

RESEARCH SPOTLIGHT

Project Information

REPORT NAME: Synthesis of National Best Practices on Pedestrian and Bicycle Design, Guidance, and Technology Innovations

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Updating best practices to keep pedestrians and bicyclists safe

With increasing numbers of pedestrians and bicyclists on the state's roadways, the Michigan Department of Transportation (MDOT) strives to provide the safest experience possible through infrastructure design and other transportation management practices. To inform potential enhancements statewide, MDOT gathered input from experts and advocacy groups and a thorough evaluation of the cutting-edge strategies and design innovations that have been implemented across the country. The efforts will help MDOT and Michigan's local transportation agencies ensure that nonmotorized road users are considered and safeguarded at every opportunity.

PROBLEM

Pedestrians and bicyclists are among the most vulnerable road users. Working to meet goals of the Toward Zero Death safety campaigns in Michigan and at the national level, MDOT has promoted innovative pedestrian and bicycle design in the state's transportation infrastructure. However, as more of the population travels by foot, wheelchair or bicycle for a variety of reasons, fatalities and serious injuries continue to be a grave concern.

Advances in nonmotorized safety measures across the United States, broad strategies identified in Michigan's Strategic Highway Safety Plan and recent federal initiatives provide an opportunity for potential improvements. To ensure MDOT



MDOT strives to integrate the needs of pedestrians and bicyclists into all facets of transportation design.

and Michigan's local transportation agencies are doing everything possible to keep these vulnerable road users safe, MDOT sought a comprehensive review of the leading design innovations for pedestrians and bicyclists and recommendations for incorporating nonmotorists' needs wherever possible into Michigan's transportation system.

“This comprehensive and timely research gives MDOT updated tools to assist us and local agencies in putting vulnerable road users at the forefront of all of our transportation management efforts.”

Mark Bott, P.E.
Project Manager

RESEARCH

Researchers began with a thorough literature review of existing practices in non-motorized planning and design. The team consulted national, state and local agency guidance, plans and academic research on topics such as facility planning, traffic control devices and intersection design. To explore what procedures MDOT may need to update, the researchers also reviewed 50 different MDOT policies that impact the planning and design of roadway facilities and features for nonmotorized users.

Researchers then surveyed various transportation agency professionals, including pedestrian and bicycle coordinators from state DOTs, staff from 39 local agencies beyond Michigan and experts representing the cities and counties within Michigan that have implemented the policies locally. The survey solicited information regarding each agency’s strategies, guidance, plans, and other resources related to nonmotorized user safety.

Additionally, a survey of Michigan residents investigated pedestrian and bicyclist behavior and perceptions regarding existing infrastructure. Researchers also conducted online focus groups with key stakeholder groups in Michigan representing retirees, people with disabilities and advocates for trails and bicycling. Discussion topics included infrastructure and design

treatments, concerns, challenges, and desired improvements.

RESULTS

This comprehensive effort resulted in a variety of guidance and other resources that MDOT and local transportation agencies can use to select and implement strategies that make Michigan’s roadways safer for nonmotorized users. These include:

- **Recommendations regarding several MDOT guidance documents.** To integrate or enhance the protection of pedestrians and bicyclists across agency functions and programs, researchers recommended changes to 12 agency documents addressing road and bridge design, guidance for crosswalks, traffic control near schools, and other themes.
- **Revisions to MDOT’s *Best Design Practices for Walking and Bicycling in Michigan*.** Originally published over a decade ago, researchers updated this toolbox of engineering ideas to improve safety and mobility for nonmotorized users. The revisions reflect changes in practices across the country, feedback from stakeholder groups and recently adopted practices and treatments for use at intersections and other crossings and corridors.
- **Development of Tools for the Planning and Design of Pedestrian Crossing Enhancements:** Researchers developed a Michigan-specific version of a federal pedestrian safety guidebook. Intended to be a pocket reference guide for designing pedestrian-friendly crossings, the draft focuses on state issues and incorporates MDOT’s current design standards and guidance.

IMPLEMENTATION

MDOT staff can immediately start implementing the recommended updates to agency policies, procedures and documents. Once the draft state-specific reference guide

is finalized it will also be available for local transportation agencies to use.

Future research efforts on nonmotorized user safety could include exploring the best lighting for pedestrian crossings at night and design tools for pedestrian and bicyclist infrastructure near high-speed roadways.

With a better understanding of nonmotorists’ needs and the strategies and designs that have worked well elsewhere, MDOT will be better able to protect pedestrians and bicyclists across the state. Putting these best practices to work will provide safer roads, sidewalks and paths for all who use Michigan’s transportation system.

Research Administration

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**This final report is available
online at**

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