

Iowa DOT Updates to Statewide Design Guidance

Tech Transfer Summary

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Research Project Title

Iowa Department of Transportation
Updates to Statewide Design Guidance

Sponsors

- Iowa Department of Transportation
- Federal Highway Administration, State Transportation Innovation Council

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Toole Design is the nation's leading planning, engineering, and landscape architecture firm specializing in multimodal transportation planning and design. Our mission is to create livable communities where walking and bicycling are safe, convenient, and enjoyable for everyone. We focus on developing cost-effective and implementable solutions that move people efficiently while also improving health, quality of life, and economic vitality.

TOOLE
DESIGN

This project provided draft updates for four Iowa Department of Transportation (DOT) manuals focused on best practices for pedestrian and bicycle facility design. When fully incorporated into the manuals, the updates will provide roadway designers with design options that reflect national best practices that can improve the safety and comfort of people walking and bicycling in Iowa.

Goal

The goal of this project was to update statewide design guidance for pedestrian and bicycle facilities and multimodal accommodation used by Iowa DOT and county/municipal agencies. Design guidance that reflects best practices may improve the safety and comfort of people walking and bicycling along and across Iowa roadways.

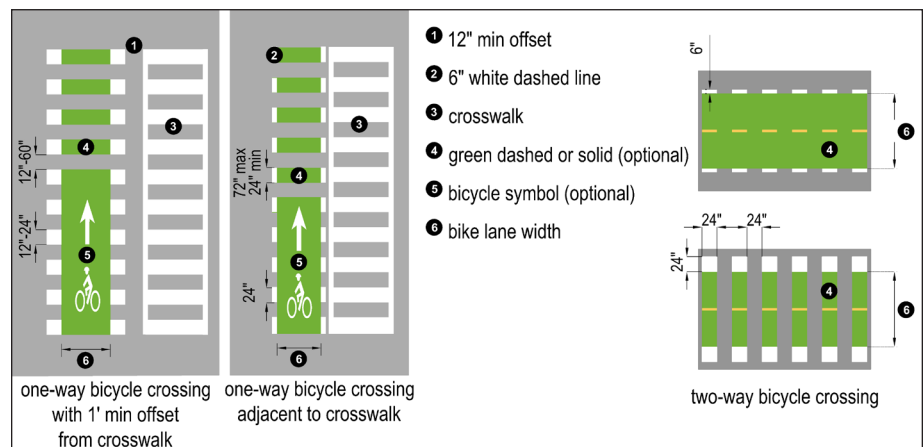
Project Need

The Iowa DOT and local roadway agencies rely on four state manuals for roadway siting and design:

- Iowa Design Manual (IDM)
- Iowa Statewide Urban Design and Specifications (SUDAS)
- Traffic and Safety Manual (TAS)
- Office of Location and Environment Manual (OLE)

The guidance in these manuals is frequently supplemented with guidance from national sources including the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and others.

Research and guidance resources on bicycle and pedestrian design have evolved rapidly in the last decade, particularly regarding bicycle facilities and countermeasures that are proven to reduce pedestrian crashes. The existing manuals lack guidance on many new types of bicycle facilities and intersection treatments that have been adopted and tested by cities and other state DOTs.



Updated Traffic and Safety Manual guidance provides bicycle crossing markings, including the use of green pavement markings to highlight potential conflict areas.

Iowa's current manuals need to be updated to reflect both the current state of the research and of the practice. Additionally, the manuals do not incorporate many of the proven safety countermeasures identified in FHWA Office of Safety's [Safe Transportation for Every Pedestrian \(STEP\) Program](#).

This project provided draft updates to the four manuals to incorporate current best practices for pedestrian and bicycle design and emphasized guidance from the FHWA to adopt design flexibility that considers bicycling and walking equal modes to driving, especially with respect to lane width in low-speed urban environments.

Update Process

The focus of the project was providing updates to the four manuals that better incorporate best practices for pedestrian and bicycle design. The update was not meant to be all-encompassing on these subjects, but to provide guidance on key topics that would improve pedestrian and bicyclist safety.

The update process began with a review of the four manuals to identify sections relevant to pedestrian and bicycle design. Specific areas of focus that were considered included:

- Roadway sizing, and in particular, its impacts on pedestrian and bicyclist accommodation and safety;
- Methodology for setting speed limits;
- Pedestrian and bicyclist safety, including specific proven safety countermeasures;
- Traffic calming; and
- Pedestrian and bicyclist accommodation.

Best practices for these focus areas were then reviewed from a wide variety of sources including the FHWA, other

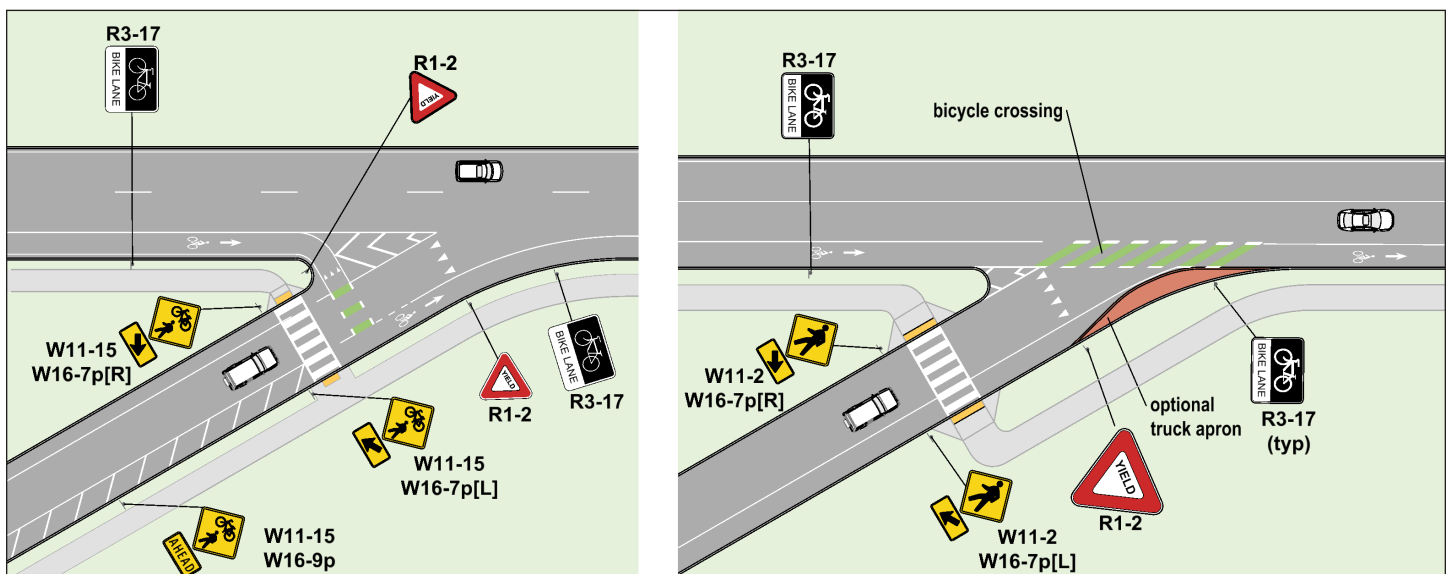
State DOTs, AASHTO, the Institute of Transportation Engineers (ITE), the National Association of City Transportation Officials (NACTO), the United States Access Board, and National Cooperative Highway Research Program (NCHRP) research reports.

Relevant sections of each manual were updated using the best practices showing the changes that had been made so that reviewers could understand the changes from the existing design guidance. A total of 27 sections of the IDM, SUDAS, and TAS manuals were updated, and five entirely new sections were created. As part of the process, over four dozen exhibits were updated or created to illustrate the guidance described in the manual text. Specific updates were not made to the OLE Manual, but a memorandum was developed highlighting sections recommended for update should the manual be updated in the future.

Next Steps

The IDM, SUDAS, and TAS manuals are formally updated on a recurring basis. Iowa DOT and SUDAS staff will review the draft updates developed for this project with key stakeholders and incorporate the changes into future updates of the manuals.

When implemented in roadway designs, the guidance developed for this project will result in roadways and streets that are safer and more comfortable for people walking and bicycling in Iowa. However, guidance related to pedestrian and bicycle design is dispersed across multiple manuals, with different manuals required to be used for different roadways in the state. Iowa DOT should consider developing a multimodal design manual that consolidates all guidance relevant to pedestrians and bicycles into a single resource for designers that is applicable on rural roads, state highways, in small towns, and on urban roadways.



A new exhibit developed for the SUDAS manual includes alternatives for how to mark bike lanes where they cross highway ramps.