

# State of Michigan

## Strategic Highway Safety Plan

**MISSION:** Provide leadership to improve traffic safety by fostering communication, coordination, and collaboration among government and other public and private entities in Michigan.

**VISION:** All roadway users arrive safely at their destinations.

**GOAL:** 1.0 fatalities per 100 million vehicle miles traveled (100M VMT) by 2008, which amounts to a 10.4 percent reduction (1,283 to 1,150) in fatalities and also a reduction in serious injuries (9,531 to 8,540).

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### Introduction

A Strategic Highway Safety Plan should define a system, organization, and process for managing the attributes of the road, the driver, and the vehicle to achieve the highest level of highway safety by integrating the work of disciplines and agencies involved. These disciplines include the planning, design, construction, operation, and maintenance of the roadway infrastructure (engineering); injury prevention and control (emergency response services), health education; and those disciplines involved in modifying road user behaviors (education and enforcement). In order to manage this complex system and to achieve the level of integration necessary to meet the highest levels of safety, two key components are needed. The first is an organizational structure that will allow for the integration of the agencies involved in highway safety. The second is a formal management process that will direct the activities of these agencies in a manner that will efficiently achieve the mission and vision.

All parts as described within this plan are necessary, but there is flexibility to customize the structure and process according to external and internal factors. It is anticipated that the plan periodically will be updated and otherwise revised.

In 2003, 391,485 reported traffic crashes, 105,555 injuries, and 1,283 fatalities occurred on Michigan's roads.

The 2003 death rate was 1.28 deaths per 100M VMT below the ten-year average of 1.5 deaths per 100M VMT (1994-2003). The national average rate is 1.50 fatalities per 100M VMT. The 1,283 persons killed were the result of 1,172 fatal

crashes for an average of 1.1 deaths per fatal crash. Of the 391,485 reported crashes, 135,739 (34.7%) were single vehicle crashes.

Of the 10,079,985 persons living in Michigan, one out of every 7,857 was killed in a traffic crash, and one out of every 95 persons was injured. For each person killed 82.3 persons were injured.

The report on "Michigan Traffic Crash Facts" for 2003 estimates that the annual economic loss due to traffic crashes in Michigan was over \$9.7 billion. The substantial impact within the local community relative to medical costs, lost wages, insurance costs, taxes, police, fire and emergency services, legal and court costs, as well as, property damage are also significant.

Deaths and injuries caused by traffic crashes are a serious public health concern, and are not conducive to the high quality of life expected in the state of Michigan. Historically, Michigan has been a leader and innovator in traffic safety.

## **Safety Partners**

The development of a strategic highway safety plan was commissioned by the Governors Traffic Safety Advisory Commission (GTSAC) in October 2004. The GTSAC consists of the Governor (or a designee), the Directors (or their designees) of the Departments of Community Health, Education, State, State Police, and Transportation, the Office of Highway Safety Planning, the Office of Services to the Aging, and three local representatives from the county, city, and township level.

The GTSAC formed a comprehensive highway safety work group consisting of the following agencies:

**AAA Michigan**  
**Federal Highway Administration (FHWA)**  
**Federal Motor Carrier Safety Administration (FMCSA)**  
**Michigan Center for Truck Safety**  
**Michigan Department of Community Health (MDCH)**  
**Michigan Department of Information Technology (MDIT)**  
**Michigan Department of State (MDOS)**  
**Michigan Department of State Police (MSP)**  
**Michigan Department of Transportation (MDOT)**  
**Michigan Sheriffs Association (MSA)**  
**Mothers Against Drunk Driving (MADD)**  
**Office of Highway Safety Planning (OHSP)**  
**Office of Services to the Aging**  
**Road Commission of Macomb County**  
**Southeast Michigan Council of Governments (SEMCOG)**

## **Emphasis Areas:**

- Decision Making Process and Information Systems
- Lane Departure
- Intersection Safety
- Work Zone Safety
- Commercial Vehicle Safety
- Occupant Protection
- Alcohol/Drug Impaired Driving
- Other Driver Behavior and Awareness
- Elderly Mobility and Safety
- Drivers Age 24 and Younger
- Motorcycle Safety
- Non-Motorized Transportation

It is critically important to provide a safe and efficient roadway system. The primary “measuring sticks” for safety are reductions in the rate of fatalities and injuries that occur because of motor vehicle crashes across the state each year. The State of Michigan strives to enhance its safety program to ensure roadway systems are as safe as possible through Education, Engineering, Enforcement, and Emergency Response Systems.

### Crash Data Comparison - 1996-2003

1996-2003 Compare	1996	1997	1998	1999	2000	2001	2002	2003	% Change 96-03
Total Crashes	435,477	425,793	403,766	415,675	424,867	400,813	395,212	391,485	-10.1%
Fatal Crashes	1,339	1,283	1,235	1,249	1,237	1,206	1,175	1,172	-12.5%
People Injured	142,553	137,548	131,575	124,601	121,832	112,292	112,484	105,555	-26.0%
People Killed	1,505	1,446	1,367	1,386	1,382	1,328	1,279	1,283	-14.8%
Death Rate (100M VMT)	1.72	1.62	1.49	1.49	1.46	1.38	1.30	1.28	-25.6%
Fat. Crash Rate (100M VMT)	1.53	1.44	1.35	1.34	1.30	1.25	1.20	1.17	-23.5%
VMT (Billions)	87.7	89.2	91.6	93.1	94.9	96.4	98.2	100.2	+14.3%
Registered Vehicles (Millions)	8.11	8.12	8.23	8.41	8.57	8.6	8.69	8.71	+7.4%
Registered Drivers (Millions)	6.98	7.09	7.15	7.22	*7.04	*7.09	*7.14	*7.19	+3.0%
Population (Millions)	9.59	9.77	9.82	9.86	9.93	9.99	10.05	10.08	+5.1%

\*Registered Drivers are calculated as Licensed Drivers by SOS. Trend data from 1999 back cannot be calculated accurately.

## Michigan Emphasis Areas

To achieve the Goal of this Strategic Highway Safety Plan, data driven emphasis areas and strategies to reduce the number of fatal and serious injury crashes have been identified. Comprehensive, coordinated, and communicative safety initiatives of Engineering, Enforcement, Education, and Emergency Response will be developed and implemented for each emphasis area. To advance the saving of lives, priority will be given to funding safety initiatives/projects to support the safety goal.

In addition to the strategies listed in each of the emphasis areas, the strategies discussed in the appropriate NCHRP Report 500 Series Implementation Guides will be used. (<http://safety.transportation.org>)

# **Decision Making Process and Information Systems**

## **Background**

Understanding and making optimal use of information technology is a critical challenge facing Michigan's highway safety professionals. Knowing the how, when, where, who, and why traffic crashes have occurred is the foundation of a comprehensive traffic safety analysis system. Crash, traffic, citations, medical, judiciary, and driver records must be available so proper decisions can be made and effective safety policies and projects can be developed and implemented.

Understanding and using integrated traffic records to plan and assess safety programs, as well as leverage critical resources, is needed to protect public safety. Systems currently in place must be assessed and improved to meet the needs of our safety professionals.

A complete traffic records program is necessary for planning (problem identification), operational management or control, and evaluation of a state's highway safety activities. The statewide program should include, or provide for, information for the entire state. This type of program is basic to the implementation of all highway safety countermeasures and is the key ingredient to their effective and efficient management.

## **Safety Awareness**

Safety Awareness involves an appreciation of the importance of highway safety and an understanding of the opportunities to improve safety through the strategic commitment of highway dollars toward traffic safety.

Safety conscious planning (SCP) considers projects and strategies to increase the safety and security of the transportation system for motorized and non-motorized travel. SCP's proactive approach brings safety partners together to identify key issues and implement targeted practical strategies to prevent or reduce traffic fatalities and injuries.

## **Review of Traffic Crash Data**

Reviewing traffic crash data is the foundation of problem identification. As more data becomes computerized and the Michigan safety agencies have developed their organizational capacity for data analysis, the review of crash data has become a continual process rather than an annual event.

Through a partnership with the University of Michigan Transportation Research Institute (UMTRI), a compilation of Michigan's traffic crash data is completed annually and published as the Michigan Traffic Crash Facts. This data is available in hard copy, on CD-ROM and web based formats. In addition, traffic

crash data from 1992 to the present is available on the UMTRI web site. This document was used in the preparation of this plan.

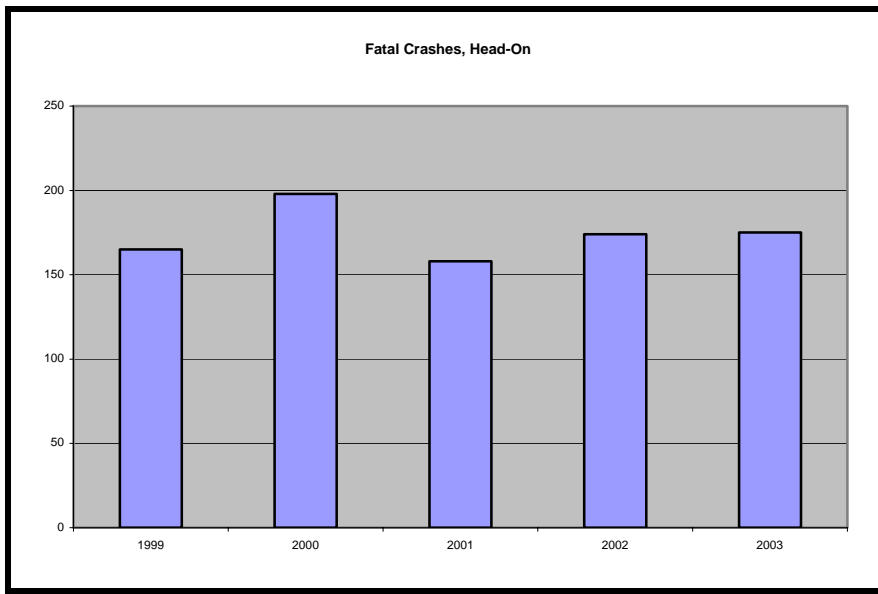
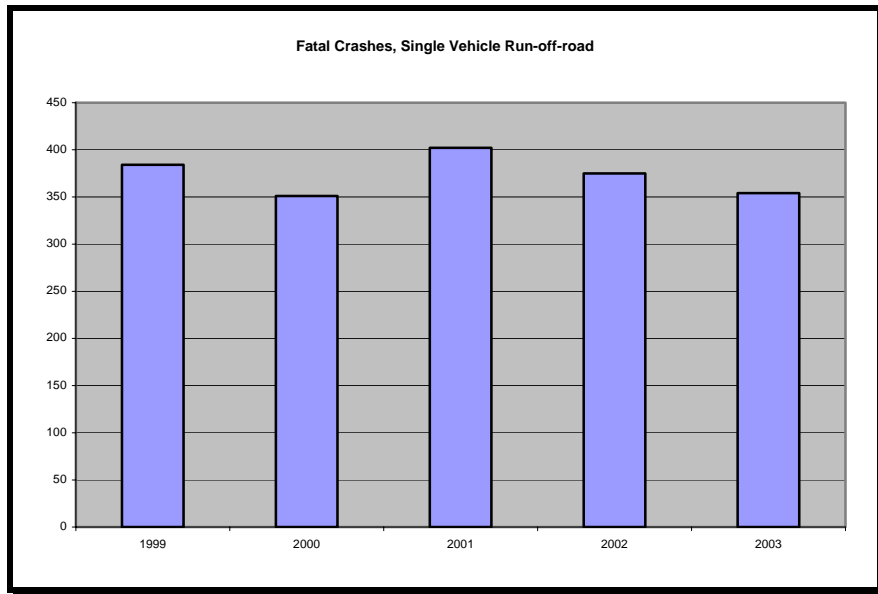
### **Strategies:**

- ❑ Improve timeliness and accuracy of data collection, analysis processes, accessibility, distribution and systems including the linkage of crash, roadway, driver, medical, Crash Outcome Data Evaluation System (CODES), enforcement, conviction, homeland security data, etc.
- ❑ Expand the local agencies' role, funding, and other resources to improve safety, and application of appropriate geometric, roadside and "Manual on Uniform Traffic Control Devices" (MUTCD) standards.
- ❑ Provide highway safety training and technical assistance to State and local personnel.
- ❑ Increase coordination, communication, and cooperation among various public and private organizations that share responsibilities for highway and transportation safety in Michigan.
- ❑ Institutionalize safety conscious planning to include safety criteria at the state and local level.
- ❑ Improve public and legislative awareness of critical highway safety issues.

# Lane Departure

## Background

Lane departure related crashes accounted for over 650 fatalities (more than 50 percent of all the fatalities). The primary objective of this section is to identify cost effective strategies that reduce unintentional lane departure as well as alert the driver should a departure occur. The secondary objective is to assist the driver in returning to the travel lane safely and minimize the consequences of departure by creating clear zones along the roadside.



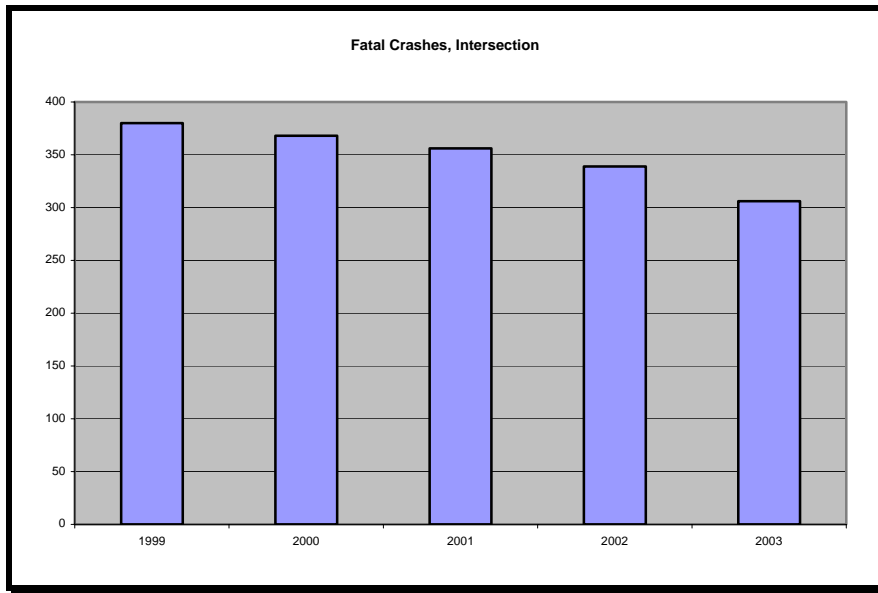
## **Strategies:**

- Identify corridors, locations, and/or roadside features with a disproportionately large number of actual and/or potential for run-off-road and head-on crashes.
- Develop standard operating procedures for the implementation of roadway safety system-wide improvements such as:
  - Centerline rumble strips and stripes
  - Shoulder rumble strips and stripes
  - All Weather Pavement Markings
  - Longitudinal and Median barriers
  - Elimination of road-side hazards
  - Consider motorcyclists in the design, construction and maintenance of the roadway infrastructure.
- Selective enforcement specific to identified problems or needs.

# Intersection Safety

## Background

Intersection-related crashes accounted for 306 fatal crashes resulting in 327 fatalities within Michigan in 2003. Intersection related crashes accounted for 25 percent of Michigan's fatalities compared to 21 percent nationally.



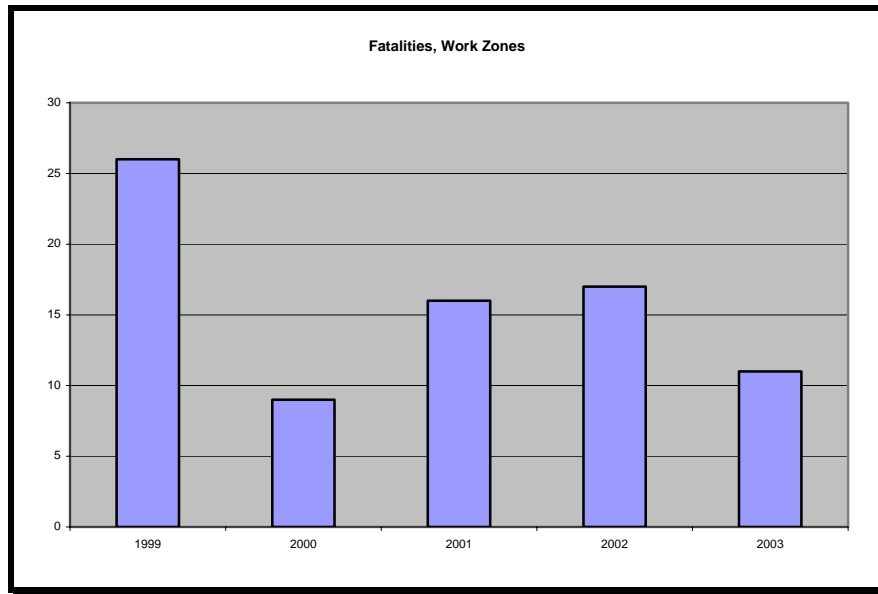
## Strategies:

- Implement Michigan's Intersection Safety Action Plan developed by the GTSAC.

# Work Zone Safety

## Background

Each year, there are hundreds of work zones which present hazards, inconvenience, and delay. In 2003 there were 11 fatalities and 5,800 crashes in Michigan work zones. Increased communication, coordination, and cooperation are key factors in improving work zone safety. With emphasis on several items identified in this section, a reduction can be made in the number of fatal crashes in Michigan's work zones.



## Strategies:

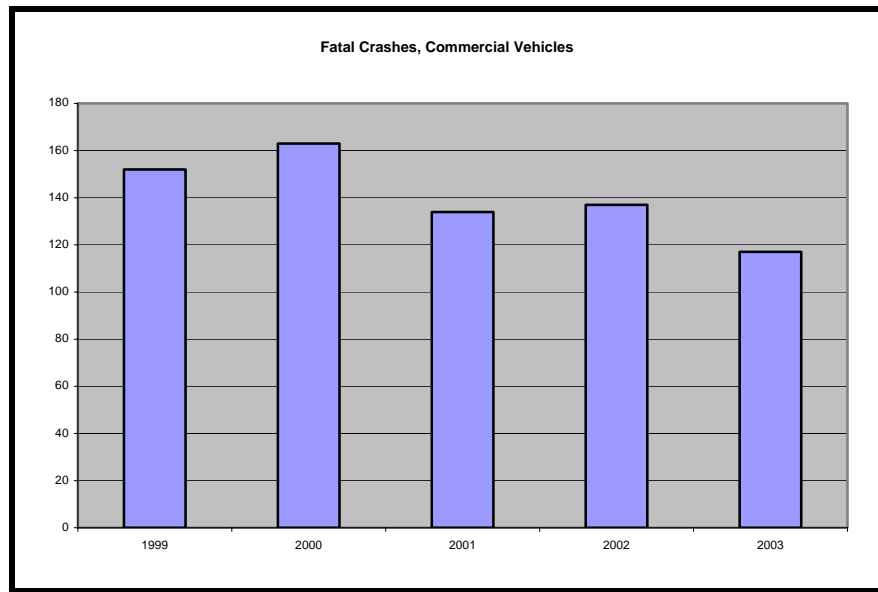
- Provide work zone training and information for public agencies and industry personnel.
- Prepare and air public service announcements (PSA's).
- Achieve increased safety through the implementation of innovative designs and technology.
- Plan for emergency vehicle access.
- Set realistic speed reduction and fund law enforcement.

# Commercial Vehicle Safety

## Background

Heavy trucks are defined as vehicles having a gross vehicle weight rating (GVWR) over 10,000 lbs. In 2003, a total of 17,166 heavy truck crashes occurred, of which 117 were fatal crashes and 3,182 were injury crashes. Heavy truck/bus crashes differ from other vehicle crashes in a number of ways, many reflecting the size and use of these vehicles. When compared to the overall crash picture, heavy trucks/bus crashes involve:

- ❑ More turning, backing and changing lanes.
- ❑ More separation of units, fire/explosion, jackknife, cargo loss/shift, and other non-collisions.
- ❑ Fewer single-vehicle crashes but more sideswipes.
- ❑ Fewer drivers indicated to be speeding and failing to yield, but more drivers indicated to be making backing, lane use, and turning errors.
- ❑ More on the road crashes.
- ❑ More crashes between the hours of 6:00 am and 2:59 pm, but fewer crashes between 3:00 pm and 5:59 am.
- ❑ More weekday crashes.



## Strategies:

- ❑ Step up targeted enforcement initiatives.
- ❑ Provide technological infrastructure and solutions.
- ❑ Implement national and state specific program elements.
  - Driver /Vehicle Inspections

- Compliance Reviews
- Traffic Enforcement
- Public Education and Awareness
- Data Collection
- School Bus Program
- Drug and Alcohol Interdiction
- Hazardous Materials
- Motor Coach Program
- CMV Seat Belt Usage
- New Entrant Program
- Implement other strategies identified in Michigan's annual Motor Carrier Safety Assistance Program (MCSAP).
- Coordinate with the Michigan Truck Safety Commission (MTSC) and the Michigan Center for Truck Safety.
- Implement commercial driver license requirements mandated by the Motor Carrier Safety Improvement Act.

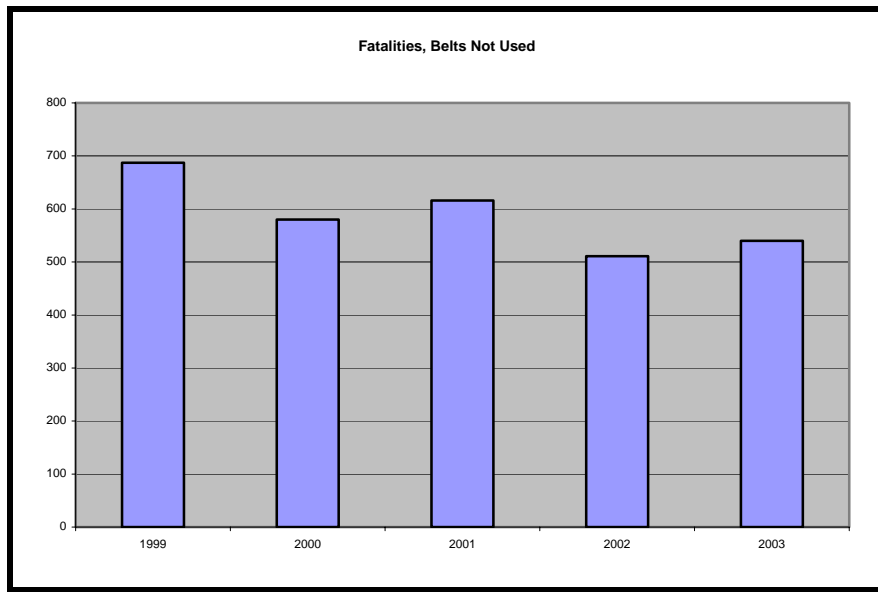
# Occupant Protection

## Background

Proper use of passenger restraints is the single most cost effective and immediate means of reducing death and injury. Of the 656,401 drivers and injured passengers involved in crashes, 572,026 or 87.1 percent were reported to have been using occupant restraints. Restraint usage among fatal victims where usage was known, was reported to be 56.6 percent.

Young men are the most likely to be in a crash and the least likely to be wearing a safety belt. Improving safety belt use in this group that is over-represented in crash data will significantly affect fatalities.

The effectiveness of safety belts and child restraints for reducing injury and preventing death is well documented. Child restraint devices are neither as easy to use nor to enforce as safety belts, but they are essential to protecting children in the event of a crash. While child restraint use is high in the infancy to age four group, usage significantly declines thereafter.



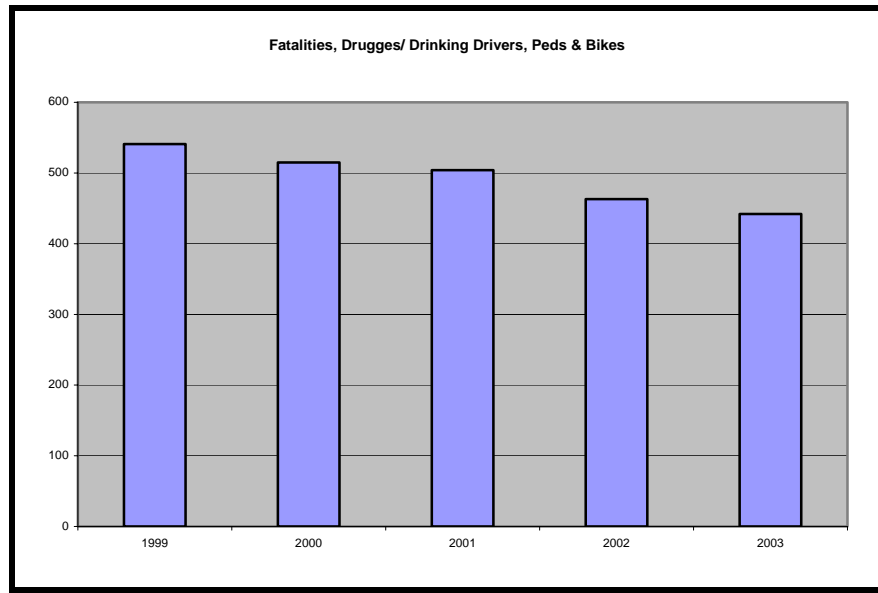
## Strategies:

- ❑ Increase perceived threats of receiving a citation through high visibility law enforcement efforts.
- ❑ Support public information and education campaigns including earned and paid media.
- ❑ Implement Michigan's current Child Passenger Safety Strategic Plan.

# Alcohol/Drug Impaired Driving

## Background

In 2003, Michigan had 366 fatal crashes and 415 fatalities related to alcohol/drug impaired driving. Michigan recognizes underage male drivers, young male drivers, and weekend crashes as prominent in alcohol/drug related crashes.



## Strategies:

- ❑ Support year round drunk driving enforcement, with a special emphasis during national crackdown periods.
- ❑ Support a strong public information and education campaign to increase driver awareness and the perceived threat of arrest.
- ❑ Increase training for law enforcement officers and the criminal justice community.
- ❑ Sponsor efforts to improve cooperation in drunk driver prosecution and adjudication such as increased use of DUI/drug courts in order to reduce recidivism.
- ❑ Support initiatives to reduce underage alcohol use and drunk driving.
- ❑ Support rehabilitation programs for offenders.

# Other Driver Behavior and Awareness

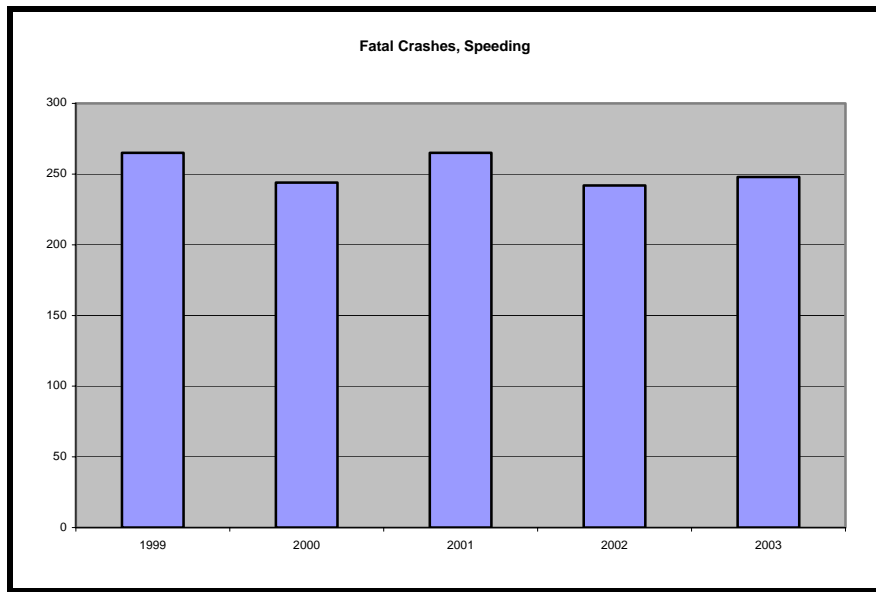
## Background

Nationally more than 60% of drivers see unsafe driving by others as a major personal threat to themselves and their families. The problem of unsafe driving is becoming more prevalent and is increasing in severity.

Addressing inappropriate or hazardous driver behavior is a critical factor in reducing fatal and serious injury crashes. Unsafe driving behavior may include but is not limited to: aggressive driving, excessive speeding, railroad grade crossing violations, distracted driving such as cell phone use, drowsy and fatigued driving, unlicensed driving (suspended, revoked, or never licensed), and riding a motorcycle without an FMVSS 218 compliant helmet. Therefore, enforcement, engineering, and education should be emphasized in the corresponding strategies.

## Strategies:

- ❑ Develop and implement programs aimed at unsafe driving behavior.
- ❑ Define and/or determine the scope of aggressive driving.
- ❑ Provide for the development of comprehensive traffic safety public information and education programs that are designed to motivate change in unsafe driving behaviors.
- ❑ Work with national partners, advertisers, and media to deliver consistent safety messages to counter negative messages promoted by advertising industry.

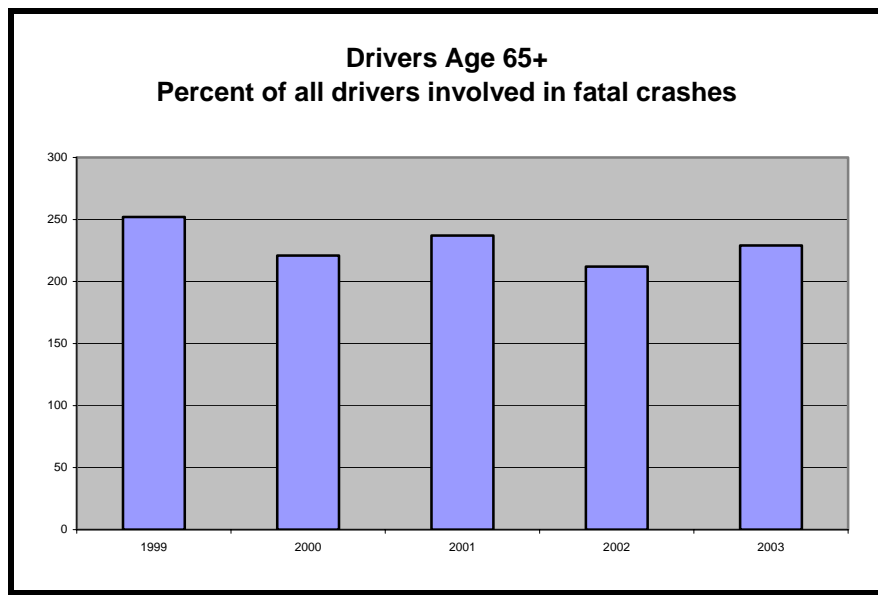


# Elderly Mobility and Safety

## Background

In 2003, there were 930,000 older licensed drivers in Michigan, representing 14.4% of all licensed Michigan drivers. The number of older licensed drivers in Michigan has increased 29% in the past 10 years while the total number of Michigan drivers has increased only five percent.

While the data show that most older drivers are quite responsible (e.g. have high safety belt usage, lower alcohol-related crash rates), national fatality rates per 100M VMT for the oldest drivers mirror the high rates for teen drivers. Plus, the inherent frailty of older drivers reduces their chances of surviving a crash, once it occurs. Current crash data show that older drivers are involved in only 11% of total Michigan crashes in 2003, but 20% of the fatal Michigan crashes. If current fatality rates remain unchanged, the growth in the number of older drivers will lead to a tripling of traffic deaths among those over age 65 by 2030.



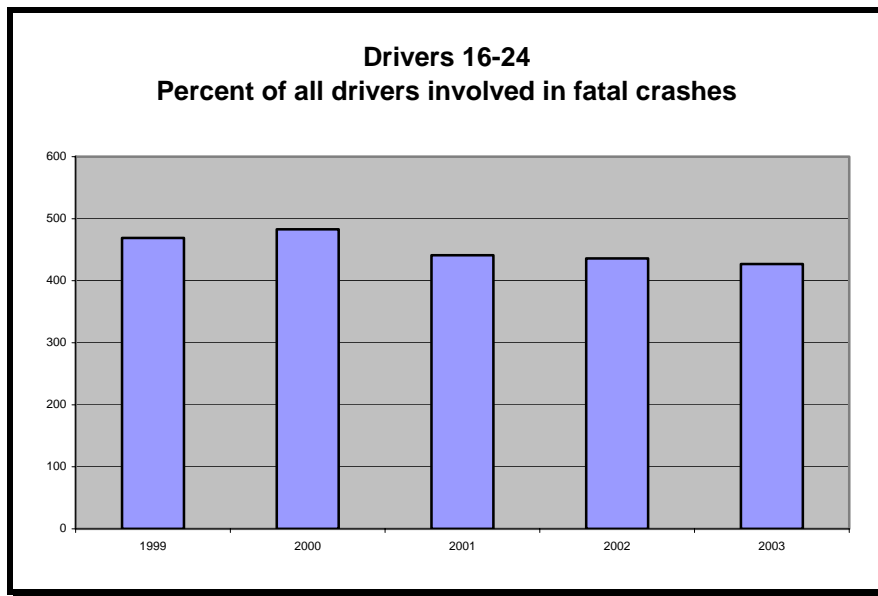
## Strategies:

- ❑ Serve as a “Lead State” in implementation of the NCHRP Series 500 (17-18) guide “A Guide for Reducing Collisions Involving Older Drivers”.
- ❑ Implement “Michigan’s Elderly Mobility and Safety Final Plan of Action” dated August 1999.

# Drivers Age 24 and Younger

## Background

Young drivers ages 16-24 continue to be over-represented in fatal and injury crashes. In 2003, 427 drivers ages 16-24 were involved in fatal crashes. The five major contributing factors for youthful drivers' fatal crashes are: speeding, traveling on the wrong side of road, failure to yield, reckless driving, and drinking. According to the Michigan Department of Community Health, four of five accidental deaths for teenagers and young adults (ages 16-24) are due to motor vehicle crashes.



## Strategies:

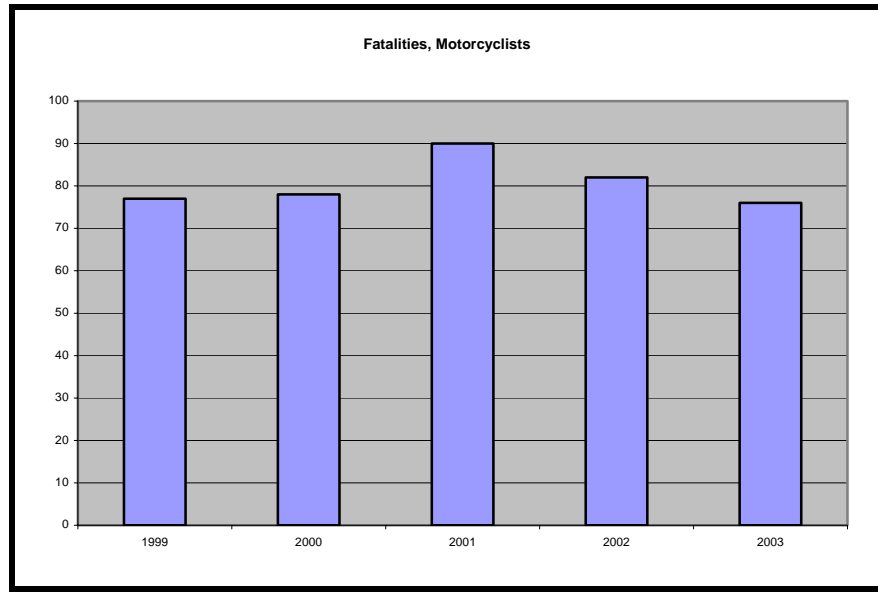
- ❑ Provide high-risk driver education programs targeting drivers age 16 – 24 with injury prevention, occupant protection, DUI, speed, and attention messages.
- ❑ Develop public information and education campaigns with activities targeting behaviors that endanger younger drivers. Employ selective targeting of ages with tailored messages.
- ❑ Participate with national legislative advocacy groups.
- ❑ Enhance effective existing safety programs such as graduated licensing and drivers education.
- ❑ Increase the monitoring of new and existing high school driver education programs and private driver training school programs.

- Standardize the driver education curriculum required for both the classroom and behind the wheel driver education.
- Upgrade the driver education teacher preparation and continuing education programs.
- Explore possible engineering countermeasures.
- Enforce laws prohibiting underage drinking, serving, and purchasing of alcohol.

# Motorcycle Safety

## Background

From 1999 to 2003, motorcyclist crashes increased from 2,820 to 3,187, a 13 percent increase. A recent trend shows an increase in fatalities among older motorcyclists (40 years old and older). Furthermore, there has been an increase of unendorsed motorcyclists.



## Strategies:

- ❑ Maintain helmet laws and enforce the use of FMVSS 218 compliant helmets.
- ❑ Expand the availability of motorcycle rider and safety education courses through public and private sponsors and increase public awareness.
- ❑ Implement the motorcycle safety assessment program.
- ❑ Decrease the number of unendorsed motorcyclists.

# Non-Motorized Transportation Safety

## Background

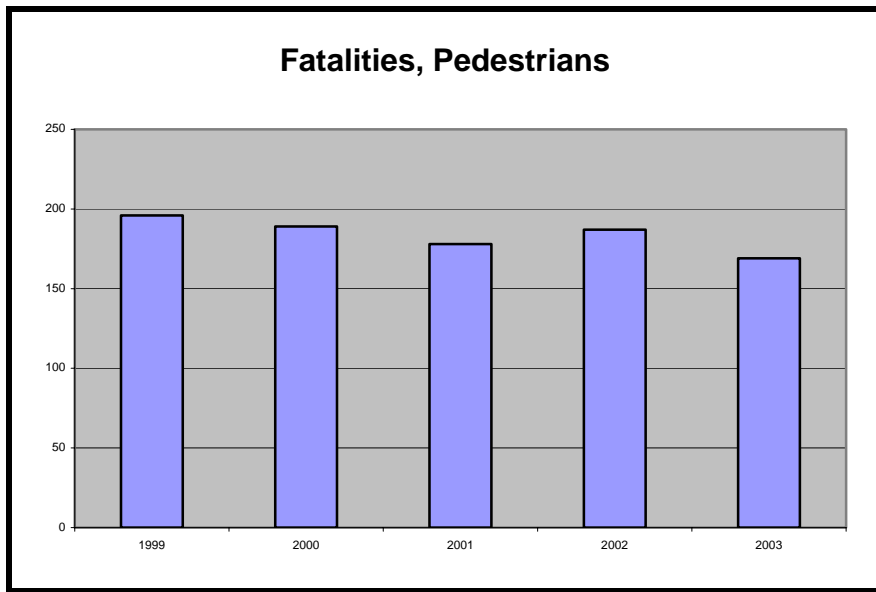
In 2003, 169 lives were lost in 2,953 reported pedestrian crashes. Approximately 22 percent of the fatalities were impaired pedestrians. 32 bicyclists were killed, of which six were impaired.

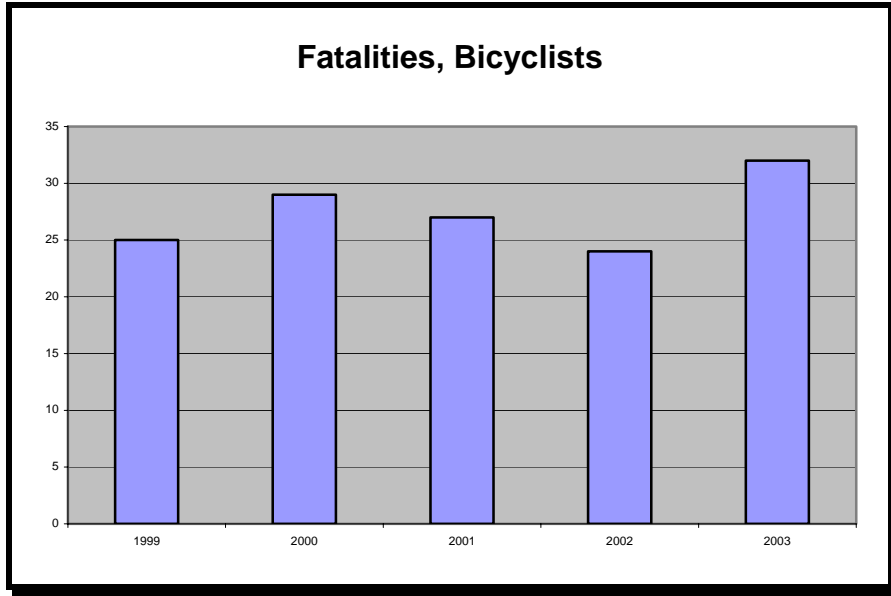
### ***Driver Behavior:***

- Disregard signal
- Failure to yield right-of-way
- Inattention
- Speeding
- Impairment

### ***Pedestrian and Bicyclist Behavior:***

- Disregard signal
- Inattention
- Impairment
- Mid-block crossing





### Strategies:

- ❑ Identify locations with a disproportionately large number of actual or potential for fatal and serious injury pedestrian and bicyclist crashes.
- ❑ Increase enforcement and education in high crash zones.
- ❑ Identify and implement engineering countermeasures.
- ❑ Promote dissemination and use of Michigan's "What Every Bicyclist Should Know" handbook.
- ❑ Promote use of bike helmets.

### Accountability

Implementations of these strategies will be guided and monitored by the Governor's Traffic Safety Advisory Commission.