CHAPTER 12
Making Public Transit Travel Safer

KEY TOPICS

- commercial driver license (CDL)
- education for drivers, riders, and motorists
- intelligent transportation systems (ITS)

GOALS

- Move toward "crash-free" environment for Iowa's public transit fleets.
- Move toward "injury-free" record for Iowa public transit employees, including drivers and mechanics.
- Provide increased overall safety for public transit passengers.

BACKGROUND

There are several categories of "bus travel." These include school buses, metro/rural public transit, and commercial intercity carriers. Each type of bus service includes a unique set of factors related to the type and number of passengers served and the related boarding, waiting, and alighting risk factors. This chapter addresses making travel safer for public transit. School bus travel is discussed in Chapter 11. Issues related to commercial bus carriers are still different and are not addressed within the scope of this document.

Transportation by public transit is one of the safer forms of transportation, even though public transit buses must share the streets with all other types of vehicles. Transit's safety image is not helped by Hollywood's propensity to use buses in their spectacular crash scenes or in thrillers like the movie *Speed.* In reality, the large size and relatively low operating speeds of public transit vehicles and the trained, professional drivers result in a high level of safety for passengers.

Drivers

Transit drivers are required to hold a commercial driver license with a class designation appropriate for the type of vehicle they will be operating. If they will only be operating smaller vehicles, they are required to hold a chauffeur's license. Driver training generally includes both driving skills (maneuvering the vehicle, reading traffic, etc.) and passenger skills (sensitivity to various disabilities, boarding assistance, and securement tech-

niques/first aid). The drivers of these vehicles are subject to all of the driver safety concerns listed in the Driver part of this document, including the aging driver, the aggressive driver, and the impaired driver.

In larger communities, the driver pool tends to mirror the general workforce, but in some of the smaller communities and in the regional systems the driver pool is heavily skewed toward older individuals, already retired from other careers and now working, often part-time, for the transit system.

Passengers

Riders may include a significant proportion of adults, as well as students, small children, elderly persons, and persons with disabilities. Their destinations may include employment, shopping, medical appointments, daycare centers or schools, senior citizen meal sites, recreation, or sheltered workshops.

Vehicles

All public transit vehicles are constructed in conformance with all relevant Federal Motor Vehicle Safety Standards (FMVSS). All light-duty buses and modified vans and minivans purchased over the last decade have also been specified to also meet certain FMVSS relating to rollover strength, joint strength, and fuel system integrity normally used only for school buses.

NATIONWIDE

The Federal Transit Administration's (FTA) strategic goal mirrors the department's strategic safety goal to "Promote the public health and safety by working toward the elimination of transportation-related deaths, injuries, and property damage."

Nuria I. Fernandez, Acting Administrator, Federal Transit Administration

On April 16, 1999, FTA convened an interdepartmental task force of transportation professionals and safety experts to examine the federal role in transit safety, resulting in the *Safety Action Plan*.

National Facts

There is no national compilation of crash data specific to public transit. Due in large part to the diversity of vehicle types used by public transit and

the fact that many times similar vehicles are used for purposes other than public transit, the national databases have never tracked figures for public transit as an industry. However, recent developments promise more availability of safety data in the future.

FTA currently collects crash data through the National Transit Database from transit systems in areas of over 50,000 population and is working on a simplified version of that reporting system that could collect basic safety statistics from all other passenger transportation providers receiving funding through FTA. The first step in FTA's *Safety Action Plan* is to "enhance its data collection and analysis processes in order to guide future activities aimed at improving safety." Activities to enhance data include the following:

- Revise the National Transit Database. Revisions will focus on the collection of causal factors and more timely submissions.
- Enhance the development and analysis of the data in the Safety Management Information System and the Drug and Alcohol Management Information System to support formulation of future FTA safety programs.

IOWA

Iowa has two forms of public transit: urban and regional.

The 19 urban transit systems in Iowa generally serve either a single city or a contiguous group of cities. These range from small urban systems such as Muscatine City Transit System to the five-city Des Moines Metropolitan Transit Authority. Most offer traditional fixed-route bus service, as well as the complimentary paratransit services required by the American Disabilities Act (ADA). Most operate large urban transit coaches that are usually in fixed-route service, while smaller light-duty buses or even ramp accessible minivans are used for paratransit services. Riders generally include a significant proportion of working adults, as well as students, elderly persons, persons with disabilities, and others who either ride as a way to help the environment, to save money, or, in some cases, because they have no other option.

The 16 regional transit systems serve all other parts of the state. These systems each serve multi-county areas and generally use the smaller light-

duty buses to provide demand-responsive service, where riders must call in to be picked up. Riders generally include fewer persons commuting to full-time jobs and a higher proportion of persons riding to medical appointments, daycare centers or schools, senior citizen meal sites, organized shopping, or sheltered workshop employment, etc. Many riders are clients of specific social service agencies that contract with the transit system for transportation services. Significant numbers of regional transit riders require assistance to and from the transit vehicle, and many are generally in frail condition.

Vehicles

Iowa transit vehicles range from 61-foot-long articulated coaches to minivans, often equipped with wheelchair ramps for ADA-accessibility, or even sedans, used by contracted taxicab services.

Most of the larger urban systems operate their fixed-route services with 27-to-40-foot-long, heavy-duty transit coaches weighing 8 to 13 tons. These carry from 15 to 35 passengers, and most are equipped with wheelchair lift, as has been required for all new vehicles since 1991. Paratransit services in larger urban systems typically use 18–25 foot, light-duty, body-on-van-chassis buses weighing 4–6 tons. These carry 11–20 passengers and are equipped with a ramp or lift. Smaller urban transit systems may use these light-duty, body-on-van buses for normal route service along with the same type of equipment for their paratransit or use smaller vans or minivans modified for wheelchair access. Regional transit systems use mostly the light-duty buses, but many also mix school-type buses, vans, and minivans into their fleet, so that they can accommodate varied ridership needs in their service areas. As a result of new student transportation rules developed by the Iowa Department of Transportation (Iowa DOT), light-duty buses purchased by regional transit systems in the future will also all have rear emergency exit doors.

Virtually all transit vehicles are equipped with two-way radios; some also are now equipped with mobile data terminals (MDTs) as part of advanced technology projects, generally referred to as intelligent transportation systems (ITS).

Operations

Maintenance facilities for urban transit systems are usually a dedicated transit maintenance facility or a facility shared with the city's public works department. About half of Iowa's regional transit systems have a dedicated transit maintenance facility. The rest rely on private garages or vehicle dealerships throughout their service area for maintaining safe vehicles.

ITS applications include vehicle tracking systems and can track the location of each vehicle in the fleet at any time. ITS systems have been implemented in two urban transit systems and one regional transit system. One other region has ITS equipment in part of their service area, and several others have programmed the acquisition of such systems. These ITS applications increase the efficiency of vehicle dispatch operations, and also contribute tremendously to passenger safety, especially when a vehicle carrying frail elderly passengers or persons with disabilities might become stranded in white-out conditions during an Iowa winter.

Video surveillance systems have been installed in a number of urban transit systems for safety. Generally those that transport significant numbers of students, have installed these in vehicles to help control driver distraction from rowdiness as well as vandalism aboard buses. Most installations involve camera enclosures on all buses and a limited number of actual cameras. These cameras may be rotated or specifically placed in bus routes experiencing problems.

Iowa Facts

Iowa DOT staff administering transit funding programs have for several years required that local transit systems alert them to significant accidents that might generate media attention, but there has been no standardization as to what was reported, nor has there been any record keeping for such alerts.

Many of Iowa's regional transit systems have been participating in an insurance purchasing consortium. Because of the dearth of generally available accident data for public transit and especially rural transit, one of the key features of the consortium has been a tracking of accident history for the participating group of systems as a way to demonstrate to insurers the relative safety of Iowa's rural transit programs.

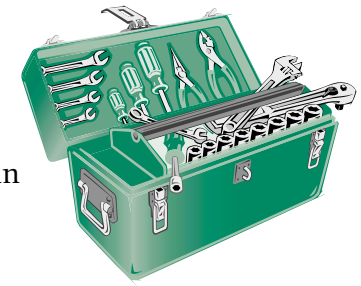
Although all public transit accidents in Iowa are required to be reported along with other motor vehicle accidents, there is no special coding to allow one to separate out the statistics pertaining just to public transit. The 1999 bus crash statistics shown below (from the Iowa DOT's *Iowa Crash Facts*), taken from accident reports, are based on vehicle types as described by law enforcement officers at the scene. These statistics include non-school buses operated by any parties, including not just public transit and intercity bus companies, but also YMCAs, churches, campgrounds, and social service agencies. There may be vehicles included that are based outside of Iowa. It is also possible, due to the wide range of vehicles operated by Iowa transit systems, that some crashes involving Iowa public transit vehicles may not be included in the "bus" number.

Iowa Annual Bus Crash Data (1999)

Bus crashes	248
Fatal bus crashes	1
Injury bus crashes	82
Property damage bus crashes	165
Occupants killed	0
Occupants injured	102

The Iowa DOT is currently planning to participate in the extensions to the National Transit Database (administered by the FTA) in order to provide more comprehensive Iowa numbers in the future.

POTENTIAL STRATEGIES



Legislation, Policy, and Enforcement

- Seek adequate funding to allow transit systems to replace rollingstock in a timely manner and to add appropriate safety enhancements to new vehicles being purchased.
- Encourage development of a system safety plan by each transit operator, including a review of all local policies and procedures from the perspective of how it impacts system safety.
- Begin collection of transit-specific crash data for Iowa.
- Conduct compliance reviews of transit funding recipients, including review of maintenance, training, drug and alcohol testing, and other safety practices.
- Update the *Transit Manager's Handbook* with special focus on safety issues, including drug and alcohol testing, reporting of transit crashes, etc.

- Continue sponsorship of Iowa Public Transit "Roadeo" as means of encouraging and rewarding good driving skills.
- Encourage increased use of safety standards established under student transportation rules for nonstudent services within systems that have student transportation and also by systems not currently doing student transportation.
- Encourage cooperation between local transit officials, law enforcement, and emergency services to provide training for both transit staff and first responders on bus evacuation techniques and appropriate response to onboard bus emergencies.
- Promote increased cooperation between public transit and school bus operators to address common safety challenges.
- Consider statute requiring motorists to yield to public transit buses returning to traffic stream after passenger pick-up/drop-off.

Education and Public Awareness

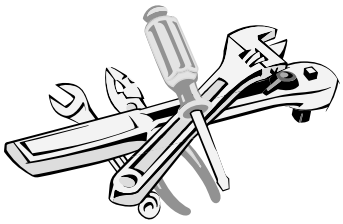
- Develop and publish "safe bus riding" brochures, to help riders and potential riders understand how to safely wait for buses, board them, signal for stops, and then alight.
- Develop and distribute student materials on use of public transit, including safe riding techniques, as mentioned above.
- Participate in the Iowa Safety Management System (Iowa SMS) Older Driver Conference to raise transit public awareness for older Iowans and other rider groups (see Successes and Strategies Implemented section in this chapter).
- Develop a frequently asked question (FAQ) handbook for improving rural transit for local communities (see Successes and Strategies Implemented section in this chapter).
- Maintain transit driver training standards and encourage driver refresher courses.
- Develop and distribute motorist awareness materials.

Design and Technology

- Investigate and pursue statewide deployment of automated vehicle location and advanced communications systems for public transit.
- Investigate and pursue incorporation of new technologies for increased conspicuity of transit vehicles into future procurement specifications (LED flashers, etc.).

- Investigate and pursue incorporation of new crash attenuation technologies (HELP bumpers, etc.) in future vehicle procurement specifications.
- Encourage local transit or public works officials to survey established bus stops to identify and remedy any locations with visibility problems either for waiting passengers or for approaching motorists.
- Develop and publish guidelines for "transit- and pedestrian-friendly development" to encourage greater safety for transit passengers on and off the bus.
- Investigate and pursue deployment of "your bus is coming" type of personal notification systems.
- Support local transit systems in the continued deployment of video surveillance aboard buses/routes where rider behavior tends to be a problem.

SUCCESSES AND STRATEGIES IMPLEMENTED



- An initial grant to study and implement statewide transit ITS strategies has been secured, with the study to begin shortly.
- The update of the *Transit Manager's Handbook* is currently underway.
- The Iowa rule on Transportation of Students by Regional Transit Systems was adopted in 2000, and the procedures, including inspection of regional transit vehicles used for these services by Iowa Department of Education inspectors, has been underway for the last year.
- Iowa SMS approved funding for a June 2002 Older Drivers Conference, and Iowa transit representatives will be involved in planning for urban and rural transit participation.
- Iowa SMS approved funding for *FAQs for Improving Rural Transit* to assist communities in enhancing local transit.

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:** Peggi Knight (primary), J.P. Golinvaux, and Peter Hallock.

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