



RESEARCH SERVICES SECTION

TECHNICAL SUMMARY

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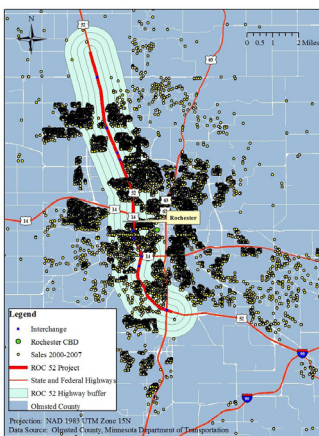
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Principal Investigators:

Michael Iacono, University of Minnesota
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PROJECT COST:

\$72,637



This project analyzed residential sales trends near highway upgrades. This map shows 2000 to 2007 sales near US 52 in Rochester, Minnesota.

Impacts of Upgrading Roads on Local Property Values

What Was the Need?

Improvements to transportation networks tend to impact both users and local land markets. Past economic analyses of road improvements have focused primarily on benefits to users in the form of reduced travel costs and more efficient supply chains. The ability to quantify the benefits of road improvements through the examination of local property value impacts can provide a means for local governments to evaluate the merits of infrastructure investment and local road finance policies.

What Was Our Goal?

The objective of this study was to build on previous research related to local road finance policies and transportation costs to determine whether upgrading roads confers special benefits on adjacent properties of various types.

What Did We Do?

Researchers used case studies to evaluate the impact of highway improvements on property values. All case study candidates were in counties with transportation improvement projects that provided new capacity or added major new links to the road network, and each project had to have a total construction cost of more than \$10 million. Based on data availability, researchers selected three Minnesota counties for these case studies ranging from urban to rural with different types of recent, major construction: Hennepin, Olmsted and Jackson counties.

All three case studies used Mn/DOT construction logs and Minnesota Department of Revenue data on residential and commercial-industrial property sales transactions from 1999 (2000 in the case of Olmsted County) through 2007. The Hennepin County analysis also included data from the Multiple Listing Service, which provided a set of structural and locational attributes for analysis from 2001 through 2004, and regional parcel data to provide a land-use classification scheme for commercial-industrial property sales. Additional building characteristics derived from county records contributed to the Olmsted County analysis.

To estimate the effects of road network improvements on property values, researchers used statistical models (hedonic regression models) that decompose the value of a property into its constituent characteristics and estimate the implicit value of each characteristic. For case studies with a limited data set, researchers employed a more limited approach that split data into two time periods: before and after construction. For some properties, more robust data sets allowed researchers to estimate effects for specific years or for time periods before, during and after construction.

To gauge the impact of the highway, researchers designated an area of influence within one mile of the improved highway, segregated into contiguous quarter-mile buffer zones. Where residential properties were the focus of the analysis, researchers attempted to separate the effects of proximity to the highway itself from the effects of proximity to a highway access point.

What Did We Learn?

For most of the study areas and property types evaluated, no statistically significant change in property values was observed as a result of the construction or reconstruction project. The exception was the US 52 project in Olmsted County, where higher property values were observed for properties near the completed highway (within roughly one mile or less).

continued

“This study provides a strong foundation for continued and expanded investigation into the economic impacts of roadway upgrades in similarly composed areas of the state.”

—Ronald Lambert,
Mn/DOT Real Estate
Specialist Supervisor

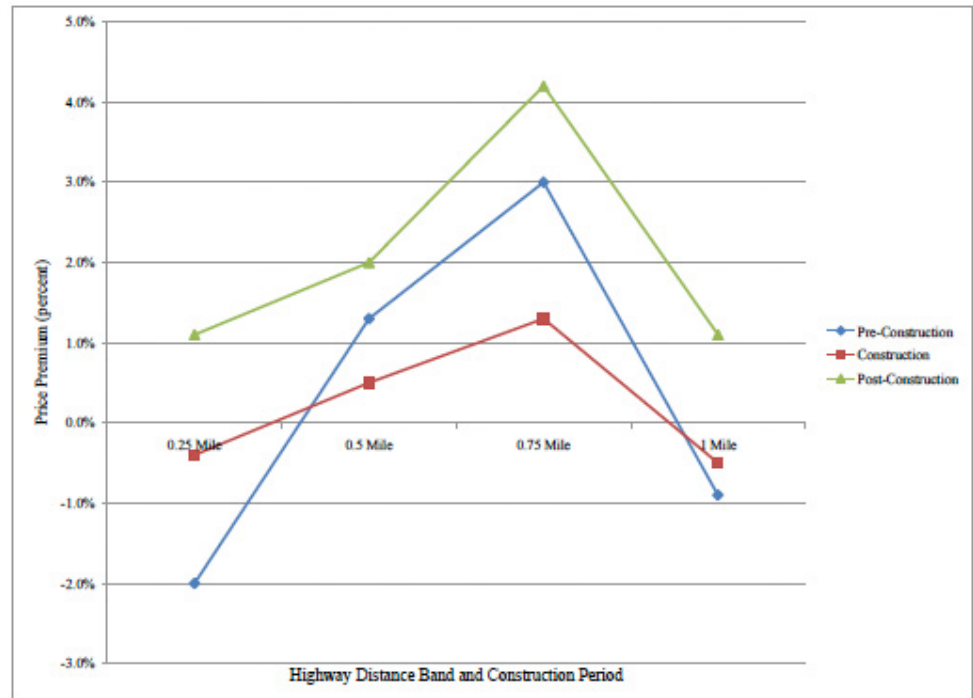
“Further research, using standardized methods and robust data sets, is needed to determine if the effects on land values identified in this study are consistent across locations of varying size and growth rates.”

—Michael Iacono,
Research Fellow,
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This chart shows the price effects of proximity of residential properties to upgraded US 52. Sale prices were higher during the post-construction period by 0.5 percent to 2.0 percent for properties within one mile of the upgraded highway.

Researchers found that for a number of construction projects in the study, it was difficult to make inferences due to small sample sizes, data sets with limited time periods and data sets lacking property attributes. Where sample sizes are limited—as was the case with most commercial and industrial property sales—there is a tradeoff between the level of detail of the analysis and the accuracy of the results. Researchers also noted that in most cases, the resulting improvements to transportation networks are not significant when, as in the case study locations, the highway network is largely developed.

What's Next?

The results of this study are being presented at regional conferences and seminars and at the 2010 Transportation Research Board Annual Meeting. The project outcome suggests the need for improved methods and data for analyzing the effects of transportation improvements on property values. Researchers propose two possible methods:

- Analysis of raw land sales rather than sales of land with structures reduces the need for extensive property attribute data like that found in MLS data and some county parcel records.
- With a repeat sales index method, trends in house prices or growth rates are analyzed over a given period using a set of properties that sell at least twice during the study period. This approach is best-suited to cases with smaller sample sizes and property-related data sets with limited structural and neighborhood attributes.

This Technical Summary pertains to Report 2009-16, “The Economic Impact of Upgrading Roads,” published June 2009. The full report can be accessed at <http://www.lrrb.org/PDF/200916.pdf>.

Transportation Research Synthesis 0802, “Methods of Estimating the Economic Impact of Transportation Improvements,” which describes the researchers’ evaluation of possible methodological approaches to the study, can be accessed at <http://www.lrrb.org/PDF/TRS0802.pdf>.