

CHAPTER 10

Ensuring Safer Bicycle Travel

KEY TOPICS

- bicycle (pedalcycle) awareness
- designing for bicycle accommodation
- helmet use and helmet laws

GOALS

- Promote educational and informational programs on bicycle usage and safety.
- Increase bicycle helmet knowledge and usage.
- Promote the adoption of policies and programs by cities, counties, and the state to accommodate bicycles on our highways and trails.
- Involve judicial and enforcement personnel in bicycle safety, stressing the importance of effective enforcement of bicycle laws.

BACKGROUND

The first automobile-bicycle crash in the United States occurred in New York City in 1896, when a motor vehicle collided with a bicycle rider (Joseph Kane, *Famous First Facts*). This illustrates that conflicts and crashes between motor vehicles and bicycles have been a safety concern for transportation officials since the advent of the automobile.

The cyclist and the motorist often conflict on highways, with the motorist not seeing or recognizing the cyclist and the cyclist not wearing appropriate clothing to alert the motorist. Inappropriate use of the highway and not following the rules of the road contribute to injuries.

Although the technology of pedalcycles (some models even have additional wheels) has improved the performance of bicycle speed and maneuverability, there is still a marked contrast between bicycle and motor vehicle size, speeds, and operation. These inherent differences make sharing the roadway safely a challenge for developers of transportation systems and the traveling public. In addition to these inherent differences, many bicyclists are very young and inexperienced, and even experienced motorists tend to forget or ignore the presence and rights of pedacyclists on roadways.

Helmet Use

Cyclists are especially vulnerable in crashes, even though the use of helmets in recent years has increased survival rates and reduced the severity of

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injuries for cyclists in traffic crashes. Helmet use is known to reduce the fatalities and the severity of injuries. Failure to wear a helmet or its inappropriate use increases the severity of injuries. Broad efforts to increase the usage of helmets, including media campaigns and educational material, can emphasize the value of using helmets, especially for young riders. Many states and local jurisdictions have age-specific bicycle helmet usage laws or ordinances that have contributed to safer bicycle travel.



NATIONWIDE

National Facts

The National Highway Traffic Safety Administration (NHTSA) reported the following data for 1999 (*Traffic Safety Facts—Pedalcyclists*):

- 750 pedalcyclists were killed—accounting for 2% of all traffic fatalities for the year.
- More than 51,000 pedalcyclists were injured in 1999.
- 13% of all nonmotorist traffic fatalities were pedalcyclists (85% were pedestrians, and 3% were skateboarders, roller skaters, etc.).
- 28% of the pedalcyclists killed were between 5 and 15 years old.
- 31% of fatal pedalcyclist crashes reported involved alcohol, either for the motorist or pedalcyclist.
- Pedalcyclist fatalities occurred more frequently in urban areas (64%), at nonintersection locations (70%), between the hours of 5:00 p.m. and 9:00 p.m. (37%), and during the months of July, August, and September (34%).
- Most of the pedalcyclists killed or injured were males (88% and 80%, respectively), and most were between the ages of 5 and 44 years (72% and 88%, respectively). Pedalcyclists 25 years of age and older have made up an increasing proportion of all pedalcyclist deaths since 1989.

IOWA

Bicycle usage and travel in Iowa have continually increased over the past several years. There is more emphasis on bicycling as a form of recreation and fitness for both families and individuals. There are now more than 150 organized bicycle clubs in Iowa and more than 200 organized rides each

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year. The best known of these rides is RAGBRAI—the *Register’s* Annual Great Bike Ride Across Iowa—with over 10,000 cyclists from all over the world participating.

While bicyclists and motorists both share equal rights to Iowa’s highways, separation of their travel on heavier traveled roadways will reduce conflict and increase the safety of the bicyclist. Emphasis should be placed on making highways leading to off-road facilities more bicycle friendly to accommodate safer bicycle travel in Iowa.

While several local, county, and state jurisdictions have made progress in accommodating bicyclists, there is still room for improvement. Strategies involving education, recognition, enforcement, engineering, and funding are needed to make bicycle travel safer in Iowa.

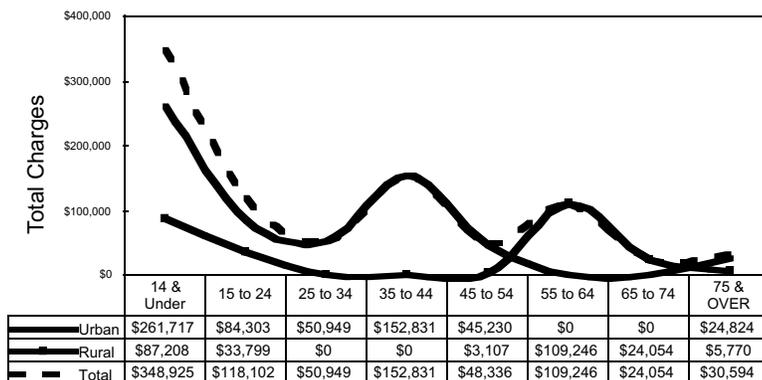
Helmet Use

Iowa does not have bicycle helmet laws in place, but local ordinances and school policies in Iowa may require helmets for some riders by age or location.

Iowa Facts

The Iowa Governor’s Traffic Safety Bureau (Iowa GTSB) reported the following data from the Iowa Department of Transportation (Iowa DOT) or NHTSA (*Pedestrian/Bicycle Fact Sheet*):

Iowa Hospital Costs of Crashes Involving Bicycles by Age 1996–1998*



*Based on 6,004 crash records linked to hospital discharge records in the Crash Outcome Data Evaluation System (CODES).

- Over 600 bicyclists were injured or killed on Iowa roadways in the 1990s.
- An average of eight bicyclists have been killed in Iowa traffic crashes each year.
- Over 50% of all bicyclists killed in Iowa traffic crashes were 19 years of age or younger.

See figure of hospital costs of crashes involving bicycles by age for the period 1996–1998.

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Iowa Public Opinion

Iowa SMS Public Opinion Survey

The 1999 Iowa Safety Management System (Iowa SMS) *Iowa Strategic Highway Safety Plan* included a number of potential strategies for dealing with these safety elements. The SMS public opinion survey asked over 1,000 Iowans whether they would support these strategies.

Results:

- Nearly one-half (48%) of the Iowans surveyed indicated bicycle safety should receive “high emphasis” over the next five years.

Comments:

- Extensive comments were offered by many planning professionals and several bicycle organizations, including the Johnson County Council of Governments Regional Trails and Bicycling Committee, Cedar Trails Partnership, a League of American Bicyclists safety instructor, several RAGBRAI enthusiasts, county engineers, and transportation consultants. These comments are incorporated into many of the strategies listed in the Potential Strategies section in of this chapter.

POTENTIAL STRATEGIES

Legislation, Policy, and Enforcement

- Summarize the effectiveness of bicycle helmet laws and ordinances in other states and local jurisdictions and publish the results.
- Encourage passage of laws, ordinances, or policies for helmets where research indicates most helpful in saving lives and reducing serious injury.
- Investigate the feasibility of a bicycle registration fee or tax on bicycle sales and repairs to help fund bicycle trails.
- Require helmet use for all bicyclists under 16 years of age.
- Identify and maximize all existing funding sources for bicycle facilities and seek new funding sources through appropriate legislation.
- Require lights on bicycles between sunset and sunrise.
- Encourage enforcement of existing laws for bicyclists to promote safer behavior.
- Continue Iowa DOT education and support for local groups.
- Include a range of disciplines in developing new public awareness



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initiatives (e.g., Iowa Department of Health and Iowa Department of Education).

- Promote the use of the Iowa DOT's *Bicycle and Pedestrian Accommodation Guidance*.

Education and Public Awareness

- Place bicycle helmet usage signage/decals on bicycle trails, bicycle routes, and in schools.
- Develop posters, media campaigns, and presentations on bicycle helmet usage.
- Develop posters, public service announcements, videos, and brochures to educate the public on the responsibilities of both bicyclists and motorists to share the road safely.
- Encourage Iowa cities to develop brochures on bicycle riding and safety in their community. Provide models and information.
- Invest in using the Internet to distribute bicycle-related information (e.g., add to the Iowa DOT Kids' Site).
- Encourage enforcement personnel to make presentations in Iowa schools on rules of the road.
- Involve medical and brain injury experts in developing appropriate public information pieces about the value of wearing bicycle helmets.
- Promote flags, safety clothing, and reflective material for cyclists (U.S. Department of Defense on-base standards model).
- Continue the Iowa DOT's Bike Iowa Conference.

Design and Technology

- Increase bicycle (and pedestrian) accommodation within state highway improvement projects.
- Provide jurisdictions with resources and exemplary models for various roadway and traffic conditions.
- Encourage use of the *Iowa Access Management Toolkit* in designing facilities to accommodate bicyclists.
- Provide six-foot-wide paved shoulders on rural highways within one mile of city limits.
- Implement bicycle-friendly rumble strips.
- Replace crossing signs with fluorescent yellow-green bicycle signing (see Successes and Strategies Implemented section in this chapter).

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- Emphasize bicycle accommodation, accessibility, and safety in the planning, design, construction, and maintenance of residential, retail, service, and manufacturing facilities.

Other Initiatives

- Develop ways to improve driver's license manual, examinations, and educational programs to include more effective motorist/bicyclist information on rules of the road.
- Encourage the use of bicycle rodeos to promote bicycle safety (see Successes and Strategies Implemented section in this chapter).
- Encourage schools to require cycling students to wear helmets when bicycling to and from school (Ames elementary school).

SUCCESSES AND STRATEGIES IMPLEMENTED

- The Iowa SMS “Smart Wheeler” Bicycle Safety Curriculum Pilot Project developed and placed curriculum for bicycle safety and helmet promotion in 38 Iowa school physical education programs through a partnership with the Iowa Association of Health’s Physical Education, Recreation, and Dance.
- The Iowa DOT adopted the *Bicycle and Pedestrian Accommodation Guidance* in 1999 to address some of these issues.
- In the summer of 1999, the Iowa DOT replaced 2,025 school signs and bicycle crossing signs on the state highway system with new fluorescent yellow-green. In 2000, additional funding was secured to begin replacement for Iowa cities and counties. As of February 28, 2001, 4,807 signs have been supplied, and the department is seeking funding for the additional 4,632 signs requested by cities and counties.
- The American Automobile Association (AAA) has developed and provided bicycle safety education programs for school children for many years including the Otto the Auto series.
- Bicycle safety programs have been developed by coalitions of agencies and groups that are concerned with bicycle safety, including the AAA Foundation for Traffic Safety and the U.S. Department of Transportation.
- Many cities in Iowa have identified existing city streets as bicycle routes and have constructed separate bicycle paths.
- Several counties have provided wide paved shoulders to accommodate bicyclists.



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- Both public and private organizations have promoted and developed abandoned railroad lines into bicycle trails.
- The Iowa DOT is currently evaluating its paved shoulder policy.
- The Iowa DOT's *Bicycle and Pedestrian Accommodation Guidance* provides direction on urban and rural bicycle accommodation.
- The Iowa DOT's Transportation Map for Bicyclists provides a statewide map of bicycle route information.
- The Iowa DOT uses a Bicycle and Pedestrian Advisory Committee.
- The Iowa DOT sponsors the Bike Iowa Conference.

NOTE

The potential strategies in this chapter do not represent specific recommendations of the Iowa SMS Coordination Committee or any agency, group, or individual represented in Iowa SMS. The strategies represent a range of alternatives for legislators, department or agency directors, local governments, and citizen groups to consider when they elect to address a specific highway safety concern.

This toolbox is a living document that will continue to provide information, direction, and ideas for highway safety decision makers. Any strategies selected for implementation by Iowa SMS or any other entity will require further development through identifying potential partners, entities impacted, potential funding, steps for implementation, evaluation, and other pertinent tasks.

RESOURCES

Information in this chapter is drawn from many individuals and sources. Known sources are listed here. **Contributors:** Kathy Ridnour (primary), Nancy Burns, Joyce Emery, Mary Harlan, Lisa Lutz, George McVicker, and Bob Studer.

American Association of State Highway and Transportation Officials

Strategic Highway Safety Plan (Sept. 1997):

A comprehensive plan to substantially reduce vehicle-related fatalities and injuries on the nation's highways.

safetyplan.tamu.edu/plan/toc.asp

Centers for Disease Control and Prevention

Preventing Bicycle-related Head Injuries:

www.cdc.gov/ncipc/factsheets/bikehel.htm

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Federal Highway Administration

www.fhwa.dot.gov/

FHWA Bicycle Safety:

safety.fhwa.dot.gov/fourthlevel/bike.htm

Pedestrian/Bicycle Safety Resource Set:

CD-ROM.

safety.fhwa.dot.gov/programs/ped_bike.htm

Bicycle Safety Tools and Technology:

safety.fhwa.dot.gov/fourthlevel/tools_b.htm

Iowa Department of Transportation

Trails Plan 2000:

www.dot.state.ia.us

Bicycle and Pedestrian Accommodation Guidance

2001–2005 Iowa Transportation Improvement Program:

www.dot.state.ia.us/fiveyear.htm

Transportation Map for Bicyclists:

www.msp.dot.state.ia.us/trans_data/mrsid/bikemap.html

Iowa Governor's Traffic Safety Bureau

www.state.ia.us/government/dps/gtsb/index.htm

Pedestrian/Bicycle Fact Sheet (June 2001):

www.state.ia.us/government/dps/gtsb/gtsft_6.htm

Iowa Safety Management System

www.IowaSMS.org

Iowa Strategic Highway Safety Plan (Aug. 1999):

www.iowasms.org/pdfs/ishsp.pdf

National Highway Traffic Safety Administration

www.nhtsa.dot.gov

Traffic Safety Facts—Children (1999):

www.nhtsa.dot.gov/people/ncsa/pdf/child99.pdf

Traffic Safety Facts—Pedalcyclists (1999):

www.nhtsa.dot.gov/people/ncsa/pdf/PedCycle99.pdf