

# RESEARCH SPOTLIGHT

## Project Information

**REPORT NAME:** Sidepath Application Criteria Development for Bicycle Use

**START DATE:** June 2016

**REPORT DATE:** June 2018

**RESEARCH REPORT NUMBER:** SPR-1675

**TOTAL COST:** \$302,193

**COST SHARING:** 20% MDOT, 80% FHWA through the SPR, Part II, Program

## MDOT Project Manager



### Joshua DeBruyn

Pedestrian and Bicycle Coordinator/  
Specialist

Bureau of Transportation Planning  
Michigan Department of  
Transportation

425 W. Ottawa St.

Lansing, MI 48909

[debruynj@michigan.gov](mailto:debruynj@michigan.gov)

517-335-2918

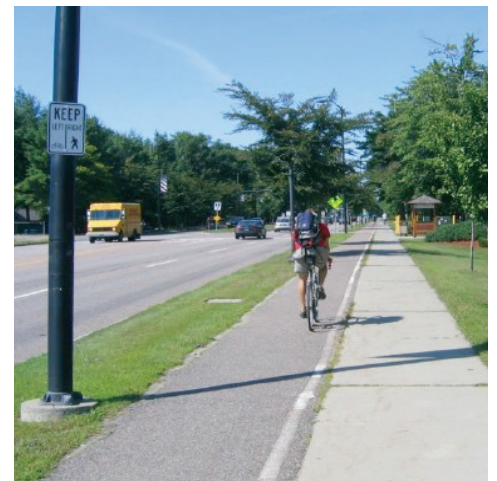
## New bicycle sidepath safety principles to benefit designers, bicyclists and motorists

Sidepaths are constructed throughout Michigan to provide routes for pedestrians and bicyclists that are separated from motor traffic. They are constructed adjacent to state or county roads, often added when roadway modifications are made. When they are well-designed, these facilities have the potential to create a comfortable traveling environment for bicyclists. This project investigated sidepath safety through crash analysis and a survey. Researchers used results to develop user educational materials and a guide for sidepath designers.

### PROBLEM

Some past [research](#) examining the safety of bicycle facilities has been unclear about the safety of sidepaths for use by bicyclists, while more recent publications (for example, the American Association of State Highway and Transportation Officials' 2012 [Guide for the Development of Bicycle Facilities](#)) have treated sidepaths as a means to facilitate safer bicycling. Studies of sidepaths' contribution to the relative safety or risk of users in Michigan had not been conducted. To promote and fund sidepaths as safe routes for bicycle travel, MDOT desired clear, up-to-date data and guidance supporting their safety and use.

This project's aim was to acquire data particular to Michigan through primary research investigating bike-crash characteristics on sidepaths, and to examine Michigan residents' preferences, attitudes and behaviors toward bicycling. Researchers



Sidepaths provide separated facilities for bicyclists and pedestrians, and typically are built adjacent to roads.

would use results of these investigations to develop educational materials for bicyclists and motorists. Crash analyses would provide foundational data informing a guide for sidepath designers.

*(continued)*

***“The project will help planners, engineers, bicyclists and motor vehicle drivers understand the safety benefits and challenges associated with sidepaths as a facility for bicyclists.”***

**Joshua DeBruyn**  
Project Manager

## RESEARCH

The research team examined six years of data from bicycle-related crashes that occurred in Kent and Oakland counties. They closely analyzed the report data to find statistically significant trends in both sidewalk and sidepath crashes – two crash types that often were combined into one category in the reports.

The research team then distributed a survey to 5,000 Michigan residents to learn about residents’ bicycle facility preferences and their attitudes and behaviors toward bicycling. Included in the survey were questions related to respondents’ preferences while bicycling with children, bicycling alone, and driving motor vehicles on multilane roadways in the presence of bicyclists. Investigators received responses from 351 residents in 20 communities across the state

## RESULTS

The crash analysis data showed three statistically significant trends of sidepath use by bicyclists:

- Bicyclists riding against traffic are at higher risk than those riding with traffic.
- Bicyclists riding through signalized

intersections are at greater risk than at intersections with other types of traffic control.

- Sidepath/sidewalk bicycle crashes tend to occur with left- or right-turning vehicles at signalized and unsignalized intersections.

The results of the survey showed that safety concerns, distance and weather were the most limiting barriers for all cyclist types. Nearly 89 percent of respondents reported that safety concerns about riding in fast or busy traffic at least somewhat limited their ability to bicycle to work, with 68 percent indicating that safety concerns limited them “quite a lot” or “absolutely.” A large majority (73 percent) agreed or strongly agreed that many drivers don’t seem to notice bicyclists. Respondents showed an overwhelming preference for bicycle accommodations, with separated facilities particularly preferred. Seventy-five percent of all respondents indicated that installation of more separated facilities would encourage them to bicycle more.

Based on the crash analysis and survey results, the research team developed the [Sidepath Intersection and Crossing Treatment Guide](#). The guide offers a methodology that integrates best practices for sidepath design into roadway projects. Planners, designers and engineers can use this methodology to improve safety and reduce the risk of crashes. Further, the team created fact sheets on sidepath safety and safe behavior for both bicyclists and motorists. In addition, researchers proposed that MDOT produce an informational video about bicycle safety and sidepaths. Researchers drafted a script for the video, which MDOT can produce and share.

## VALUE

The project’s research provides MDOT, and engineers and planners from other organizations, with the up-to-date data they need to make decisions about incorporating sidepaths into roadways. The survey about bicycle usage preferences shows that

Michigan residents strongly prefer to use separated bicycle facilities, such as sidepaths. Although specific risks are associated with sidepaths, road agencies can address those risks through public messaging and through designers’ use of different safety practices in roadway projects incorporating sidepaths. Potential next steps for MDOT to further this work include developing, implementing and evaluating targeted bicycle safety campaigns using the materials created through this project.

## Research Administration

### Principal Investigator

**Rebecca Sanders, Ph.D.**

Toole Design Group  
319 SW Washington St., Suite 800  
Portland, OR 97204

[rsanders@tooledesign.com](mailto:rsanders@tooledesign.com)  
503-205-4607, ext. 3176

### Contact Us

PHONE: 517-636-4555

E-MAIL: [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)

WEBSITE: [michigan.gov/mdotresearch](http://michigan.gov/mdotresearch)

**This final report is available online at**

[www.michigan.gov/documents/mdot/SPR-1675\\_Sidepath\\_Application\\_Criteria\\_Development\\_for\\_Bicycle\\_Use\\_Final\\_Report\\_2018-07-09\\_628346\\_7.pdf](http://www.michigan.gov/documents/mdot/SPR-1675_Sidepath_Application_Criteria_Development_for_Bicycle_Use_Final_Report_2018-07-09_628346_7.pdf)

Research Spotlight produced by  
CTC & Associates LLC, October 2018.