

New Jersey Department of Transportation
Bureau of Research

Technical Brief



The Cost of Roadway Construction, Operations and Maintenance in New Jersey – Phase 1 Final Report

Well-maintained transportation infrastructure is necessary to support the needs of the traveling public, goods movement and other economic activity. In today's fiscally constrained funding environment, cost efficiency in highway construction and maintenance is an important goal for transportation agencies nationwide. The primary research objective for Phase I of this study was to estimate how much it costs on average to plan, construct, operate and maintain the roadways and bridges under NJDOT jurisdiction.

Background

New Jersey's transportation systems comprises a vast array of infrastructure, including more than 38,000 centerline miles of roadways and thousands of bridges under State and local jurisdiction; more than 3,000 buses operating on 262 bus routes; 12 commuter rail lines serving 165 stations in 117 municipalities; 3 light rail lines serving 62 station/stops; 350+ park-and-ride lots; 3 commercial airports, 46 general aviation airports; 225 miles of commercial navigation channels; the largest seaport on the east coast; two Class I rail freight carriers and 14 regional and shortline railroads. The costs associated with planning, constructing, operating and maintaining New Jersey's transportation infrastructure is significant. While some research has been conducted nationally to estimate the average cost to maintain and operate State highway systems, to date, no similar research has been conducted in New Jersey.

Research Objectives and Approach

- Estimate the average cost per-lane-mile of roadway construction projects on State- and Authority-owned roadways in New Jersey.
- Estimate the cost-per-lane-mile of maintaining roadways under State and Authority jurisdiction.



Construction of the Route 52 Causeway
Ocean City, New Jersey.

(Photo courtesy of: <http://www.constructionequipmentguide.com>)

- Identify the factors that influence the cost efficiency of roadway construction and maintenance projects in New Jersey.
- Benchmark the cost efficiency of New Jersey roadway construction and maintenance against that of surrounding northeastern states.
- Identify what leading practices are being used in other states to improve the cost efficiency of roadway construction and maintenance projects.

To achieve these research objectives, the research team is conducting a two phase study. Phase I of the study employed a program-level analysis to estimate costs based on various expenditure pools. Phase II of the study will include a more detailed analysis of costs for specific NJDOT road and bridge projects; estimation of construction and maintenance costs-per-lane mile for roadways under New Jersey Turnpike Authority and South Jersey Transportation Authority jurisdiction; benchmarking New Jersey costs against those of nearby northeastern states; as well as a review of leading practices being used in other states to increase the cost-efficiency of roadway construction and maintenance projects.

Findings & Conclusions

- New Jersey's total transportation expenditures can vary significantly from year to year. From FY2010 to FY2014, total annual expenditures—excluding expenditures by toll road authorities—ranged from a low of approximately \$3.4 billion in FY2012 to a high of more than \$4 billion in FY2014.
- On average, 59 percent of total transportation-related expenditures are for activities not directly associated with planning, constructing, operating, and maintaining roads and bridges under NJDOT's jurisdiction. These include: grants and other expenditures related to the NJDOT local Aid program and other grants made to local governments; capital project and operating support to NJ TRANSIT; debt service on bonds issued to finance transportation projects; funds passed through to MPOs and TMAs; and expenditures associated with NJDOT's Bureau of Aeronautics, Office of Maritime Resources and activities related to rail freight planning.
- The cost to construct, operate and maintain the roadways and bridges under NJDOT jurisdiction averaged around \$1.5 billion annually over the five year period that included fiscal years 2010 to 2014. This equates to an average cost of \$183,757 per lane mile of state highway, excluding debt service. When interest payments on bonds is added in, the total cost increases to an average of \$212,927 per lane mile.

The results of Phase I provide a baseline understanding of average aggregate costs associated with NJDOT roadways and bridges. Additional analysis is being conducted as part of Phase II of the study in order to understand more completely the factors that influence cost efficiency of specific NJDOT projects and programs, and the costs associated with planning, constructing, operating and maintaining roadways under the jurisdictions of New Jersey toll road Authorities.

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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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NJDOT Research Report No: NJ-2016-003