



DEPARTMENT OF
TRANSPORTATION
RESEARCH SERVICES & LIBRARY

TECHNICAL SUMMARY

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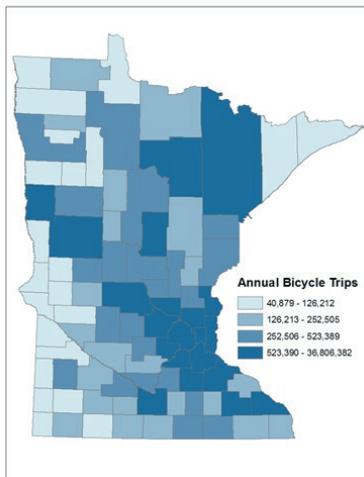
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Principal Investigator:

Xinyi Qian, University of Minnesota

PROJECT COST:

\$132,285



Counties in Minnesota with the highest bicycle use also have the highest population densities.

Economic Impact and Health Benefits of Bicycling in Minnesota

What Was the Need?

Minnesota ranks as the nation's second-most bike-friendly state, according to the latest (2015) annual rating by the League of American Bicyclists. The state's bicycling initiatives have certainly contributed to this achievement. Yet planners know that a deeper understanding is needed of the impact bicycling has on the state, so that investments in bicycling infrastructure and programs can be better tied to the economic and health benefits of bicycling.

In 2013, MnDOT commissioned a literature review to determine what research existed on the benefits of bicycling. The findings, reported in [TRS 1309](#), "Quantifying the Economic Impact of Bicycling: A Literature Review with Implications for Minnesota," revealed that no in-depth study of bicycling's economic impact had been undertaken in Minnesota. Therefore, MnDOT decided to perform its own study to help answer questions for the state.

What Was Our Goal?

The project had four objectives:

- Estimate the economic impact of the bicycling industry.
- Estimate the economic impact of bicycling events.
- Estimate the volume of bicycling infrastructure/facility use.
- Assess the economic value of the health benefits associated with bicycle commuting in the Twin Cities metropolitan area (TCMA).

What Did We Do?

To estimate the economic impact of the bicycling industry and bicycling events, researchers sent data-gathering questionnaires to manufacturers, distributors, retail establishments, bicycle advocacy groups and participants in selected bicycling events in the state. The researchers then used IMPLAN, an economic modeling tool, to produce their estimates.

To gauge bike facility use, the researchers relied on bicycle counts from the Minnesota Bicycle and Pedestrian Counting Initiative and from local agencies (including the Minneapolis Department of Public Works, the Minneapolis Park and Recreation Board and the nonprofit group Transit for Livable Communities). Researchers also utilized counts of trail users taken by the Metropolitan Council and the Minnesota Department of Natural Resources.

To measure the health effects of bicycle commuting, researchers analyzed data from the Coronary Artery Risk Development in Young Adults (CARDIA) study. Begun in 1985 by the National Heart, Lung, and Blood Institute, CARDIA is being conducted in Minneapolis and three other metropolitan centers, and includes measures of physical activities (such as cycling) and various health outcomes. This study focused only on estimating mortality, or deaths prevented by bicycle commuting, not recreational bicycling.

This study provides the first in-depth assessment of the economic impacts of bicycling in Minnesota. It quantifies the use of bicycle facilities, the economic contributions made by the bicycling industry and bicycling events in the state, and the economic impact of health benefits from bicycle commuting.

“This kind of bicycling study is definitely new for Minnesota but also new nationally. This is the first time a state has attempted to assess, in a single study, the multiple impacts that bicycling activities have on the state’s economy and health.”

—Sara Dunlap,
Principal Planner,
MnDOT Office of Transit

“The people involved in this project represented multiple professional disciplines and brought diverse skills and knowledge to the table, making it possible to draw a comprehensive picture of bicycling and its benefits.”

—Xinyi Qian,
Tourism Specialist,
University of Minnesota
Tourism Center

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A bike path in Hastings, Dakota County, Minnesota. The county has one of the highest numbers of annual bicycle trips.

Researchers also designed a Twin Cities Commuter Survey, using their health benefits analysis to inform the survey’s design. The survey was administered to a sample of Twin Cities commuters, and its results were entered into the Health Economic Assessment Tool (HEAT), an instrument developed by the World Health Organization for estimating the economic value of reduced morbidity and mortality associated with specified physical activities.

What Did We Learn?

The study yielded the following results:

- **Economic impact of the bicycling industry:** \$779.9 million in economic activity in 2014, \$208.8 million in labor income annually, and 5,519 jobs.
- **Economic impact of bicycling events:** \$121.20 spent per day by an average bike event visitor, \$14.3 million in economic activity annually, \$4.6 million in labor income annually and 150 jobs.
- **Bicycling infrastructure/facility use:** 87 million to 96 million* bicycle trips per year in Minnesota, and 165 million to 198 million* miles biked annually. Sixty-nine percent to 72 percent of those trips occurred in the TCMA. Twenty-four percent of cyclists in the TCMA bike at least once weekly.
- **Economic value of the health benefits associated with bicycle commuting:** 12 to 61 deaths* per year prevented, and \$100 million to \$500 million* per year saved. Bicycling at least three times per week is also linked to:
 - 46 percent lower risk of metabolic syndrome.
 - 32 percent lower risk of obesity.
 - 28 percent lower risk of hypertension.

*Range results from use of different data sources and different assumptions.

What’s Next?

MnDOT and other agencies will use the results of this study to support MnDOT’s Statewide Multimodal Transportation Plan and Statewide Bicycle System Plan, and to assist MnDOT’s eight districts that are developing their own bike plans.

Once the current study is published, MnDOT will broadly publicize its findings via one-page summaries and press releases, email blasts, social media postings and website postings.

This Technical Summary pertains to Report 2016-36, “Assessing the Economic Impact and Health Effects of Bicycling in Minnesota,” published in December 2016. The full report can be accessed at mndot.gov/research/TS/2016/201636.pdf.