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New Jersey Department of Transportation
Bureau of Research

Technical Brief

Rail Freight Assistance Program Cost-benefit Analysis

This research report examines the cost-benefit analysis tool and project selection process that NJDOT currently uses in its assessment of candidate projects for the Rail Freight Assistance Program. The report recommends the inclusion of several factors that should be calculated in the cost-benefit analysis and presents alternatives for developing a new cost-benefit analysis tool.

Background

As authorized by the *New Jersey Administrative Code, Title 16, Chapter 53C*, NJDOT administers the Rail Freight Assistance Program (RFAP) to provide assistance to freight railroads throughout the State for the purpose of supporting an "efficient and effective rail freight system." The reorganization of NJDOT assistance programs provides an opportunity to develop the capabilities of the RFAP application process to address a broader range of benefit and cost considerations and to more completely ensure that the program's purpose to support efficiency and effectiveness are being achieved.

Research Objectives and Approach

This research includes a review of NJDOT's Rail Freight Assistance Program (RFAP) application and analysis tool to identify opportunities to enhance the program's capabilities and provides a series of recommendations developed to enhance the analysis tool's capabilities to account for a more comprehensive range of benefits and costs associated with candidate projects.

Findings

The RFAP CBA process is fairly limited in its capabilities to quantify benefits among an array of stakeholders in the public and private sector, and among various categories of benefits related to transportation system performance, economic development, or environmental and sustainability impacts. Based on observations of other peer states, New Jersey could potentially improve the selection process by more fully quantifying certain benefits as part of the cost-benefit estimate, including:

- Estimating truck vehicle miles traveled (VMT) changes and resulting impacts on emissions, fuel consumption, shipper costs and deferred highway maintenance.
- Economic impacts, such as wages by industry, direct and indirect employment during the construction and operations phases.

- Tax revenue impacts.
- An accounting of qualitative criteria related to State planning goals.

This study recommends that NJDOT develop a new model which monetizes the costs and benefits of a broader range of project impacts and expands NJDOT's understanding of the benefits and costs each candidate project accrues among a wide range of stakeholders. Three model development approaches are proposed for implementation—Basic, Enhanced and Comprehensive.

- The Comprehensive approach allows the evaluation qualitative criteria using a weighted scoring system, evaluates economic impacts at the county-level, estimates truck VMT reduction and associated impacts using the State's truck model with commodity detail, estimates at-grade crossing delay impacts and has a procedure to validate the traffic projections the applicants submit.
- The Enhanced approach evaluates qualitative criteria using a "check mark" procedure, evaluates economic impacts aggregated to the state level, estimates truck VMT reduction using user-entered distance information by equipment type, estimates at-grade crossing delay impacts and has a procedure to validate the traffic projections the applicants submit.
- The Basic approach evaluates qualitative criteria using a "check mark" procedure, evaluates economic impacts aggregated to the state level, estimates truck VMT reduction using user-entered distance information by equipment type, does not estimate grade crossing delay impacts, and does not include a validation protocol.

A fourth option calls for the acquisition of the model that the Pennsylvania DOT uses for its rail assistance program and the adapting of the model's input categories background multipliers to represent New Jersey's economic and freight activity. Using the Pennsylvania model architecture would provide some savings in development, but a significant level of effort would be required to transform it into a New Jersey model. This report suggests that NJDOT may be best served by developing a new model of its own, following the Enhanced or Comprehensive approach, depending upon the resources available.

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A final report is available online at: http://www.state.nj.us/transportation/refdata/research/. If you would like a copy of the full report, send an e-mail to: Research.Bureau@dot.state.nj.us.

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