

## BEST PRACTICE



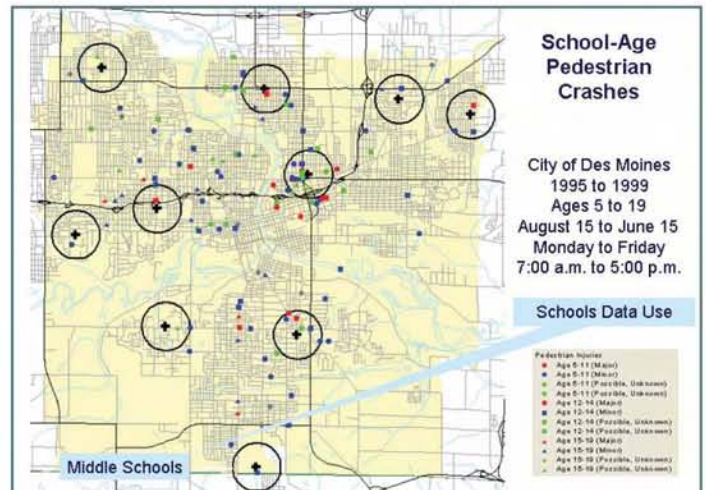
## ANALYSIS METHODS FOR SAFETY CONSCIOUS PLANNING

IOWA DEPARTMENT OF TRANSPORTATION

### Objective

Integrating safety into transportation planning and decision-making, to be fully effective, requires a comprehensive set of short-, mid-, and long-term actions involving education, enforcement, and emergency response as well as engineering. It also requires easy and broad access to the data and analysis tools needed to make decisions that maximize the benefits of investing in this range of safety improvements.

In response to the safety planning requirement contained in the Intermodal Surface Transportation Efficiency Act (ISTEA) and the Transportation Equity Act of the 21st Century (TEA-21), the Iowa Department of Transportation (DOT) made a long-range commitment to improving the manner in which safety considerations are incorporated into their transportation planning decisions. The objective was a reduction in the human suffering and economic losses resulting from roadway crashes, especially fatal and major injury crashes. Particular attention was given to developing and implementing a Safety Management System (SMS), including a Traffic Safety Data Service operated by Iowa State University.



### Approach

Iowa's SMS represents a systematic process to identify, implement, and evaluate safety improvement opportunities relating to:

- Highway planning, design, construction, maintenance, and operations emphasizing the use of low-cost/high-payoff strategies such as advance stop sign rumble strips;
- Traffic and transportation law, law enforcement, and adjudication;
- Emergency response, trauma patient care, and educational activities related to highway safety;
- Other safety programs relating to vehicles, cargo, and people; and
- Integration with railroads and public transportation.

An example of a long-term strategy is the Safer Mobility for Older Iowans Initiative. This includes conducting state, regional, and local forums; publishing a driver self-assessment decision-making guide and a variety of printed materials; and developing design guidelines and recommendations for accommodating older drivers and pedestrians. Examples of roadway design changes include the use of more turn lanes, offset turn lanes, larger rural street signs, and revised pavement marking and reflectivity standards.

Iowa's new long-range highway plan will emphasize efficiency, capacity and pavement conditions, safety, and quality of life and give major consideration to targeted safety investments. Fifty-two percent of Iowa's fatalities are related to "lane departure crashes," so attention is given to such low-cost safety improvements as paved and widened shoulders, shoulder rumble strips, and centerline rumble strips.



## Approach (continued)

The Iowa DOT employs a collaborative approach to the collection and analysis of crash data. Sixty-five percent of Iowa's crash data are reported electronically and crash data are made available on CD to local governments, Metropolitan Planning Organizations (MPOs), and other state entities for their use together with Iowa's data analysis computerized "tools" software. An instructional memorandum has been developed for use by county engineers and others documenting Iowa's crash reduction factor experience for 17 types of rural roadway safety improvements and describing Iowa's recommended approach to conducting a benefit-cost ratio economic analysis for safety improvements. Free traffic safety engineering services are provided to school districts.

The collection and sharing of data is accomplished through the information systems and geographic information system (GIS) technologies that are incorporated within Iowa's SMS. The Iowa DOT's TraCS (Traffic and Criminal System) software allows for the electronic capture of safety data by law officers. The Intersection Magic software package is made available through a statewide license and is utilized as Iowa's intersection collision analysis tool. In collaboration with the Iowa State University Center for Research and Education, the Iowa DOT also developed Safety, Analysis, Visualization, and Exploration Resource (SAVER) — a family of safety data analysis software utilizing GIS.

## Outcome

Iowa's multidisciplinary, multijurisdictional approach has resulted in a "toolbox" of strategies and ideas that can be applied to transportation safety issues. Strategies provided in the toolbox are comprehensive, including engineering, enforcement, education, and emergency response. The Iowa SMS Toolbox of Highway Safety Strategies is available on the Internet and is proving to be a valuable resource for legislators, department and agency directors, local governments, and citizen groups to consult when addressing specific safety concerns. Iowa's emphasis, though, is not limited to the "Four Es." It also includes everyone else. Through collaborative efforts, the Iowa SMS continues to evolve and grow as new strategies and technologies are identified.



Iowa's approach also demonstrates that improving the manner in which safety is incorporated into the transportation planning process involves a long-term commitment of leadership, priority attention, and working collaboratively with safety, transportation, and other partners. Iowa's safety efforts also demonstrate that not everything has to happen at once. Safety conscious planning can be introduced incrementally, using each step as a foundation for further implementation efforts.

Most importantly, Iowa's long-term commitment to safety throughout all aspects of transportation planning illustrates that timely accessible crash data are critical to making wise safety investments. The five-year average of highway fatalities in Iowa has declined by nine percent, from 480 in the 1995-1999 period to 427 in the current 2000-2004 period.