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DEPARTMENT OF TRANSPORTATION

RESEARCH SERVICES & LIBRARY

IMPLEMENTATION SUMMARY

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PROJECT COST:
$120,000*

*Plus $214,210 for equipment, paid in part by the MnDOT Office of Transportation System Management.

Establishing permanent count sites and a short-term count program will institutionalize bike traffic data collection.

Putting Research into Practice: Institutionalizing Bicycle and Pedestrian Counting

What Was the Need?

Pedestrian and bicycle traffic in Minnesota is growing. In response to this trend, MnDOT and local agencies have made significant investments in bicycle and pedestrian facilities in recent years.

Without consistent pedestrian and bicycle traffic count data, however, it is challenging to know how investments are paying off or to make informed decisions about future investments. Count data can inform state and local transportation agency decisions regarding project design, funding, programming, maintenance and safety. The information can also contribute to the assessment of transportation programs such as Complete Streets and Toward Zero Deaths. Nontransportation agencies can use the data to support and evaluate initiatives related to health, tourism, economic development, parks and the environment.

MnDOT is among the nation's leaders in traffic monitoring, but the agency needed to develop a program to sustainably implement the practice and update its data collection manual to align with monitoring practices.

This project focused on institutionalizing nonmotorized traffic data collection as part of the Minnesota Bicycle and Pedestrian Counting Initiative. Among this phase's 10 objectives are the establishment of more than 25 permanent count sites and a program to lend equipment to local agencies for short-term counts.

What Was Our Goal?

This project sought to advance the Minnesota Bicycle and Pedestrian Counting Initiative by developing a counting program at MnDOT.

What Did We Implement?

This project was the third and final phase in a MnDOT effort to develop a bicycle and pedestrian monitoring program in Minnesota. Projects 2015-33 and 2015-34 developed a guide for counting nonmotorized traffic, while projects 2013-24 and 2010-06 evaluated counting methods.

How Did We Do It?

This phase of the project had 10 tasks:

- Continue pedestrian and bicycle traffic data collection.
- Revise the MnDOT Bicycle and Pedestrian Data Collection Manual.
- Develop procedures to lend equipment for short-term counts.
- Archive nonmotorized traffic data collected between 2012 and 2014.
- Develop a template for reporting traffic counts.
- Develop a template for an annual report on bicycle and pedestrian counts.
- Develop a statewide bicycle traffic monitoring plan.
- Collaborate on nonmotorized traffic projects.
- Develop a statewide pedestrian traffic monitoring plan.
- Organize a bicycle and pedestrian monitoring task force.

continued

"We're already collecting bike and pedestrian traffic data, but the programs developed in this project will help us have a much more complete system."

—Amber Dallman,
MnDOT Bicycle and Pedestrian Coordinator

"MnDOT has established a set of permanent bicycle and pedestrian monitors throughout the state for the first time. We've never had that kind of data about nonmotorized traffic before."

—Greg Lindsey,
Professor, University of Minnesota Humphrey School of Public Affairs

A trail connection in Fergus Falls, Minnesota, features both pneumatic tubes laid across the pavement to count bicycle traffic and an infrared sensor to also count pedestrians.

What Was the Impact?

The revised Bicycle and Pedestrian Data Collection Manual includes information about the use of automated monitoring devices, analysis of traffic counts, factoring of short-duration counts and collaboration with MnDOT.

To support future data collection, MnDOT will install monitoring equipment at more than 25 sites by the end of 2017. These stations will provide temporal information to help validate results from short-duration count sites and quantify the impact of weather on cycling and walking rates.

To support short-term counts, MnDOT purchased sets of portable pneumatic tube counters and infrared counters for each district to lend to local agencies or nonprofit organizations. The agency also developed usage instructions, training sessions and lending procedures. The equipment was deployed at 11 additional sites for about 200 days of data. This loaning program will expand the spatial distribution of nonmotorized counts across Minnesota and build upon the database of 58 short-duration counts MnDOT and local partners conducted at 33 locations between 2014 and 2016.

Investigators used this data to create the Minnesota Bicycle and Pedestrian Traffic 2015 Monitoring Report, which will serve as a template for future annual traffic reports. Investigators also created an interactive online map that displays count locations and data. The Statewide Bicycle System Plan and the Minnesota Walks initiative incorporate both the permanent monitoring network and short-term counts as a strategy to estimate bicycle traffic volumes throughout the state.

What's Next?

Over the next year, MnDOT will develop a quality assurance and quality control process to make sure the data collected is accurate. MnDOT will also monitor the district equipment checkout program to ensure the lending procedures are sufficient and the portable equipment is being used.

MnDOT plans to incorporate nonmotorized traffic counts into its existing motorized traffic database.

A related study underway is investigating rural pedestrian safety, particularly in tribal communities, which have a disproportionate level of crashes involving pedestrians. This project is scheduled for completion in October 2018.

This Implementation Summary pertains to Report 2017-02, "The Minnesota Bicycle and Pedestrian Counting Initiative: Institutionalizing Bicycle and Pedestrian Monitoring," and Report 2017-03, "Bicycle and Pedestrian Data Collection Manual," both published January 2017. The full reports can be accessed at mndot.gov/research/reports/2017/201702.pdf *and* mndot.gov/research/reports/2017/201703.pdf.

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