's transportation challenges. Focusing on those projects that generate the greatest economic returns not only maximizes the benefits that can be achieved by investing limited public dollars, it can also help demonstrate the value of these investments to a skeptical public. This in turn could increase support for raising additional revenues in the future. The specific policy recommendations that follow apply to both federal and state transportation programs.

### **Develop a Transparent, Standardized Economic Determination Process for Existing Federal Discretionary Programs**

Developing a transparent, standardized, economic determination process for existing federal discretionary programs is realistic, achievable, and could have substantial benefits. Programs such as New Starts, TIFIA and TIGER have en-

couraged potential federal grantees to strengthen their economic analysis capabilities. Even these programs, however, face challenges in evaluating grantees because of a lack of standardized economic valuation practices. The New Starts, TIFIA and TIGER programs have also been criticized as lacking transparency. This concern could be addressed more readily if common standards and capabilities applied across all grantees. For example, standard modeling inputs and consistent criteria (such as study area, study time, period, and scope) ideally should be used in the evaluation of all projects considered by USDOT.

Efforts to achieve greater standardization and transparency could begin with executive-level modifications and would not necessarily require legislation. The Secretary of Transportation could work with states and transportation agencies across the country to develop a standardized process such as the processes described in the above case studies. Use of a standardized process could eventually be required to ensure that states and local agencies produce comparable estimates of economic impact based on rigorous and specific standards for analysis.

However, there are several potential challenges to this approach. First, many states and agencies are not prepared to

perform sophisticated economic analyses, and lack adequate resources and data to do so. Improved data collection capabilities, at a minimum, would be necessary for moving forward—but this would require additional resources and potentially greater government involvement. The federal government must play a lead role in helping states to develop these capabilities. Second, there is likely to be concern among rural states that distributing funds based on economic benefits could leave them behind. Substantial care would need to be taken to ensure that rural areas are treated fairly by any such program change.

One way to do this might be to carve out separate grants targeted to rural areas, thus preventing them from having to compete with metropolitan regions given that their needs are so different. Finally, developing universally-acceptable standards could prove challenging—DOTs around the country would tend to support those economic output measures that are likely to be most favorable to the regions they cover. Finally, policymakers would need to avoid establishing too many economic impact metrics. This challenge can be addressed by focusing only on those few relevant metrics that best reflect national goals. Limiting the number of metrics will also help ensure that the influence of economic factors is readily understood by the public and lawmakers.<sup>58</sup>

### Expand Federal Discretionary Programs

One way to give economic impacts greater weight in the decision-making process for transportation investments would be to expand the use of discretionary grant programs at the federal level. This could be achieved either by increasing the size of existing programs, such as TIGER, or by creating new programs with specific national goals. Existing federal discretionary programs have shown great promise in encouraging states to develop economic analysis capabilities to compete more effectively for federal money. These programs can also promote innovation by focusing on outcomes and giving states more flexibility to determine how they might best achieve their goals. For example, the TIGER program, because it is “mode-neutral” and does not restrict funding to any specific mode of transportation, gives states more flexibility to invest in ways that maximize economic benefits.

There are several potential challenges to expanding federal discretionary programs. First, there continues to be substantial opposition to competitive discretionary grant programs in Congress. Although TIGER and TIFIA survive, the latest

legislative proposals coming out of Congress indicate a tendency to rely more on formula programs. Second, there has been much recent criticism of existing selection processes for discretionary transportation investments. Trade associations, state and local transportation professionals, and lawmakers from both parties have criticized the TIGER program as opaque.<sup>59</sup> In this context, implementing our first policy recommendation (concerning the need for greater standardization and transparency) could help build and maintain support for these programs.

### Enable USDOT to Guide States in Developing a Transparent, Long-Term Economic Impact Determination Process

The federal government can be a driver for change at the state level, assisting states in the development and implementation of economic determination processes to guide their own investment decisions, regardless of federal program requirements. While states such as Kansas, Indiana, Michigan, and North Carolina have incorporated economic measures in their project selection processes, the majority of states have not taken this step and use different methodologies to make investment decisions. USDOT has the resources to help and guide states and localities that are interested in improving their own decision-making processes, and to do so in a way that is sensitive to the individual needs of each state.

While federal funding for surface transportation has stagnated, it still accounts for approximately 40 percent of all capital resources available for transportation investment in the U.S. Yet much of this money goes out by formula to states that do not have sophisticated economic impact determination processes, much less processes that account for how effectively a given investment advances specific national goals. Federal assistance to these states can have two benefits: 1) it will encourage states to move toward using economic impact analysis in their own transportation investment decisions; and 2) it will ultimately give the federal government a better idea of what it is getting in return for its still sizeable investment.

### Improve State Decision-Making Processes

While federal involvement can be helpful, states do not have to wait for the federal government to bring economic considerations into their decision-making processes and see tangible improvements in their investment decisions. In each of the case studies, economic determination pro-

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<sup>58</sup> United States Department of Transportation, DOT Information Related to the American Recovery and Reinvestment Act of 2009 (Recovery Act), [www.dot.gov/recovery/ost/faqs.htm](http://www.dot.gov/recovery/ost/faqs.htm).

<sup>59</sup> Greater Greater Washington, *TIGER Grant Process*, November 11, 2011. <http://greatergreaterwashington.org/tag/TIGER/>.



cesses were implemented at the executive level of state transportation departments; in other words, state DOTs took the initiative to analyze the broader, long-term economic effects of different transportation investments. States around the country can build on these efforts to develop their own economic modeling methodologies. In doing so, state DOTs should strive to develop consistent methodologies that are transparent and incorporate both short- and long-term benefits. Ideally, the goals of state transportation programs will increasingly be linked to performance measures, including economic benefits. State DOTs may also need to mandate or strongly encourage DOT districts and/or MPOs to use one standard economic modeling package or process. DOTs can assist by providing guidance on

the appropriate assumptions to use in these analyses and by giving localities the tools needed to analyze and report economic impacts.

Implementing these program changes will require strong leadership and hard work, especially since long-standing processes and practices can be difficult to change. But the case studies presented here suggest that, once in use, economic criteria that help target spending to projects with the greatest economic benefit can increase public support for transportation investment generally and make the difference in terms of winning public and political support for increased transportation funding.



## Conclusions

Results-informed decision-making, based on long-term economic outcomes, is essential in today's tough economic and fiscal climate. In an era of dwindling resources and a growing national deficit, transportation programs must do a better job of showing how the investment of public dollars will deliver economic benefits. Polling data show that this concept is widely supported by the public: according to a recent Pew Center survey, more than half of Americans believe that government should no longer use the public's money without detailing how transportation funding is spent.<sup>60</sup>

Some states have shown leadership in applying economic analysis in their transportation planning processes—in particular, the four case studies presented in this paper exemplify the benefits of combining public participation and professional judgment to create an effective program. State

DOTs in each of these cases effectively developed a tenable method for deciding how to proceed, and on which projects, based at least in part on long-term economic impact measures backed by hard data.<sup>61</sup>

Transportation plays a vital role in bolstering the economy, promoting commerce, and supporting long-term employment. In a world of increasingly limited public resources, transportation will have to compete with other sectors in which the government plays a large role, such as health care and education. Small town advertisements in travel guides from the 1960s used to proclaim boldly “bring your business here: an interstate runs through our town!” Prioritizing future transportation investments based on the benefits they deliver for the U.S. economy and for U.S. competitiveness will ensure a more sustainable and more robust federal transportation program well into the future.

<sup>60</sup> Ibid 27

<sup>61</sup> Weisbrod, Glen (2006). “Evolution of Methods for Assessing Economic Development Impacts of Proposed Transportation Projects.”

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# About Eno

The Eno Center for Transportation is a neutral, non-partisan think-tank that promotes policy innovation and leads professional development in the transportation industry. As part of its mission, Eno seeks continuous improvement in transportation and its public and private leadership in order to increase the system's mobility, safety and sustainability.

The leader in its field for nearly a century, Eno provides government and industry leaders with timely research and a neutral voice on policy issues. Eno's Center for Transportation Policy (CTP) publishes rigorous, objective analyses on the problems facing transportation and provides ideas for and a clear path toward possible solutions. CTP also publishes a monthly transportation newsletter that reaches 2,000 individuals directly plus another 40,000 through the Transportation Research Board. CTP's policy forums bring together industry leaders to discuss pressing issues and hear from top researchers in the field.

Through its professional development programs, the Center for Transportation Leadership (CTL), Eno cultivates creative and visionary leadership by giving public and private transportation leaders the tools and training the need to succeed together. CTL's leadership Development Conference brings the nation's top transportation students to Washington, DC, each year to meet with top practitioners in the field, while other CTL programs give transportation executives the tools they need to be successful as leaders. Since its inception, CTL has instructed over 3,000 transportation professionals.

Eno was founded in 1921 by Williams Phelps Eno (1859-1945), who pioneered the field of traffic management in the United States and Europe. Mr. Eno sought to promote safe mobility by ensuring that traffic control became an accepted role of government and traffic engineering a recognized professional discipline. His "Rules of the Road", adopted by the City of New York in 1909, became the world's first city traffic plan. He also wrote the first-ever manual of police traffic regulations. In 1921 he chartered and endowed the Eno Center for Transportation to attract the thinking of other transportation experts and specialist, and to provide a forum for unbiased discussions that would lead to improvements in the movement of people and goods.

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