



## TECHNICAL SUMMARY

### Technical Liaison:

Bruce Hasbargen, Beltrami County  
Bruce.Hasbargen@co.beltrami.mn.us

### Project Coordinator:

Nelson Cruz, MnDOT  
Nelson.Cruz@state.mn.us

### Principal Investigator:

Zhirong (Jerry) Zhao,  
University of Minnesota

### PROJECT COST:

\$110,350



An increase in county employment rates is an economic benefit of local transportation investments in small towns and rural areas.



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# Linking Transportation Investment and Job Creation in Minnesota Counties

## What Was the Need?

As federal resources for transportation development have declined, state departments of transportation and local organizations have needed to be selective in funding transportation projects, choosing those that generate the greatest local return on investment.

Transportation engineers and planners understand the positive effects new roadway projects have on local and regional economies. But to demonstrate these effects to elected officials who develop the budgets—as well as to the tax-paying public—they have needed supporting quantitative data. [Previous Local Road Research Board \(LRRB\) research](#) has produced data linking transportation investments to increases in local property values in Minnesota counties. More analysis and information were required about the possible links between local transportation investment and other economic indicators, such as job creation.

*Researchers showed that transportation investments within a county can increase the local employment rate, while investments in trunk highways surrounding a county can also enhance county and regional employment.*

## What Was Our Goal?

The goal of this project was to quantify the relationship between transportation investment and economic development as it is represented in data showing the effect of the investment on job creation in counties.

## What Did We Do?

After an initial literature search, researchers followed the methodology of the earlier study by gathering and examining data from several sources. The [Minnesota County Finances Report](#) yielded investment information. Since 1985, this report has collected information about grants and expenditures for county-managed local roads. MnDOT's Trunk Highway Construction and Maintenance Costs provided data related to these expenditures collected from 1995 to 2012.

To determine transportation investment effects on job creation and employment, researchers used several comprehensive data sources to measure employment across the state and in counties: the Quarterly Census of Employment and Wages (which reports overall employment); County Business Patterns (which reports private employment only, based on business register data); and data from the Minnesota Department of Employment and Economic Development.

Researchers combined data on transportation investment, business patterns and socio-economic conditions in Minnesota counties from 1995 to 2010. The data included the number of county business establishments, jobs in Minnesota counties by sectors and the amount of the annual payroll. Investigators also examined spatial (GIS-map based) data from counties.

By linking the data of county business patterns to expenditures on local roads and trunk highways, researchers performed statistical analyses and created an econometric model to address these questions:

- How does transportation investment affect the employment rate, aggregate employment (number of jobs) and annual payrolls in Minnesota counties?

*“The entire project was new and useful. It provided answers to questions about the benefits for counties building local roads, beyond getting traffic from here to there.”*

—Bruce Hasbargen,  
County Engineer,  
Beltrami County

*“As federal transportation money decreases, state and local agencies must make difficult policy decisions with diminishing budgets. This research provides quantifiable data about the local and regional benefits of new roads, which agencies can use to promote and support transportation projects.”*

—Zhirong (Jerry) Zhao,  
Associate Professor,  
University of Minnesota  
Humphrey School of  
Public Affairs

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MS 330, First Floor  
395 John Ireland Blvd.  
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Investments in trunk highways, such as Trunk Highway 61 in northeast Minnesota, are associated with employment rate increases in the counties where improvements are built, as well as regional benefits.

- Which type of transportation investment—trunk highways or local roads—is more effective in job creation?
- Does the link between transportation investment and job creation differ between metropolitan and rural counties?

The model’s design controlled for unrelated factors that would affect employment rates, including population, age structure, population density, educational attainment and level of urbanization.

### What Did We Learn?

The literature search showed evidence of connections between transportation projects and local economic development across many decades and countries, although the results were varied and not predictive.

The data analysis found that long-term transportation investments contribute to employment in Minnesota counties, including several positive and statistically significant relationships:

- A 1 percent increase in local road capital within a county is associated with a 0.007 percent increase in the employment rate in the county, holding constant various socioeconomic factors.
- A 1 percent increase in trunk highway capital in surrounding areas is associated with a 0.008 percent increase in the employment rate of a county, again holding constant various socioeconomic factors.

The impacts are significant but not substantial, which researchers say may be explained by the fact that most Minnesota counties are rural and already have relatively high employment rates. Moreover, not all areas are positively affected by these investments. The overall findings are largely driven by rural areas, while the evidence for metropolitan and micropolitan areas is mixed.

The results suggest that in Minnesota it would be more effective to invest in rural areas compared to urban areas as far as employment growth is concerned.

### What’s Next?

The results of this project provide an internal decision-making tool for local agencies. They also offer quantitative data in support of transportation investment to convey to elected officials and the tax-paying public. Although no follow-up research is currently planned, many further studies of this type are feasible. For example, studies could evaluate associative effects of transportation investment on other socioeconomic factors, such as sales tax bases, small business development, workforce specialization and public education.

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*This Technical Summary pertains to LRRB-produced Report 2018-04, “Transportation Investment and Job Creation in Minnesota Counties,” published January 2018. The full report can be accessed at [mndot.gov/research/reports/2018/201804.pdf](http://mndot.gov/research/reports/2018/201804.pdf).*