



Suggested revisions to multiple design manuals will advance best practices for pedestrian and cyclist safety and experience across Iowa.

INNOVATION SOLUTIONS

Enhancing pedestrian and bicycle safety and experience through design guideline updates

Improving the safety and mobility of all transportation system users is the aim of Iowa DOT's road projects. In recent years, research and design guidance for bicycle and pedestrian facilities has undergone considerable change nationwide as the demand for multimodal transportation accommodations increases and treatments that advance pedestrian and bicyclist safety have been identified. To ensure that its design guidance was current and reflected best practices, Iowa DOT proposed comprehensive revisions and additions to several road design manuals to provide safe pedestrian and cyclist conditions and facilities.

THE NEED

Walking and biking for both recreation and daily transportation are important components of Iowa's transportation network. Iowa DOT's [Bicycle and Pedestrian Long-Range Plan](#) aims to expand opportunities and improve conditions and infrastructure for bicycling, walking, and other nonmotorized transportation modes

while also increasing the safety of people walking and bicycling. The agency's [Complete Streets](#) policy also focuses on improving conditions for cyclists and pedestrians in road projects.

Federal, state, regional, and local agencies and organizations are involved in designing, developing,

and maintaining roads and trails to accommodate cyclists and pedestrians. Safety research and design ideas for pedestrians and bicycle riders continue to evolve, and Iowa DOT wanted to ensure its design guidance reflected the range of newer, comprehensive practices that other jurisdictions have adopted.



“When the full potential of project results is realized through manual updates, both Iowa DOT and local jurisdictions will share new guidance in making pedestrian and bicycle infrastructure improvements.”

— CHRIS POOLE,
Iowa DOT State Traffic Engineer

PROJECT APPROACH

Four Iowa DOT guidance manuals cover all aspects of roadway design in the state: the Design Manual, Office of Location and Environment (OLE) Manual, Statewide Urban Design and Specifications (SUDAS) documents, and Traffic and Safety Manual. Iowa DOT maintains the Design, OLE, and Traffic and Safety manuals; the [Institute for Transportation](#) at Iowa State University maintains SUDAS, which focuses on urban design issues for cities and counties.

A thorough review of each manual identified areas where pedestrian and bicycle design guidance was lacking or outdated. Working with the Technical Advisory Committee, investigators determined changes needed to improve bicyclist and pedestrian safety and experience. A review of guidance and research from a variety of federal, Midwestern state, and other organizations and additional consultation within Iowa DOT and with external stakeholders ensured the proposed updates focused on the appropriate facilities to meet the needs of Iowa users.

WHAT IOWA LEARNED

In the Design, SUDAS, and Traffic and Safety manuals, proposed changes to 27 sections and five new sections covered issues including:

- Roadway sizing and its impacts

on pedestrian and bicyclist accommodation and safety.

- Methodologies for setting speed limits.
- Pedestrian and bicyclist safety countermeasures.
- Traffic-calming techniques.
- Pedestrian and bicyclist accommodation and facilities.

Investigators also created or updated nearly 50 exhibits to illustrate the text guidance.

The most extensive proposed updates occurred in the SUDAS documents and included pedestrian and bicycle facilities on local roads, protected bike lanes, and green pavement markings. The Design Manual shared some proposed section updates with the SUDAS documents and included safety countermeasures for higher speed interchanges and bike ramps. Investigators proposed a new section on pedestrian crossing beacons and updates for the Traffic and Safety Manual, including green pavement markings and bicycle turn boxes.

Since Iowa DOT has no firm plans to update the OLE Manual, investigators drafted a memorandum detailing recommended sections in need of revision. Lastly, they suggested the agency consider consolidating guidance related to pedestrians and bicycles into a single, multimodal design manual applicable across Iowa’s urban, suburban, and rural areas.

PUTTING IT TO WORK

The Design, SUDAS, and Traffic and Safety manuals are formally updated on a recurring basis. Providing safe and comprehensive infrastructure for pedestrians and bicyclists will help meet the needs of all Iowans, regardless of their mode of transportation. Revisions to Iowa DOT’s manuals will also support the agency in ensuring pedestrian and bicycle infrastructure complies with planned updates to federal guidance.

ABOUT THIS PROJECT

PROJECT NAME: [Iowa DOT Updates to Statewide Design Guidance Technical Brief](#)

PROJECT NUMBER: ST-011

REPORT DATE: June 2022

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