

Getting Up to Speed With Transportation Economic Impact Tools

They can make a difference when investments hang in the balance.

By Julie Lorenz and Glen Weisbrod

DURING THE PAST TWO DECADES, POLITICIANS ACROSS THE political spectrum have increasingly stressed the importance of our nation's transportation system for maintaining both commerce and global competitiveness. At the same time, research studies have better identified the links between transportation investment and economic impacts.

So the use of economic analysis is growing in the transportation field—but not nearly as fast as it should. Some state and regional agencies have been reluctant to acquire economic impact analysis tools or fund economic impact studies, even while continuing to spend large sums on tools for modeling, forecasting, and planning other aspects of transportation systems. However, a growing number of agencies are showing that economic impact analysis can be used in decision making across every planning stage—with positive results.

The change in attitude is due in part to a new way of looking at economic issues. In the past, such analysis was used in a perfunctory way, typically to calculate potential construction jobs as part of an environment impact report or to show the benefits of time savings. Project supporters cited the numbers, although they seemed to come from some mysterious black box.

Changing tools and objectives

That view is changing for two reasons. First, transportation economic impact analysis has evolved dramatically in recent years. New tools have emerged to help planners interested in assessing the effects of factors that directly matter to them, such as improving household access to jobs, rural access to markets, freight reliability, and connectivity to air, marine, and rail terminals. These factors are becoming increasingly important in transportation planning.

A recent study of 100 highway, transit terminal, and intermodal rail investment projects was sponsored by the congressionally funded Strategic Highway Research Program. It found that more than two-thirds of the projects were intended to address access, connectivity, and reliability features rather than merely to improve speed and flow.

The new generation of transportation economic analysis tools are not simply input-output models that generate economic “multipliers.” Economic multipliers work when considering effects of a plant expansion or contraction. But they do not provide information on the effects of changes in cost and competitiveness factors.

To address these broader transportation issues, it is necessary to use dynamic analysis tools that show how changes in productivity and accessibility factors can affect economic competitiveness and growth over time. The most widely used systems in North America are REMI TranSight and TREDIS. Both are offered by commercial vendors and are designed to allow planning agencies to directly assess proposed plans and policies. Some consulting firms also provide specialized systems with similar capabilities for their clients.

The second reason for changes in the use of transportation economic analysis is that public leaders, in the wake of the nation's recent recession, have been discovering how economic analysis can help clarify the case for transportation investments at different stages in the transportation planning process. This phenomenon is discussed in the remainder of this article.

Transportation decision stages

The transportation planning process involves a series of federal- and state-mandated stages, but for the purposes of this article they can be reduced to five stages: (1) development of vision or long-range concept plans; (2) development of a list of proposed projects and a ranking of them based on policy criteria; (3) alternatives analysis and environmental reviews to select a preferred option; (4) project implementation; and (5) operations management and maintenance of assets. At each step, the questions vary, the available information is different, and economic impacts play a different role. Consider the following examples:

Long-range vision plans. At the initial stage of vision plans, planners can create examples of long-range plan concepts and compare them to “do nothing” or “business as usual” scenarios (using transportation and economic impact tools) to show the magnitude of the potential economic impacts involved. Later they can also provide examples of proposed policies or projects. At this stage, the ideas are general; estimated costs and benefits will be rough. Yet elected leaders and legislators need some idea of the stakes, and the public needs to be engaged for support.

The Chicago Metropolitan Agency for Planning developed its GO TO 2040 plan by using public input and working committees to devise three thematic scenarios representing alternatives for housing, land development, transportation investment, and other factors. The alternatives corresponded to three policy themes: “preserve,” “reinvest,” and “innovate.”

These scenarios were evaluated to assess their likely consequences, including implications for regional job and income growth. The economic analysis used the TREDIS tool to assess implications of differences in

job market access, business freight delivery markets, and access to intermodal terminals. Those results fed into CMAP's process for creating a preferred scenario integrating land-use development with strategic transportation investment.

Kermit Wies, deputy executive director of CMAP, says that the agency sees "regional economic impacts as one of several important considerations that they are evaluating." Since the adoption of the long-range plan in 2010, which included a highway toll management policy, CMAP has continued to use economic impact analysis to show how congestion pricing can be implemented in ways that improve business market access and economic growth in the region.

The Association of Bay Area Governments and the San Francisco Metropolitan Transportation Commission took a somewhat different approach with their Plan Bay Area 2040. This is the first plan in California to feature a Regional Transportation Plan integrated with land-use policies in a Sustainable Communities Strategy, as required by California's Sustainable Communities and Climate Protection Act of 2008. In developing the combined RTP-SCS, five alternative land-use scenarios and two transportation investment strategies were developed and tested to see how well they would perform across a series of metrics, including economic growth—measured in terms of gross regional product.

Using an economic impact model with sub-county detail, the analysis examined

impacts of different combinations of development density and clustering around transit stations. Localized and regionwide effects on congestion, travel time reliability, business agglomeration, and labor market access were all considered in the economic impact analysis. The findings provided insight into the relationship of regional economic activity, transportation, and growth scenarios. In analysis related to Plan Bay Area's Environmental Impact Report, they also showed that a "proposed plan" alternative and its greenhouse gas reduction goals could be achieved with no net gross regional product loss (in fact, an eight percent economic growth gain) compared to the "no project" alternative.

Project prioritization and selection. As transportation decision making moves to the project prioritization and selection stage, the method of setting priorities needs to be explained in ways that resonate with interested parties. At this stage, there are more formally developed traffic projections as well as cost and traveler benefit estimates. There is often also more specific public discussion, and a need to convey the scale of the economic stakes to outside parties (public and the business community) so that they can buy into the process.

When metropolitan planning organizations and state DOTs set priorities for regional and statewide transportation plans, they typically consider a variety of traffic, environmental, and social factors. Transportation and economic impact tools can

help those agencies factor in economic impact in project rating or ranking as well. In 2011, the Pikes Peak Area Council of Governments in Colorado Springs showed that smaller metro areas can evaluate the broader economic impacts of proposed projects. Its analysis considered the impacts of proposed road projects on travel cost, travel time reliability, freight logistics, and environmental impact, using economic impact tools to assess the effect of reliability and logistics costs on economic competitiveness.

Even broader project rating and ranking systems are being pioneered by various state DOTs. In 2010, the Kansas DOT initiated a process to analyze more than 200 proposed projects and reported results in terms of job growth and impact on gross regional product. As former KDOT secretary Deb Miller explains, "Without question, our ability to talk about the economic value of potential projects was key to successfully securing a new \$8.2 billion funding program in 2010 based on a sales tax increase. . . . We asked project proponents for their thoughts on what the economic impacts were likely to be for each project, and then we made sure to report results in terms that mattered most to stakeholders and legislators at the time, which was jobs."

Now, when major new projects are being assessed in Kansas, economic impact analysis is weighted at 25 percent of a project's overall score, with engineering factors accounting for 50 percent and community input making up the remaining 25 percent.



Economic impact tools helped to identify how the planned Georgia Multimodal Passenger Terminal in Atlanta could affect the city, region, and state.

Example: South Coast Rail

Labor market access was a key factor in deciding whether to proceed with this commuter rail project.

INPUT Transportation changes compared to 'no build' scenario in year 2030

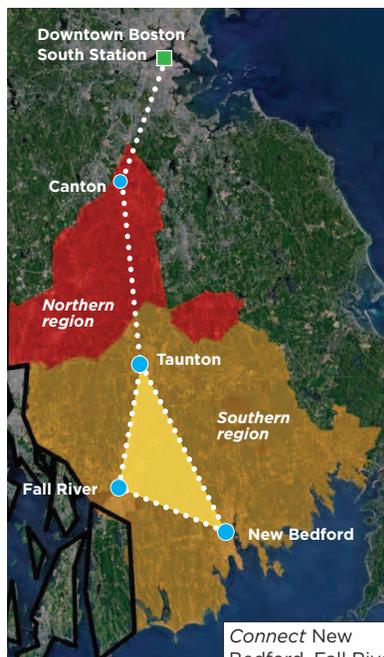
System use & performance (annual total change)	Change (in millions)
Savings in vehicle-miles of travel on roads	141-161
Savings in vehicle-hours of travel on roads	6.5-6.8
Enhanced reliability (buffer time hours reduced)	1.52-1.72
Reduced car/truck trips	5.8-6.1
Total passenger-miles shifted	163-186
Access: Population accessible within 60 minutes via transit	Change (in thousands)
From workplace in South Coast-Southern region	432
From workplace in South Coast-Northern region	60
From workplace in Boston-Cambridge	58

OUTPUT Resulting economy changes in year 2030

Geographic area	Change in business output (in millions)	Change in employment	Change in HH income (in millions)
S. Coast-Southern region	\$205-228	1,800-2,000	\$66-74
S. Coast-Northern region	63-67	500-540	21-23
Boston-Cambridge	140-149	730-790	47-50
Rest of Massachusetts	40-43	450-490	12-13
TOTAL IMPACT	448-487	3,500-3,800	146-160

FINDINGS

The analysis showed that rail would improve linkages with the Boston job market; facilitate mobility of professional, skilled, and unskilled workers; and enhance economic development.



SOURCE: Economic Development Research Group, Inc.

Each year, North Carolina DOT analyzes the potential economic impacts of proposed transportation projects across 14 regions of the state. (In 2012, this included over 1,000 projects.) Specifically, the agency assesses the likely economic value that each project would have on the affected regions over the next 30 years, in terms of gross regional product. That information is converted to a point system so that the projects can be compared against each other across the regions. It includes educational outreach to provide a clear explanation of where the economic data originated and how the calculations were performed and applied in a consistent manner across the state.

State-local and public-private collaboration. One of the more interesting aspects of web-based economic impact tools has been the ability to foster collaboration among state and local agencies involved in planning and prioritization. Two NCDOT planning partners—a metropolitan planning organization and a rural regional planning organization—have taken advantage of the agency's willingness to share a web-based economic model so that they can also analyze projects in their areas and explain results to local planning officials.

Other forms of collaboration have

emerged in Utah. A coalition including the state's metropolitan planning organizations, the Salt Lake City Chamber of Commerce, and the Utah Transit Authority used economic impact analysis in support of a funding proposal to expand the multimodal unified plan. Their analysis showed not only how increased funding would reduce private-sector costs, but also how productivity and economic growth in isolated cities could be enhanced through improved connections between communities.

Logan is the largest trade center in Utah without interstate access, and planners demonstrated its need for better highway connectivity by showing the economic impacts of improved access to intermodal facilities and labor markets in the Salt Lake City region.

Individual projects. At the later stages of alternatives analysis and environmental review, wider state and regional economic factors must be considered alongside localized concerns. By now, available transportation data are quite detailed, allowing for more detailed economic impact and economic benefit analysis.

In Atlanta, plans for a multimodal passenger terminal and broader corridor redevelopment vision were considered in the context of economic impacts for downtown Atlanta, for the broader region, and for the state. In 2012, Central Atlanta Progress used a local and statewide economic impact model to show how changes in highway congestion, transit use, mobility, and access to downtown jobs will affect the broader region and state.

The results provided an impetus for Georgia DOT and the U.S. Department of Transportation to advance the project. More recently, the project was included in the White House's "We Can't Wait" initiative to streamline review processes. Forest City was the developer selected for the public-private partnership, and the project's design is now progressing through the environmental impact review process.

Labor market access was also a major issue for the South Coast Rail project in Massachusetts. This project encompasses the fastest growing region of Massachusetts and includes Taunton, Fall River, and New Bedford, all of which have been classified as "Gateway Cities"—formerly robust industrial urban centers that have suffered severe economic decline with concomitant barriers to employment. The concept of restoring

New Web-Based Tools to Inform Decision Making

A new web site, www.transportationforcommunities.com, provides guidance on how to develop, prioritize, and inform transportation plans. It was designed as a tool to help planning agencies and their partners navigate the complex world of federal requirements for corridor planning, alternatives analysis, and environmental review. An important outcome of this effort was the presentation of transportation planning as a sequence of stages that involve different stakeholders and decisions.

One of the first offshoots of this effort was TPICS, the national database of Transportation Project Impact Case Studies, in operation since 2011. This database provides before-and-after information on economic development and land development impacts of a wide variety of highways, bridges, community bypasses, industrial access roads, transit terminals, and intermodal freight facilities. Its web-based tool (www.tpics.us) was designed to serve as a centralized source of information on the impacts of transportation projects, to provide planners with information to assist in early stage visioning and project concept development.

By breaking down the planning stages, one can simplify the process of analyzing the economic impacts and benefits of alternative transportation scenarios. This is especially important because the level of detail for available information, the issues at stake, and the primary audiences all vary depending on the planning stage.

This has led to some new approaches for economic impact analysis, which directly relate economic impacts to issues of concern to residents, such as access to jobs, development density, and the reliability of deliveries. The widely used TREDIS economic impact web tool (www.tredis.com) now tailors all information entry and presentation around the specific planning stage that is selected, in order to enable reports to be designed for the needs of different audiences.

commuter rail to this region and connecting it to Boston was advanced by regional leaders as a catalyst for economic development and a way to infuse new life into older industrial cities that are grappling with high unemployment rates and disinvestment (as noted in the project brochure and website).

Rail connections from the South Coast to Boston existed until 1958. Massachusetts DOT recently examined the economic feasibility of reestablishing commuter rail to the region. The analysis considered the usual elements of travel-cost savings for new commuter rail riders, reduced congestion in the corridor, and time savings for car and truck drivers. But it also considered how linking Boston and the South Coast can affect the reach of labor markets, increasing job access and worker mobility in ways that can lead to improved business and labor productivity.

The findings supported the state's decision to advance the project, and funding details are currently before the governor and the state legislature. The South Coast Rail Economic Development and Land Use Corridor Plan, developed in 2007 as part of the project, identified Priority Development Areas and Priority Protection Areas in the 31-community region as a means of promoting smart growth and sound land-use planning. The Corridor Plan won an award for Outstanding Planning from the Massachusetts Chapter of APA.

Making it real

"Missouri is known as the 'Show-Me State' and so at MoDOT we're showing our citizens that transportation investments are enormously valuable for our economy," explains Mara Campbell, director of customer relations for the Missouri Department of Transportation. As part of MoDOT's long-range transportation planning process, the agency commissioned a series of transportation case studies, representing all geographies of the state, to help stakeholders make the connection between investment and economic impact.

These case studies, presented at listening sessions across the state, showed the change in local jobs before and after transportation improvements, and compared them to similar areas that did not receive significant transportation improvements. Data, along with the narrative describing the impact of the transportation investment plus photos and quotes from local leaders, were combined into short, easy-to-read case studies.

As Campbell points out, "A key to the credibility of these studies is that we talked with well-known local leaders as part of the case study, like chamber of commerce members, economic development professionals, and area business leaders."

These case studies are also being used by transportation advocates as Missourians consider whether to advance a sales tax measure to increase transportation funding. For residents of other states, there is now a national database of transportation project impact case studies.

Looking forward

The true value of economic impact analysis is not to generate numbers but rather to tell a story—using clear methods to show how proposed investments are likely to affect job markets, business delivery markets, freight supply chains, and visitor activity—and ultimately affect economic growth. A growing number of local and state agencies are finding ways to use that sort of information to enhance planning, agency collaboration, and public support for decision making.

The day may come when transportation planners will not think they've done their due diligence unless they have considered the economic impacts of decisions, and stakeholders will expect the incidence of economic costs and benefits to be shown before project approvals. With the increasing focus on performance-based planning, economic analysis should become part of that system. ■

Julie Lorenz is senior strategic consultant at Burns & McDonnell in Kansas City. Glen Weisbrod is president of Economic Development Research Group, Inc. in Boston.

RESOURCES

ONLINE *Economic Effects of Public Investment in Transportation and Directions for the Future*, Center for Neighborhood Technology for the State Smart Transportation Initiative (2012): www.ssti.us/2012/05/economic-effects-of-transportation-investments.