



RESEARCH SERVICES SECTION

TECHNICAL SUMMARY

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PROJECT COST:

\$69,973



Investigators identified and analyzed intersections with high pedestrian and bicycle crash rates.

Minnesota Pedestrian and Bicycle Travel Safety: Inventory, Analysis and Prospectus

What Was the Need?

Mn/DOT and the Minnesota Department of Public Safety are currently leading an initiative known as “Toward Zero Deaths” to reduce the number of traffic fatalities in the state. The U.S. Department of Transportation has established a goal of doubling bicycle and pedestrian use while simultaneously reducing by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

To provide safer conditions and encourage bicycling and walking statewide, Mn/DOT needs a fuller understanding of where, how and under what conditions accidents occur.

Currently, the formal mechanisms that exist in Minnesota to assess the safety of pedestrians and bicyclists are police reports and hospital records. Traffic incident databases at the state and federal levels in general only include records of those killed in a collision with a motor vehicle or on a public roadway. No significant effort has been made to track other collisions or the near misses that can point to unsafe conditions for pedestrians and bicyclists.

What Was Our Goal?

The objective of this study was to improve Mn/DOT’s understanding of accidents that involve bicycles and pedestrians by determining what data in this area is already collected, what the data can tell us about accidents and other safety issues, and what data is needed for a more complete picture of bicycle and pedestrian safety.

What Did We Do?

Researchers first performed a literature search focused on research into how different environments affect pedestrian and bicyclist safety.

Next, they interviewed officials at the state, county and city/town level as well as law enforcement officers, health officials and relevant interest groups to determine what data has been collected about accidents involving bicyclists and pedestrians. These interviews pointed to police reports, citizen reports and hospital records, with additional information collected from bicycle groups such as the Twin Cities Bicycling Club.

Researchers then analyzed these sources, identifying general accident trends, the locations of bicycle accidents relative to pedestrian accidents, and correlations between these accidents and neighborhood attributes. They determined which intersections had the most accidents and analyzed 12 of these more closely for similarities between crashes at a given location.

Finally, they produced an analysis of crash data collection practices and created recommendations for increasing and improving the collection and use of this data.

What Did We Learn?

The review of how accident data is collected in various states revealed that Minnesota is a leading state in collecting detailed information about the actions that lead to pedestrian and bicycle crashes.

Researchers produced useful lists of hazardous intersections and quantified the relationship between neighborhood attributes and the number of bicycle and pedestrian

“This project brought together the leaders of many Minnesota organizations around the idea that we need to pay more attention to bicycle and pedestrian safety.”

—Darryl Anderson,
Mn/DOT State Bicycle
and Pedestrian
Coordinator

“Transportation engineers need to know if we are providing a safe, multi-modal infrastructure for pedestrians and bicyclists. We also need to improve public awareness of the importance of reporting pedestrian and bike crashes, and to make reporting easier.”

—Sue Lodahl,
Director, Mn/DOT
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Minnesota’s current Accident Report form does not include fields for recording information such as the presence or absence of a bicycle lane, which would help Mn/DOT understand the factors that contribute to crash rates.

crashes in Minneapolis and Hennepin County. Other highlights of their analysis included:

- Particular driver actions such as making a left turn preceded a disproportionate number of pedestrian crashes at some intersections.
- Pedestrian and bicycle crashes occurred at different locations.
- The areas around high schools and colleges had more bicycle crashes than those around middle and elementary schools.
- Pedestrian crashes were concentrated in areas with a mix of dense residential and retail stores as well as in neighborhoods with more intersections.

Key recommendations regarding crash data collection included:

- Use technological advances such as GIS, Web-based databases and information networking to improve crash/safety data collection and to better connect available information and allow more accurate big-picture views of safety in Minnesota.
- Modify Minnesota’s crash report form to support data collection about crashes that do not involve motor vehicles and to provide a more complete picture of these accidents (such as recording the traffic signal phase) and the sites at which they occur (for example, whether a bicycle lane was available).
- Lower the injury level or damage threshold—currently \$1,000—that requires a crash involving a bicycle or pedestrian to be reported.

What’s Next?

Mn/DOT partner offices are proposing a \$150,000 to \$200,000 project to implement the results of this research. Activities may include syntheses of safety best practices, best practice workshops, public outreach and stakeholder involvement efforts, and efforts to initiate some of the changes recommended in the project report, such as exploring the feasibility of modifying Minnesota’s standard crash report form.

This Technical Summary pertains to Report 2007-04, “The Safety of Pedestrian and Bicycle Travel in Minnesota: Inventory, Analysis and Prospectus,” published January 2007. The full report can be accessed at <http://www.lrrb.org/PDF/200704.pdf>. More information on the Toward Zero Deaths initiative is available at <http://www.tzd.state.mn.us/>.