Strategic Highway Safety Plan

ZERO Fatalities

Partnering for Illinois

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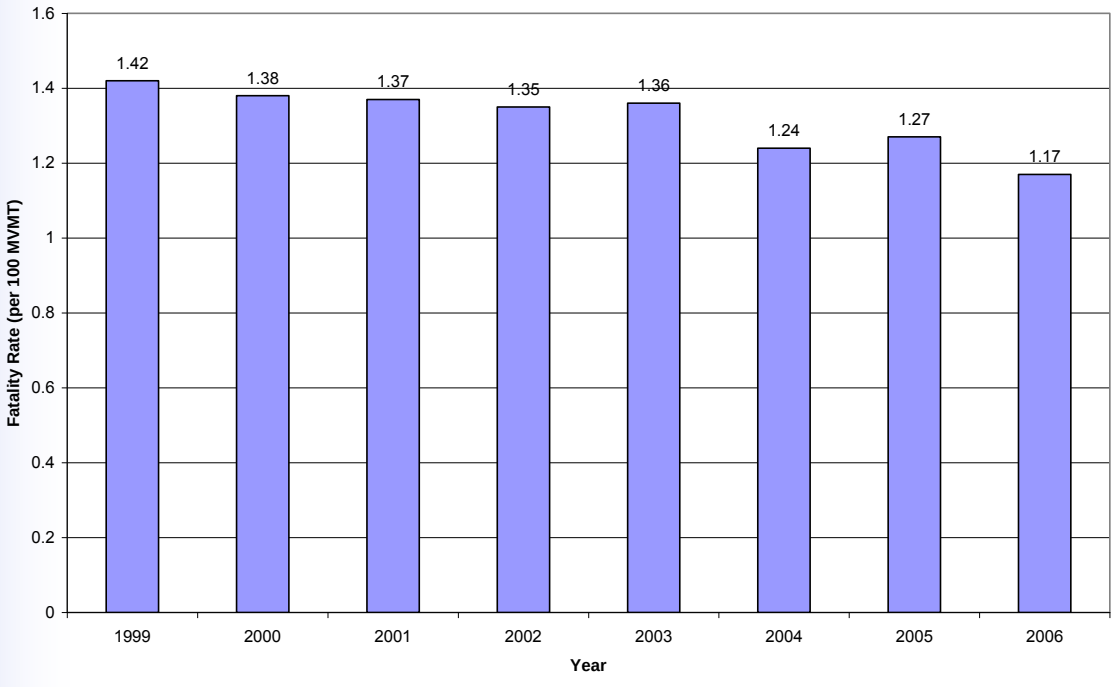
Executive Summary

Deaths and injuries resulting from traffic crashes are serious public health concerns and are not conducive to the high quality of life expected in the state of Illinois. In 2006, there were approximately 12,830,000[1] people residing in Illinois, and 1 of every 10,231[1] was killed and 1 of every 120[1] was injured in a traffic crash. Approximately 1,120[1] traffic crashes occurred each day in 2006, resulting in 3 persons killed per day. Approximately 12[1] persons were injured per hour in 2006. Furthermore, traffic crashes continue to be the leading cause of death in children and young adults. The economic loss due to traffic crashes in Illinois is estimated at $10.7 billion[1] annually. This substantial impact within local communities relative to medical costs, lost wages, insurance costs, taxes, police, fire and emergency medical services, legal and court costs, as well as property damage, is significant.

In 2006, there were 1,254[1] people killed in 1,136[1] fatal crashes for an average of 1.10[1] deaths per fatal crash. The corresponding traffic-related death rate was 1.17[1] deaths per 100 million vehicle miles traveled (VMT), while nationally the average fatality rate was 1.42[2.] From 1999-2003, there has been no significant reduction in the Illinois fatality rate; however from 2003 to 2006 the fatality rate has decreased from 14 percent from 1.36[3,4] in 2003 to 1.17[1] .

Figure 1. Illinois Traffic-Related Fatality Rate [3]



Source: Illinois Crash Data, 2002-2006

[1] *2006 Illinois Crash Facts & Statistics*

[2] *FARS website. National Statistics Fatalities and Fatality Rates by State, 1994-2006*

[3] *Illinois Crash Data, 2002-2006*

[4] *NHTSA website. Traffic Safety Facts. Illinois, 2003-2007*

MISSION:

Develop, implement, and manage an integrated multi-stakeholder process to improve the attributes of roads, users, and vehicles to reduce traffic-related deaths and life-altering injuries in Illinois.

VISION:

Highway users arrive safely at their destinations.

2005 GOAL:

Reduce the number of traffic-related deaths from 1,454 in 2003 to 1,000 or fewer by 2008, a rate of 1.0 fatality per 100 million vehicle miles traveled (VMT).

- In 2005, there were 1,363 people killed in 1,233 fatal crashes and traffic-related death rate was 1.26 deaths per 100 million VMT,
- In 2006, there were 1,254 people killed in 1,136 fatal crashes and traffic-related death rate was 1.17 deaths per 100 million VMT,
- In 2007, there were 1,248 people killed in 1,126 fatal crashes, and traffic-related death rate was 1.16 deaths per 100 million VMT.

Current snapshot of 2008 (as of December 4, 2008) shows that there were 939 fatalities in 2008, which are 214 less than the same time in 2007. The goal of reducing fatalities to 1000 or fewer in 2008 (with fatality rate of 1.0 per 100 million VMT) is expected to be fulfilled for the year 2008.

NEW GOAL: " Zero Fatalities"

Although the past three years have been the safest in 80 years, far too many people are still being killed on Illinois roadways. With that in mind, the highway safety program is targeting an aggressive new goal of "Zero Fatalities", which envisions reducing fatalities on Illinois roads to zero in the long term.

Immediate and aggressive actions must be taken to significantly reduce the number of traffic-related deaths and life-altering injuries in Illinois. Illinois defines a traffic-related death as a highway user dying within 30 days of a crash and a life-altering injury as a highway user left physically or mentally diminished, also defined as a Type A injury, after a crash. The State of Illinois Strategic Highway Safety Plan (SHSP) is a tool to assist in achieving the goal. The Illinois Department of Transportation (IDOT) has an existing Highway Safety Plan (alcohol safety, occupant protection, data improvement, and other behavior programs), Hazard Elimination Safety Program (roadway infrastructure safety), and a Motor Carrier Safety Assistance Program (commercial driver and vehicle safety). SHSP includes, builds upon, and integrates these programs in reducing fatalities and life-altering injuries on Illinois roadways and contains performance-driven strategies that focus the limited highway safety resources toward this common goal.

The first Safety Summit was held in March 2005. Stakeholders from throughout Illinois were invited to be safety partners in the challenge of reducing highway-related fatalities and life-altering injuries. These stakeholders included those involved in planning, designing, constructing, operating, and maintaining the roadway infrastructure (Engineering), modifying road user behavior and preventing injury (Education and Enforcement), and also controlling injury (Emergency Medical Service); otherwise known as the "4 E's". Challenges and strategies were solicited from all participants. Ten data-driven emphasis areas were identified to focus immediate efforts. Refer to Figure 3. All-encompassing themes, including the importance of multi-stakeholder involvement, the effects of vehicle speed on crash severity, and the conflicting

attributes between rural and urban roadways, play fundamental roles in all emphasis areas. Rural roadways are the location of 44.2 percent of Illinois traffic-related fatalities. Of these, 22 percent are on the local system and 16 percent on state highways. Of the 55.8 percent urban roadway fatalities, 22 percent are on the local system and 17 percent on state highways. These numbers are significant and further consideration of these has been made for each identified emphasis area. Refer to Figure 3.

Through integrating the work of stakeholders, this SHSP defines a system, organization, and process for managing the attributes of the road, driver, and vehicle to achieve the highest level of highway safety. To reduce the number of fatalities and life-altering injuries in Illinois, the stakeholders committed resources (manpower, staff, time, dollars, etc.) to develop, implement, and maintain the SHSP.

Comprehensive, coordinated, and communicative safety strategies of Engineering, Education, Enforcement, and Emergency Medical Service (4 E's) have been developed collectively with the safety partners. Implementation plans with measurable objectives are the products of these efforts. To that end, priority is given to funding safety initiatives and projects supporting the SHSP goal.

Figure 2. 2006 Fatal Crashes by Type of Roadway

TYPE OF ROADWAY	*Illinois*	
	Fatal Crashes	***% of Total Fatal Crashes***
Rural		
State Highways	171	15.1%
Interstate Type Roads	46	4.0%
City Streets and Roads	258	22.7%
Unmarked State Routes	20	1.8%
Rural Total	495	43.6%
Urban		
State Highways	187	16.4%
Interstate Type Roads	96	8.5%
City Streets and Roads	247	21.7%
Unmarked State Routes	111	9.8%
Urban Total	641	56.4%
Total Fatal Crashes	1,136	

Source: IDOT Division of Traffic Safety

Figure 3. Illinois Crash Data

	2002	*2003*	*2004*	*2005*	*2006*	*% Change (2002-2006)*
Crashes[3]	438,990	437,289	433,032	421,522	408,670	-6.9%
Fatal Crashes[5]	1,273	1,308	1,224	1,233	1,136	-10.8%
People Killed[3]	1,420	1,454	1,355	1,363	1,254	-11.7%
People Injured[3]****	127,719	131,279	121,670	112,343	106,918	-16.3%
Fatal Crash Rate (per 100 million)[5]	1.35	1.36	1.24	1.27	1.17	-13.3%
Population (million)[6]	12.58	12.63	12.68	12.72	12.83	1.6%
Registered Drivers (million)[3]	8.53	8.52	8.56	8.57	8.62	1.1%
Registered Vehicles (million)[3]	10.03	9.41	9.70	9.85	10.08	0.5%
VMT (billion)[3]	106	106	109	106	107	0.6%

* No data available for Chicago area.

** Includes type A, B, and C injuries.

"A" Injury (incapacitating injury)
Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the injury occurred. Includes severe lacerations, broken limbs, skull or chest injuries, and abdominal injuries.

"B" Injury (non-incapacitating injury)
Any injury, other than a fatal or incapacitating injury, which is evident to observers at the scene of the crash. Includes lump on head, abrasions, bruises, minor lacerations.

"C" Injury (possible injury)
An injury reported or claimed which is not either of the above injuries, includes momentary unconsciousness, claims of injuries not evident, limping, complaint of pain, nausea, hysteria.

*** Data available for state maintained routes only.

[5] *Fatality Analysis Reporting System (FARS), Internet. Fatalities & Fatality Rates by State, 1994 - 2007*
[6] *US Census Bureau. National and State Population Estimates. Annual Population Estimates 2000 to 2007*

Figure 4. 2006 Fatal Crash Statistics by Emphasis Area

EMPHASIS AREA	Nation		Illinois	
	Fatalities	***% of Total Fatalities***	***Fatalities***	***% of Total Fatalities***
Alcohol-Related				
At least one driver tested (BAC ≥ .01)	17,602[7,10]	37.4%	549[8]	43.8%
Driver Behavior and Awareness				
Unlicensed Drivers (involved)	7,739	18.1%	208	16.6%
Highway-Railroad Grade Crossing				
Information Systems				
Intersections	25,589[7]	60.0%	267	24.1%
Large Trucks	4,995[7]	11.7%[7]	159[16]	12.7%
Roadway Departure				
Safety Belts/Occupant Protection				
No Restraint Used (known usage only)	15,523[9]	36.4%[9]	392	31.3%
Vulnerable Users				
Pedestrian	4,784[10]	11.2%	137[1]	11%
Motorcyclist	4,810[10]	11.3%	132[1]	10.5%
Pedalcyclist	773[10]	1.8%	25[1]	2.0%
Work Zones	1,005[11]	2.4%	29[1,11]	2.3%

Total Fatalities	42,642[3,7]	1,254[1]
Fatality Rate (Per 100 Million VMT)	1.41[2]	1.17[1]

[7] *FARS 2006 Data Summary*

[8] *FARS website. States/Alcohol. Persons Killed by State & Highest Driver BAC in Crash (2006)*

[9] *NHTSA. Traffic Safety Facts, 2006 Data, Occupant Protection*

[10] *NHTSA. 2006 Traffic Safety Annual Assessment*

[11] *Fatalities in Motor Vehicle Traffic Crashes by State and Construction/Maintenance Zones (2006). www.workzonesafety.org/crash_data/workzone_fatalities/2006*

[16] *FARS website. Persons Killed in Crashes Involving Large Trucks. www-fars.nhtsa.dot.gov/trends/trendslargetruckrel.aspx*

Stakeholder Teams:

To collectively develop safety strategies, stakeholder teams were identified. Each team unit consisted of two to three safety partner designees that were responsible for coordinating each phase for their agency/group. It is critical that each member of the team be committed to the success of the SHSP to save lives in Illinois.

Leadership Unit – Decision-Making Representatives

Detail: Agency/Group Executive Management or their designee that can commit resources (time, staff, dollars, ideas) to the development, implementation and auditing of the plan.

Development Unit – SHSP Creation

Detail: Agency/Group Representative to work on the detailed development of the SHSP. This will include identifying emphasis areas, challenges and recommending strategies.

Implementation Unit – Action Plan

Detail: Agency/Group Representative to work on the detailed action plan, including specific processes to implement recommended strategies. This unit's members may also consist of related standing committee members that are already established.

Result Assessment Unit – Measures of Effectiveness

Detail: Agency/Group Representative to work on measuring the effectiveness of implemented strategies and report progress and/or make adjustment recommendations.

General Strategies

Safety partners have incorporated broad overall strategies that heighten safety awareness and assist in reaching the SHSP Goal. IDOT started with a focused approach to safety by creating the Bureau of Safety Engineering to assist in the development and implementation of the SHSP and the coordination of various safety initiatives throughout the department. Other agencies and organizations also have key point positions for safety activities that are captured as overall strategies.

A SHSP website (www.dot.il.gov/illinoisSHSP/default.html) was launched to reach out to stakeholders for the development of the SHSP document. The website is a tool used to keep safety partners connected, monitor implementation status, and identify additional challenges and strategies as they arise. The website is also used to allow the motoring public an opportunity to view the stakeholders' efforts. This includes periodic SHSP document revisions, team contacts, meeting minutes, information on future safety summits, and other various safety related links. An e-mail address has been created to allow for electronic communication specific to the SHSP. illinoisshsp@dot.il.gov

A subscription service has been designed for easy electronic Notification to subscribers of any updates and/or changes to the website information.To subscribe, please visit http://www.dot.il.gov/illinoisSHSP/pdf/SHSP_Subserver.pdf. Information regarding Illinois' safety programs and the Strategic Highway Safety Plan can be directed to:

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Emphasis Areas

- Alcohol and Other Impaired Driving
- Driver Behavior and Awareness
- Highway-Railroad Grade Crossings
- Information Systems for Decision Making
- Intersections
- Large Trucks
- Roadway Departure
- Safety Belts/Occupant Protection
- Vulnerable Users
- Work Zones

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Alcohol and Other Impaired Drivers

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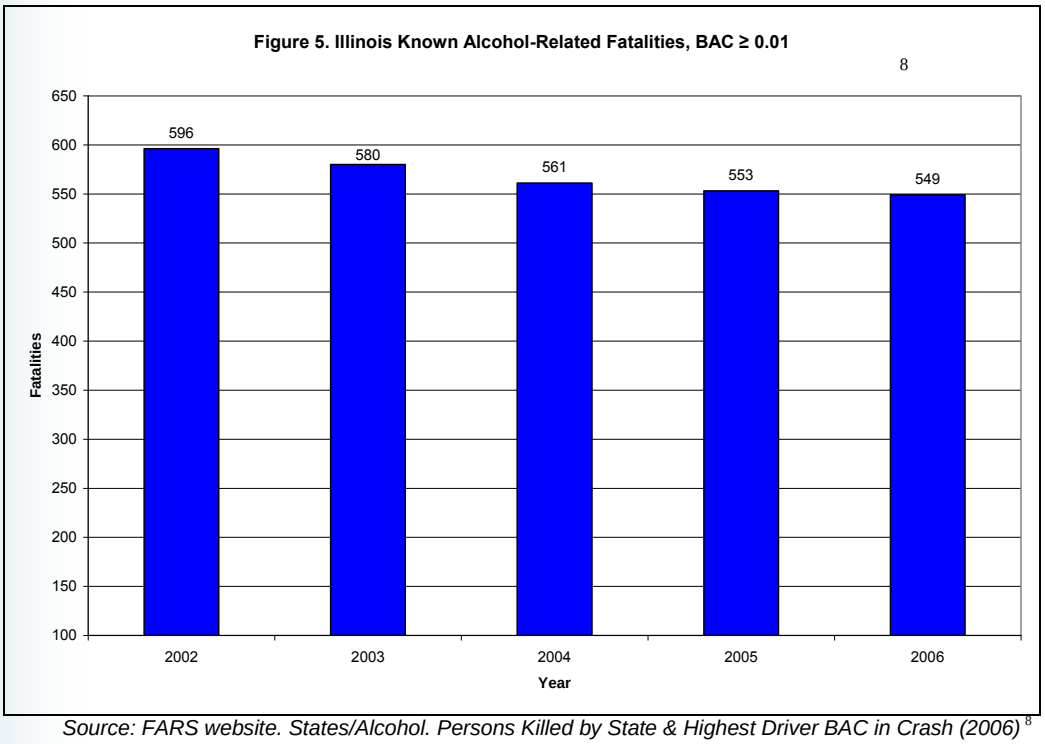
Alcohol and Other Impaired Driving

Background

In 2006, 44[7,8] percent of all Illinois' fatally injured drivers who were tested had a positive BAC according to the *2006 Illinois Crash Facts & Statistics*. Of the fatally injured drivers ages 16-24 tested for alcohol, more than 55[1] percent returned positive BAC results. Underage male drivers, young male drivers, and weekend crashes were prominent components of alcohol/drug related crashes. Drivers under the age of 21 accounted for 19.9 percent of all driver fatalities. It has been shown that the fear of arrest, subsequent license loss, prosecution, and conviction are the best deterrents to impaired driving. This is especially true for the 18-34 age group. In conjunction with alcohol impairment, speed and safety belt usage are often contributing factors in these fatalities.



Source: FARS website. States/Alcohol. Persons Killed by State & Highest Driver BAC in Crash (2006) [8]

Figure 5 displays the quantity of traffic fatalities known to be alcohol-related. This data is incomplete, since a large number of killed drivers and passengers are not tested for alcohol. In 2003, Illinois' BAC testing rate of all drivers involved in fatal crashes was 50.7[12] percent. This rate greatly exceeds the national average of 36[8] percent in 2003.

[12] *2003 Illinois Crash Facts and Statistics*

Challenges

- Speeding as a frequent contributing factor in alcohol-related crashes.
- Lack of safety belt usage tied to impaired driving.
- Increase in underage and young adult drinking and driving.
- Society's acceptance of "drink and drive."
- Limited public awareness of the problem.
- High cost for airing public service announcements during primetime media.
- Inability to track DUI instances and link all DUI databases.
- Repeat offenders who continue to drive.
- Limited resources for offender rehabilitation programs.
- Complicated existing legislation that is difficult to enforce and adjudicate.
- Prosecution and judiciary coordination.
- Judicial system that typically gives court supervision for first DUI offense.
- Limited resources for enforcement, prosecution, and judiciary.
- Inconsistent BAC testing for fatally injured drivers, passengers, and pedestrians.
- Updating crash reports with BAC test results.
- Identifying the number of alcohol-related crashes in which the driver's intent was to take his or her life.

Recent Implemented Strategies

Engineering

- Continued implementation of IDOT's Highway Safety Plan initiatives:
    - Identified and analyzed alcohol-related crash fatalities by jurisdiction in targeted counties
- Implemented Illinois Impaired Driving Assessment recommendations.

Enforcement

- Continued implementation of IDOT's Highway Safety Plan initiatives:
    - Targeted enforcement at select high-crash locations
    - Added hireback patrol hours of Secretary of State's Police through the Anti-Drunk Driving Enforcement Program
    - Funded Operation Straight I.D., Project 21, and the Social Norming (SONOR) Program
    - Funded the Illinois Liquor Control Commission
    - Provided local DUI law enforcement liaisons
    - Continued training for DUI law enforcement officers
    - Funded roadside safety checkpoints
    - Offered judicial training for judges
    - Funded Alcohol Countermeasure Enforcement (ACE) projects directed at youths
    - Purchased breath-testing instruments for local law enforcement officer training
- Executed year-round drunk driving enforcement.
- Increased training for law enforcement officers and the criminal justice community.
- Increased participation and coordination by all components of the DUI system: enforcement, prosecution, adjudication, and rehabilitation.
- Increased statewide law enforcement agency participation in counties where 85 percent of the population is located.
- Provided special enforcement emphasis during national crackdown periods.

Education

- Continued implementation of IDOT's Highway Safety Plan initiatives:
  - Developed DUI and ".08" public awareness programs
  - Funded "Don't Turn Your Summer into a Bummer"
  - Funded a racial profiling study
  - Funded Beverage Alcohol Sellers and Servers Education and Training (BASSET)
  - Funded Local Alcohol Projects and Mini-Alcohol Projects
- Employed strong public information and education campaigns, such as "You Drink, You Drive, You Lose."
- Created a Governor's Alcohol Abuse Task Force to heighten public awareness and rejuvenate determination to reduce impaired driving.

Proposed Strategies

Engineering

- Engineer vehicles to prohibit impaired drivers from operating them.
- Investigate engineering solutions to mitigate the occurrence and severity of alcohol-related crashes such as:
  - Enhanced and/or innovative traffic control devices (signs, signals and markings)
  - Traffic barriers (guardrail, median barriers, bridge railing and crash cushions)
  - Improved roadway geometrics and channelization
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Review and consider implementing successful strategies from other states (State and Territorial Injury Prevention Director's Association).
- Review recommendations from the National Academy of Sciences "Report on Underage Drinking" for possible implementation.
- Investigate all recent implemented strategies for success.

Enforcement

- Focus more resources on high-visibility enforcement.
- Provide selective enforcement directed at speeding and impaired driving.
- Support cross-jurisdictional agreements among law enforcement agencies.
- Promote a stricter and more uniform enforcement of laws prohibiting underage drinking, serving, and purchasing of alcohol within an agency and among adjacent agencies.
- Promote mandatory field sobriety testing.
- Require mandatory skills testing of officers involved in DUI enforcement.
- Increase BAC testing of killed drivers, passengers, and pedestrians.
- Develop a DUI tracking system that links several DUI databases available at various state agencies.
- Support Illinois State Police (ISP) research of instruments that can detect impaired drivers by scanning their eyes.
- Improve coordination and communication of DUI enforcement, prosecution, and adjudication, such as increase usage of DUI/drug courts to reduce recidivism.
- Promote involvement from the Administrative Office of the Illinois Courts and Traffic Records Coordinating Committee in reducing alcohol-related crashes and fatalities.
- Designate specific DUI courts with judges that only adjudicate DUIs.
- Promote accountability among the judicial system for DUI convictions by making court rulings or non-prosecutions available to the public.

Education

- Continue to conduct strong public information and education campaigns.
- Implement driver awareness programs on the dangers of impaired, fatigued, and distracted driving.
- Provide a variety of initiatives and hands-on activities to demonstrate the effects of alcohol to all age ranges.
- Develop and implement initiatives to reduce underage alcohol use and drunk driving within collegial and high school settings.
- Increase understanding and create adjacent community partnerships in dry college towns to raise awareness of students traveling elsewhere to drink.
- Encourage public transit as an alternative to drunk-driving in urban areas
- Promote a uniform bar closing time amongst adjacent municipalities or counties.
- Continue a Governor's Alcohol Abuse Task Force to heighten public awareness and rejuvenate determination to reduce impaired driving and implement recommendations.
- Consider development of an Illinois Fatal Alcohol Crash Team (F.A.C.T.).
- Provide media campaign literature at public information meetings for proposed construction projects.
- Develop and implement rehabilitation programs for repeat offenders.

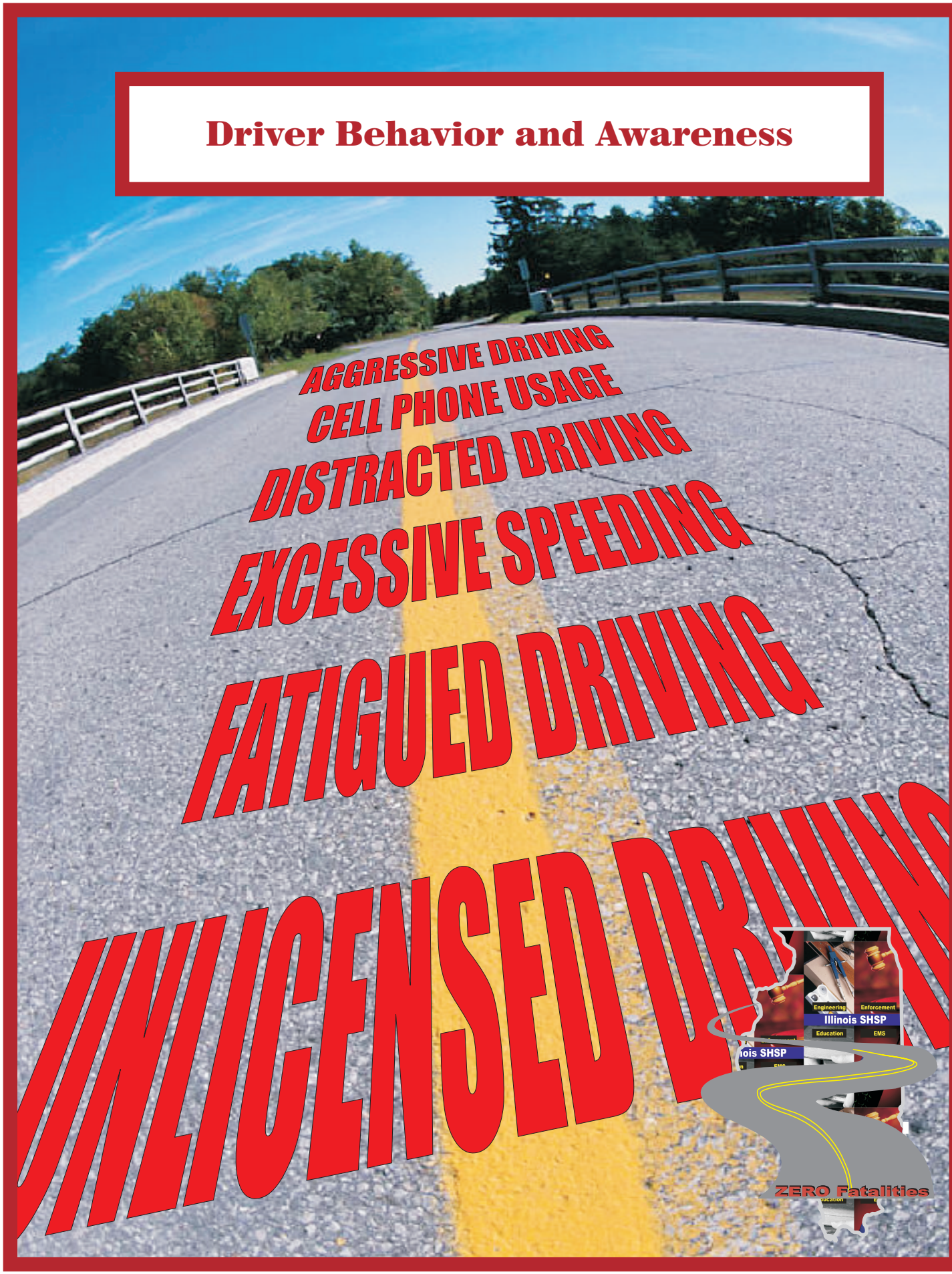
Emergency Medical Services

- Promote the need for mandatory blood draw requirement compliance to the health care industry.
- Train paramedics to draw blood on scene and testify in court.

Successes

- A larger enforcement of curfew in particular municipalities has reduced the number of teens out during the evenings, which at the same time has reduced the number of teens that are driving impaired may be due to drug, alcohol or sleep deprivations.
- Alcohol Countermeasures Enforcement (ACE) details have had a positive impact in citing those that sell alcohol to minors.
- Operation Snowball and similar programs have a strong effect on teens.
- Utilizing the Red Cross and their drunken driving initiatives (i.e. sober prom night) is a great partnership with access and support to reach students.

Driver Behavior and Awareness



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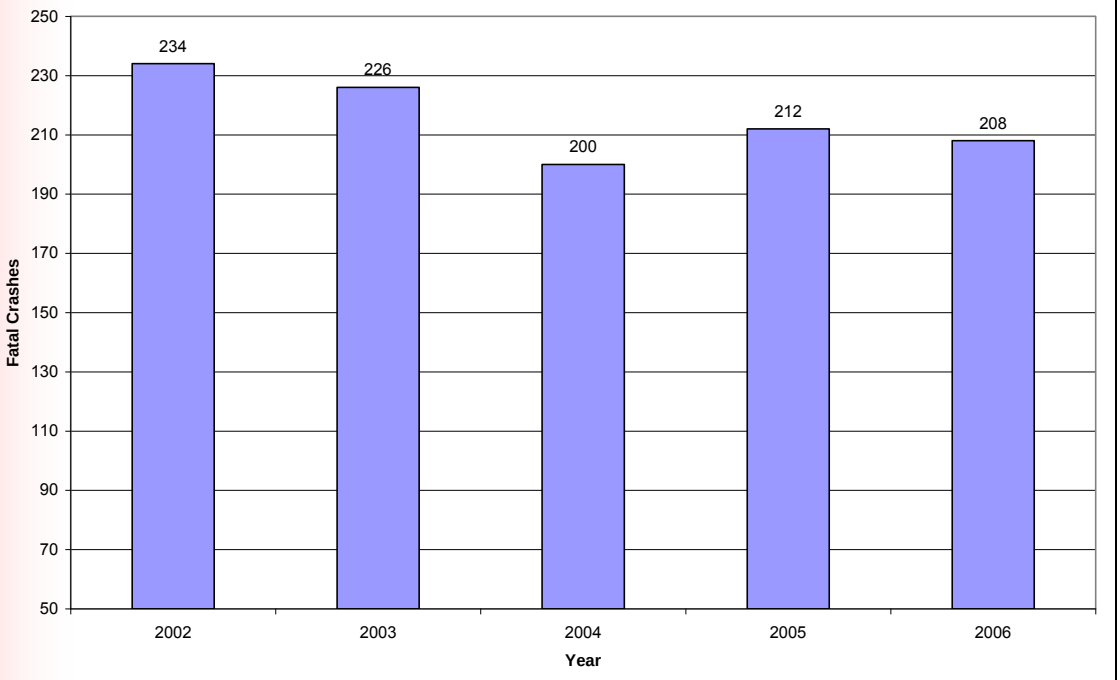
Driver Behavior and Awareness

Background

Addressing inappropriate or hazardous driver behaviors is a critical factor in reducing fatal and life-altering injury crashes. Unsafe driving behavior may include, but is not limited to, aggressive driving, excessive speeding, distracted driving such as cell phone usage, drowsy or fatigued driving, and unlicensed driving (suspended, revoked, or no valid license).

Nationally, more than 60 percent of drivers consider unsafe driving by others as a major personal threat to themselves and their families. Statistics show that unsafe driving is becoming more prevalent across the country and is also increasing in severity.

Figure 6. Fatal Crashes Involving Drivers with an Invalid Drivers License



Source: Fatality Analysis Reporting System (FARS) Internet

Young drivers ages 16-24 continue to be overrepresented in fatal and life-altering injury crashes. In 2006, 405[1] drivers (ages 16-24) were involved in fatal crashes. The five major contributing factors in such youthful driver fatal crashes are speeding, traveling on the wrong side of the road, failing to yield, reckless driving, and drinking.

In 2006, there were 1,158,023[1] older (ages 65+) licensed drivers in Illinois; 13[1] percent of all licensed Illinois drivers. While the data show most older drivers are quite responsible (e.g., high safety belt usage, low alcohol-related crash rates), national fatality rates per 100 million VMT for these drivers mirror the high rates for teen drivers. Furthermore, the inherent frailty of older drivers reduces their chances of surviving a crash and increases the risk of receiving life-altering injuries.

Speed, drowsiness, and unlicensed drivers pose problems to the transportation community. In 2006, 44[4] percent of Illinois fatal crashes were speed related. The National Highway Traffic Safety Administration (NHTSA) estimates that nationally drowsiness is a factor in 100,000 police reported crashes each year, resulting in 76,000 injuries and 1,500 deaths. In 2003, it was estimated that 200 traffic fatalities were caused by a driver that did not possess a valid driver's license. Refer to Figure 6.

Challenges

- Increasing speeds.
- Growing disrespect for other drivers and pedestrians.
- Aggressive and reckless driving habits.
- Drowsy drivers, including shift workers and commercial drivers.
- Increase in unlicensed drivers.
- Driver distraction and cell phone usage.
- Difficulties in gathering crash causation factors such as:
    - Determining cell phone use at the time of crash
    - Determining the use of any "extracurricular" device at the time of crash (other than cell phones)
- Research has not shown Bluetooth or similar devices aid in driver awareness, but that the conversation itself is a major distraction.
- Growing population of older drivers (ages 65+).
- Increasing disregard for traffic laws and traffic control devices.
- Youthful driver attitudes toward and exposure to risk.
- Increase public awareness that small cars may not be seen in blind spots of larger vans.
- Increasing teen driver distractions with technology (iPod, text messaging), fatigues and other teen passengers.
- Elderly and young drivers lack certain "awareness" traits (the ability to immediately react to road situations which leads to diminished reaction time).
- Increasing awareness of variable design standards of difference facility types.
- Lack of sleep may be as detrimental as using alcohol or drugs.
- Decreasing engineering, enforcement, education, and emergency medical service resources.
- Auto industry marketing of high performance "fast" cars.
- Suicide classification, by state law, requires intent to be proven.

Recent Implemented Strategies

Engineering

- Continued implementation of IDOT's Highway Safety Plan initiatives.

Enforcement

- Focused awareness and enforcement efforts on the 23 counties where 85 percent of the population resides.
- Banned hand-held cell phone usage while driving in Chicago (July 8, 2005).
- Photo enforcement for red-light running in Chicago.
- Photo enforcement at highway-railroad grade crossings in DuPage County.
- Funded Speeding and Traffic Accident Reduction (STAR) program enabling Secretary of State Police to utilize roving patrols.

Education

- Enhanced graduated licensing program.
- Funded Injury Prevention Programs promoting safe driving behaviors.

Proposed Strategies

Engineering

- Improve the driving environment to minimize or eliminate the external "triggers" of aggressive driving, such as reducing and providing better information about delays.
- Explore possible engineering countermeasures such as:
    - Rumble strips
    - Rumble stripes
    - Innovative pavement marking and signing
    - 3-D tape pavement marking
- Pursue more easily read sign fonts such as Clearview.
- Design enforcement "pull over" areas into roadway construction projects.
- Evaluate the impact of poor vehicle maintenance on fatalities and crashes.
- Expand implementation of Older Driver Highway Design Handbook.
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Utilize NCHRP Report 500 - Volume 1: A Guide for Addressing Aggressive-Driving Collisions.
- Utilize NCHRP Report 500 - Volume 2: A Guide for Addressing Collisions Involving Unlicensed Drivers.
- Utilize NCHRP Report 500 - Volume 9: A Guide for Addressing Collisions Involving Older Drivers.
- Investigate all recent implemented strategies for success.

Enforcement

- Improve driver compliance with traffic control devices.
- Pursue use of speed trailers on routes with high fatality rates.
- Encourage state and local adoption of photo enforcement.
- Expand use of speed monitoring and changeable message signs.
- Consider policies to regulate cell phone and other electronic device usage.
- Use standardized vehicle categorizers for speed monitoring.
- Develop unlicensed/revoked/suspended licenses distribution lists for law enforcement.
- Support increases in traffic violation penalties such as those in school zones.
- Enhance and strictly enforce current GDL laws.
- Assess impact and effectiveness of the Graduated Driver Licensing (GDL) law and ensuing reduction in crash involvement.
- Emphasize use of the driver's license "re-testing" form to law enforcement and the Secretary of State for older drivers who seem confused.

Education

- Define and determine the scope of hazardous driver behaviors.
- Educate all roadway users on the dangers of poor driving behaviors.
- Educate the public that vehicles are supposed to drive in the right lane except when passing. Too many vehicles in the left lane can cause unnecessary congestion.
- Develop a media/information campaign, or driver training, which would emphasize the dangers of operating an automobile around a commercial motor vehicle.
- Enhance driver education:
    - Determine effectiveness of new and existing private and in-school programs
    - Standardize curriculum for classroom and behind-the-wheel education
    - Update instructor preparation and continuing-education programs
- Initiate driver education programs at younger ages.
- Increase required classroom and behind-the-wheel education hours.
- Work with traditional and non-traditional educational organizations to evaluate curriculum effectiveness and promote increased awareness of safer driving.
- Evaluate Illinois Rules of the Road for effectiveness of covered information.
- Promote National Safety Council's "Teen Driver: A Family Guide to Teen Driver Safety" as a resource.
- Identify high-risk demographics (i.e., age, sex, etc.) and direct tailored messages toward select groups.
- Provide educational programs for high-risk groups (e.g., drivers ages 15-24) addressing injury prevention, occupant protection, DUI, speed, and distraction issues.
- Identify other successful age-specific strategies by reviewing research for reducing other risky behaviors (drug use, alcohol use, etc.).
- Require driver testing on a more frequent basis. Driver testing for younger and older age groups should include simulated situational driving conditions that measure reaction time, judgment, etc. Driver testing should include actual testing with motor vehicle, since it is common that teens are good with video games and simulated events.
- Review Illinois Department of Public Health (IDPH) Drowsy Driving Committee recommendations for possible implementation.
- Review IDPH Illinois Suicide Prevention Task Force recommendations for possible implementation.
- Review State Farm Insurance's "Project Ignition" program for potential development of traffic safety messages in conjunction with the National Youth Leadership Council.
- Work with national partners, advertisers, and media to deliver consistent safety messages.
- Increase awareness through multiple campaigns:
    - Produce "orange bracelets" and attach to cards containing Illinois SHSP information and the motorists' role as a partner
    - Develop a "Be Safe, Inflate!" campaign for proper tire inflation
    - Provide air pressure gauges with supplemental safety information during National Tire Safety Week
    - Partner with shopping centers to display safety information on advertisement screens, boards, and kiosks
    - Partner with local sports arenas to display information on outfield fences and ice rink boards
    - Hold American Traffic Safety Services Association (ATSSA) Foundation poster and calendar contests
    - Organize and operate a SHSP and safety booth at the Illinois State Fair
    - Partner with American Association of Retired People (AARP) and insurance companies to add supplemental safety information to regular mailings
    - Create lobby displays of SHSP information and highlights for stakeholder office buildings

- Include safety information with employee paychecks
- Present safety information on “Illinois Channel,” the new government cable television channel
- Create a lottery game related to safety
- Accompany parking passes with alcohol-related and general traffic safety literature to university students
- Require work zone awareness training (view six-minute video) prior to receiving or renewing driver’s license
- Develop safety-related Secretary of State license plates with wide distribution and commitment from stakeholders

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Highway-Railroad Grade Crossings

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Highway-Railroad Grade Crossings

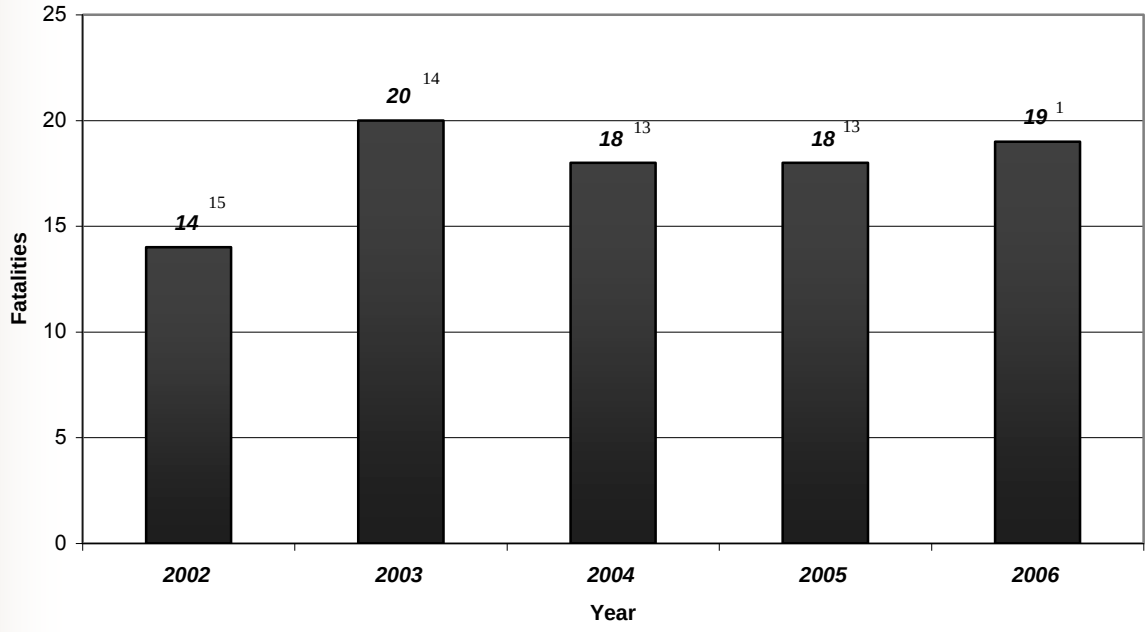
Background

Illinois has the second largest railroad network in the nation, and the Chicago area is its largest single point of rail traffic interchange where all major railroads meet. According to the Illinois Commerce Commission's *Crossing Safety Improvements Program, 2008-2012* Plan, Illinois has approximately 7,200 miles of railroad line and 8,399 public highway-railroad grade crossings. Of these crossings, 7,572, or 90 percent, are on the local system. Furthermore, there are 4,646 private highway-railroad grade crossings and 386 pedestrian-railroad grade crossings and 88 pedestrian grade separated crossings (bridges) in the state.

The railroad safety environment in Illinois is characterized by intense use of both the rail and highway systems. Rail ton-miles of travel, as well as highway vehicle miles traveled, have both increased by over 30 percent during the past ten years. In the same time frame, the number of rail-related incidents has declined by approximately half. Refer to Figure 8.

Crashes at public highway-railroad grade crossings accounted for 19[1] fatalities in 2006. While vehicle-train crashes are not as frequent as other types of traffic crashes, they tend to be more severe than a typical vehicle-vehicle crash. A vehicle-train crash is over 11 times more likely to result in a fatality and 5.5 times more likely to result in a life-altering injury than crashes not involving a train.

Figure 7. Illinois Public Highway and Train Crossing Fatalities



Source: Illinois Crash Facts & Statistics

[13] *2005 Illinois Crash Facts*
[14] *2003 Illinois Crash Facts*
[15] *2002 Illinois Crash Facts*

Illinois experienced two of the most tragic highway-railroad grade crossing crashes in recent U.S. history:

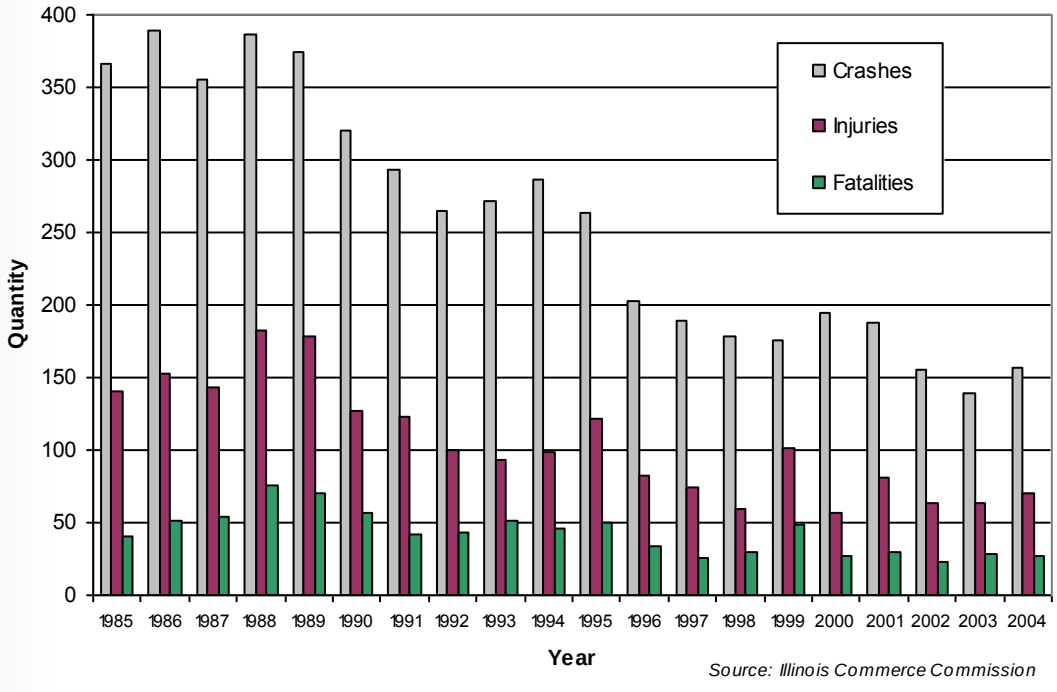
Bourbonnais – March 15, 1999
When Amtrak Train No. 59 struck a tractor-trailer hauling steel products at the McKnight Road grade crossing, 11 passengers were killed and 122 others injured.

Fox River Grove – October 25, 1995
When a Metra train struck a school bus at the Algonquin Road grade crossing, 7 passengers were killed and 24 others injured.

During the past ten years, Illinois has seen significant reductions among vehicle-train crashes and fatalities. Refer to Table 1.

TABLE 1	***1995***	***2006***	***Change***	***Reduction***
Vehicle-Train Crashes	263	141[11]	122	46%
Vehicle-Train Fatalities	50	19[1]	31	62%

Figure 8. Illinois Public Grade Crossing Crashes: 1985-2004



Source: Illinois Commerce Commission

The Federal Railroad Administration (FRA) published its final rule pertaining to the "Use of Locomotive Horns at Highway-Rail Grade Crossings" on April 27, 2005. The effective date of the final rule was June 24, 2005. This will need to be considered as safety efforts are made to

reduce vehicle-related fatalities.

Challenges

- 8,485 public highway-railroad grade crossings in Illinois:
  - 7,623 crossings on the local system
  - 862 crossings on the state system
- Increasing volumes of rail and highway traffic.
- Quantifying queue crashes while waiting for trains.
- Quantifying run-off-road crashes where railroad signs/signals are hit.
- Large number of at-grade crossings increase train passenger exposure.
- Dense commuter rail network in northeastern Illinois.
- Adverse public reactions to public grade crossing closures.
- Train horn ban regulations.
- Identification of grade crossings on crash report.
- Train not listed as a vehicle type on crash report.

Recent Implemented Strategies

Engineering

- Designed and installed state-of-the-art, four-quadrant gate systems equipped with trapped vehicle detection.
- Improved highway-railroad warning systems interconnected with highway traffic signal systems.
- Installed electronic monitoring devices at grade crossings equipped with active warning devices, enabling immediate notification of signal malfunctions.
- Initiated a statewide project to upgrade all crossings marked with only passive crossbuck warning signs with reflectorized striping and a corresponding yield or stop sign.
- Implemented low-cost safety improvements at unsignalized grade crossings.
- Performed comprehensive engineering grade crossing reviews, including corridor-based studies.
- Comprehensive review by Illinois Commerce Commission (ICC) to pursue closure of non-essential highway-railroad grade crossings.

Enforcement

- Operated an in-service grade crossing automatic enforcement system (DuPage County).
- Continued enforcement activities through Illinois Operation Lifesaver and Public Education and Enforcement Study (PEERS) programs.
- Enforced compliance of state and federal signing, marking, signal, gate, and other warning device installation standards.
- Officers spotting violations while on trains and advising other officers.

Education

- Continued support of Operation Lifesaver efforts to educate motorists on the hazards of highway-railroad grade crossings and the motorists' responsibility to comply with existing rail-crossing laws.
- Drivers Education Packets are distributed to high schools and school bus companies.

Proposed Strategies

Engineering

- Determine where increased railway traffic is occurring.
- Pursue safety analysis information for northeastern Illinois prepared by the Chicago Area Transportation Study (CATS).
- Investigate use of signs with Radio Frequency Identification (RFID) chips that can capture gate violation data.
- Pursue additional funding from legislature to grade separate high priority railroad crossings.
- Provide special consideration to grade crossings within work zones.
- Consider all rail-highway motor vehicle crashes, as opposed to only train crashes.
- Investigate all recent implemented strategies for success.

Enforcement

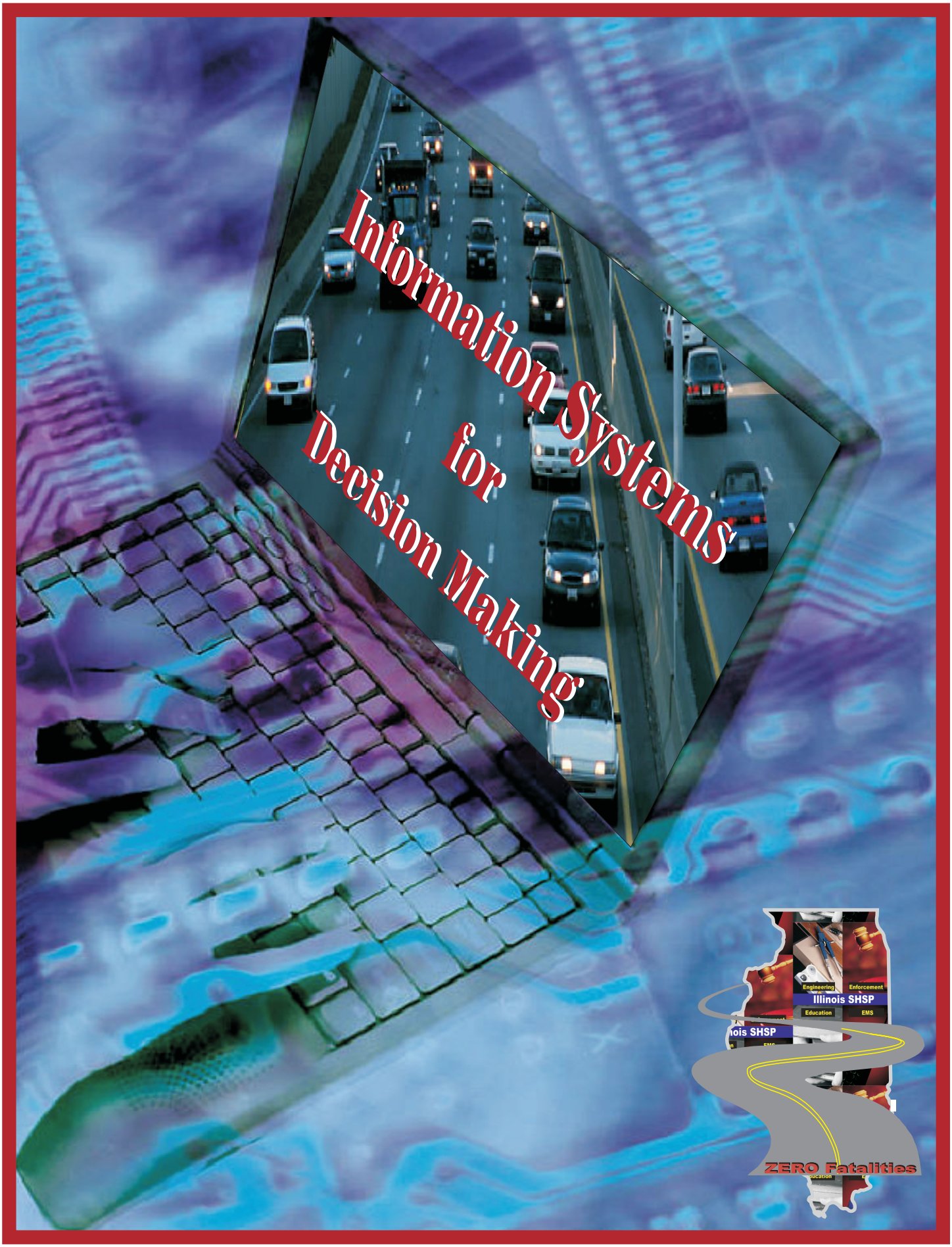
- Develop new high-visibility and high-profile law enforcement programs to reduce rail signal and gate violations.
- Promote automated enforcement of grade crossing violations.
- Installation of cameras at gated grade crossings should be mandatory in inter-city areas with traffic violations notices flowing freely from the video ticket system.

Education

- Consider suicide-by-train issues as addressed by IDPH's Illinois Suicide Prevention Task Force.

Successes

- While some successes have been achieved with the passage of new legislation, the fact remains that surface grade crossings without gates in rural areas still pose significant problems.


Information Systems
for
Decision Making
Engineering
Enforcement
Illinois SHSP
Education
EMS
ZERO Fatalities

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Information Systems For Decision Making

Background

Understanding and making optimal use of information technology is a critical challenge facing Illinois' highway safety professionals. Knowing the "who, what, when, where, why, and how" of traffic crashes is the foundation of a comprehensive traffic safety analysis system. In order to help protect public safety, proper understanding and use of integrated traffic records is necessary to plan and assess safety programs and influence resources.

Crash, traffic, citation, medical, judiciary, and driver records must be available to enable proper decision-making for applying limited resources to safety improvements and providing better services to taxpayers. Furthermore, these data influence effective development and implementation of safety policies and projects. This effort requires coordination among all stakeholders.

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

Timely and accurate crash data is vital to the analysis necessary for successful highway safety public information and enforcement programs. In order to provide easy access to the data, a comprehensive data mining and reporting system, as well as appropriate staffing, must be pursued.

A new Crash Information System (CIS) is being developed for Illinois that will, as a whole, reduce manual processes and greatly increase the flexibility and efficiency of the data system itself. It is incumbent on IDOT to further equip key users with the appropriate mechanism to query the data as the sheer volume of data within the organization can be overwhelming. Yet these data alone cannot give Illinois the advantage needed to reduce traffic-related deaths and life-altering injuries. The measure of any data warehousing solution is its ability to derive knowledge from the data. This challenge is met with the ability to identify patterns, trends, and relationships from volumes of information too large to be processed by human analysis alone. All of these challenges must be met without having to turn basic business users into computer programmers.

In addition to the new CIS, the Mobile Capture and Reporting (MCR) system is being implemented in Illinois law enforcement communities. This system provides for electronic capture and submission of crash reports. In 2004, over 532,000 paper-copy crash reports were submitted to IDOT's Division of Traffic Safety. This number alone illustrates the advantages to be gained from the MCR system, which is currently used by 470 Illinois State Police (ISP) troopers. Additionally, the MCR system is in pilot mode with ISP District 15, the Illinois Tollway, and the city of Peoria. The rollout of MCR within county and municipal law enforcement agencies will continue through the end of 2005. When completed, the system will improve the quality of crash data and reduce the amount of manual processes currently required.

Challenges

- Accurate data capture of crash locations and completion of crash report.
- Training law enforcement officers on crash reporting.

- Tracking of injuries resulting from crashes.
- Timely submittal of crash reports from enforcement.
- Lack of user-friendly and easily-accessible crash data.
- Lack of rapid access to Secretary of State driver's license information.
- Lack of crash data and data analysis understanding.
- Transformation from a "total crash" system to a "crash severity" system, without as much focus on fatalities (severe accidents are just as important).
- Limited system-wide approach to identify problem areas.
- Local information capturing.
- Timely delivery of crash data, current two-year delay is unacceptable.
- Inability for departments outside of a policing boy or IDOT to access crash data.
- Information sharing between law enforcement, SOS, IDOT and courts
- Limited resources (funding and staff).
- Difficulty for persons outside a policing body or IDOT to access crash data.

Recent Implemented Strategies

Engineering

- Continued operation of the new Traffic Records Coordinating Committee to review all crash databases and identify ways to integrate them.
- Continued implementation of IDOT's Highway Safety Plan initiatives:
    - Funded development of an effective Injury Surveillance System (ISS) and web-based system
    - Funded local agency MCR training
    - Enhanced automated crash data transmission capabilities

Enforcement

- Introduced MCR to ISP.

Emergency Medical Services

- Regulation and maintenance of the Illinois Pre-hospital Care Report Database, the Illinois Trauma Registry, the Illinois Head and Spinal Cord Injury Registry, and the Illinois Violent Injury Registry.

Proposed Strategies

Engineering

- Develop a system-wide approach to identify problem areas.
- Improve the quality and timeliness of crash data.
- Identify and integrate all crash databases for easy user access.
- Assess and improve current active information systems to meet user needs.
- Consider a more uniform way of reporting accidents and making information available to the pre-approved users.
- Improve location coding for all rural roads and residential streets.
- Increase data sharing between law enforcement, IDOT, SOS and the courts.
- Enhance the Traffic Records Coordinating Committee to include all partners involved with crash-related data so it can be shared and used to identify more effective crash mitigating solutions.
- Offer the latest technology to all state and local law enforcement agencies for electronic

crash data collection.

- Enhance MCR to:
    - Ensure compatibility with multiple software and hardware platforms and multiple wireless environments
    - Provide the appropriate capacity to accommodate the large number of law enforcement officers
    - Develop and implement branding and marketing as a necessary tool for crash reporting
    - Make attractive and desirable to all law enforcement agencies
    - Enhance to provide web services across all communication barriers
- Implement a continuously-operating help desk to accommodate law enforcement personnel in crash reporting.
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Investigate all recent implemented strategies for success.

Enforcement

- Consider wireless citations as a potential future application.
- Develop central repository for citation and adjudication (also driver's license sanction) data that allow for tracking.

Emergency Medical Services

- Use CODES to link crash data to medical databases.
- Improve data collection for all users through the newly implemented web-based Illinois Trauma Registry, collaboration with IDOT on the Crash Outcomes Data Reporting System (CODES), and investigate the feasibility of incorporating the National EMS Information System (NEMSIS) core data set into the Illinois Prehospital Care Report Database.
- Encourage EMS providers to accurately document occupant restraint usage and alcohol/substance use for inclusion in the Illinois Prehospital Care Report Database.

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Intersections

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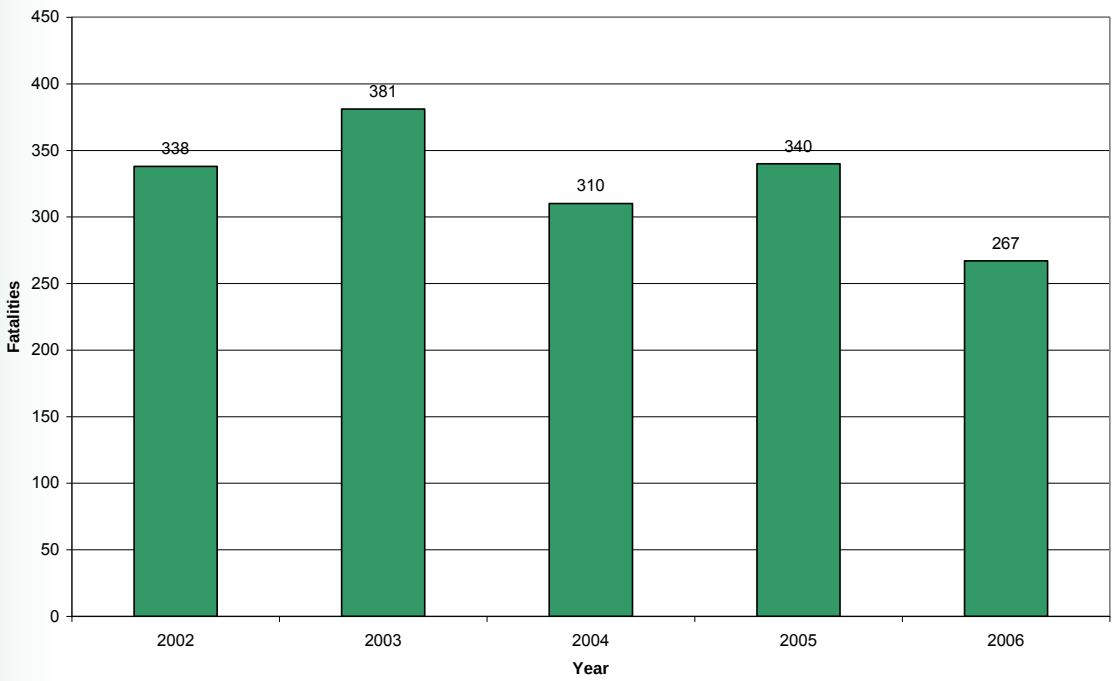
Intersections

Background

Although intersections only constitute a small portion of the overall highway system, nationally they are the location of more than 50 percent of all traffic crashes in urban areas and more than 30 percent of those occurring in rural areas. The majority (79 percent) of all fatal crashes occur at non-intersection locations, suggesting that the severity of intersection crashes is lower than elsewhere. Furthermore, it is expected that crashes are concentrated at intersections, since they create numerous conflict points where differing traffic movements converge in one place.

Figure 9. Illinois Intersection Fatalities



Source: Fatality Analysis Reporting System (FARS) Internet

In 2006, intersection-related crashes accounted for 8,569[21] life-altering injuries (A-type injury) and 324[21] fatalities, or 26 percent of all Illinois fatalities. Refer to Table 2. Of these fatalities, 42[21] percent occurred at urban locations, 21[21] percent were at rural locations, and 37 percent were unknown. Nationally, 60[7] percent of fatalities occurred at intersections.

TABLE 2	*2006 Illinois Fatalities*
All Intersections	**324**
Rural Intersections	**96**
1 or 2 Way Stop (red flashing lights)	4
1 or 2 Way Stop (no red flashing lights)	35
All Way Stop (red flashing lights)	0
All Way Stop (no red flashing lights)	0
Traffic Signal (2-phase)	0
Traffic Signal (multi-phase)	2
Roundabout	Not available
No Traffic Control Device	2
Unknown	53
Urban Intersections	**228**
1 or 2 Way Stop (red flashing lights)	0
1 or 2 Way Stop (no red flashing lights)	51
All Way Stop (red flashing lights)	0
All Way Stop (no red flashing lights)	1
Traffic Signal (2-phase)	3
Traffic Signal (multi-phase)	48
Roundabout	Not available
No Traffic Control Device	6
Unknown	119

Disclaimer: Results concerning Intersections in Table 2 are based on data that was received from the Illinois Department of Transportation on May 1, 2008. Crash data represents years 2002 to 2006 and was obtained from the state police and other enforcement agencies. The 2006 crash data was last updated on April 28, 2008. The data was used 'as is' for analysis purposes and should be interpreted accordingly.

Challenges

- Increasing number of intersections at or nearing capacity.
- Older drivers' limited ability to navigate complex intersections.
- Driver overload (too many signs, signals, markings, lanes, etc.).
- Identification of intersections having disproportionately large numbers of actual and

potentially fatal and life-altering injury crashes.

- Local agency identification of problem intersections and commitment of funding for improvements.
- Joint state and local intersection ownership.
- Right-of-way (ROW) constraints at intersections and the high cost of purchasing ROW.
- Environmental and economic impacts of intersection improvements.
- Transformation from a “total crash” system to a “crash severity” system.
- Modification of signal phasing from permissive to protected improves safety, but reduces capacity of the intersection.
- Better understanding between environmentalists and engineers is needed regarding sight lines at intersections, which can be problematic, especially where trees, shrubs, and other objects may block line of sight from the road.

Recent Implemented Strategies

Engineering

- Increased roadway safety enhancements:
    - LED signals
    - In-pavement lighting
    - Interconnected signals
    - Exclusive left-turn lanes
    - Roadway lighting
    - Audible pedestrian signals
    - Countdown pedestrian crosswalk signals
    - Modify permissive left-turn phasing to protect left-turn movements.
- Roundabouts

Enforcement

- Local police agency identification and enforcement of “top ten” problem intersections.
- Photo enforcement for red-light running in Chicago.

Proposed Strategies

Engineering

- Identify intersections with disproportionately large numbers of fatal and life-altering injury crashes.
- Initiate and participate in intersection Road Safety Assessments.
- Use alternative designs, such a roundabouts, for intersection improvements.
- Install illuminated street signs.
- Improve sight distance at intersection approaches.
- Improve access management near intersections.
- Apply rumble strips at unsignalized stop approaches.
- Install rumble strips at high-speed stop-controlled intersections.
- Implement dynamic flashing beacons.
- Implement offset left turns at signalized intersections.
- Implementation of protected left-turn phasing at intersections with a history of left-turning and angle crashes should be retained.

- Possible implementation of “4-way stop and All-Walk” program at intersections with large volumes of pedestrian traffic.
- Contribute to a National Cooperative Highway Research Program (NCHRP) “Lead State” initiative for reducing intersection crashes by developing and implementing an action plan.
- Utilize NCHRP Report 500 - Volume 5: A Guide for Addressing Unsignalized Intersection Collisions.
- Utilize NCHRP Report 500 - Volume 12: A Guide for Addressing Collisions at Signalized Intersections.
- Investigate all recent implemented strategies for success.

Enforcement

- Increase law enforcement at high-crash intersection locations.
- Pursue legislation to allow “Red Light Running” cameras outside the city of Chicago.
- Implement “Red Light Running” countermeasures including photo enforcement cameras and “tell-tale” or “confirmation” lights.
- Develop a procedure for law enforcement officers to request engineering assessments of crash sites.

Education

- Improve driver awareness and knowledge.

Successes

- Implementation of protected left turn phasing in lieu of permissive has shown a marked reduction in turning and angle crashes for that movement.
- The improvement in the engineering/design of dangerous intersections has reduced the number of crashes at these intersections.
- Rumble strips at rural intersections have proved to be an effective way to gain motorists’ attention.

Large Trucks

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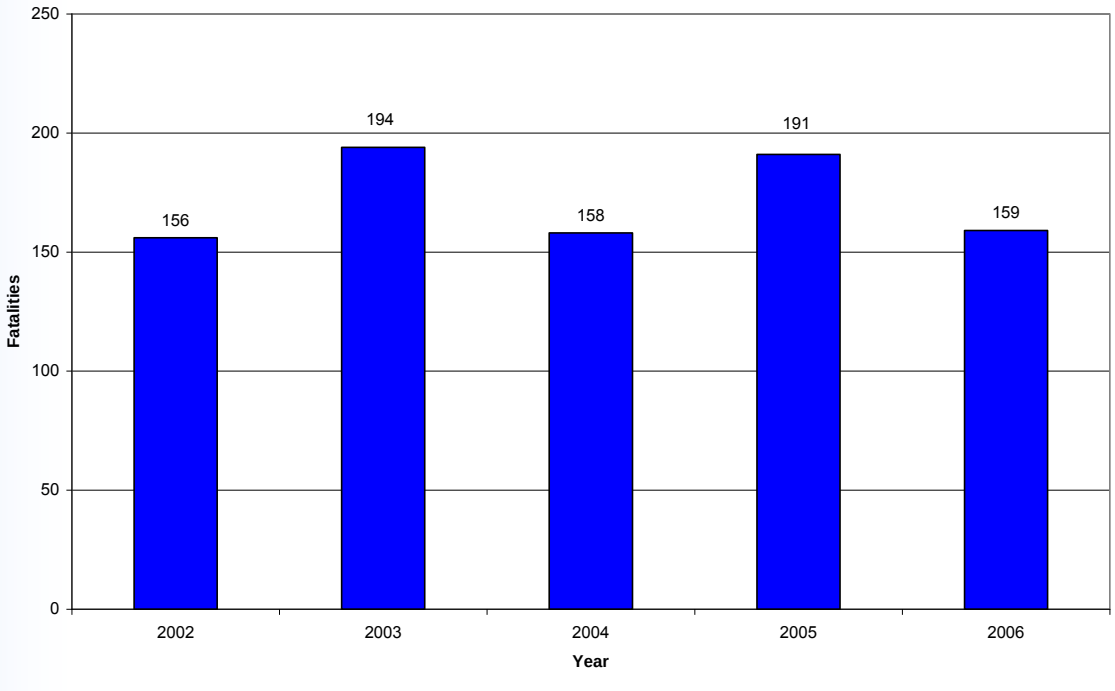
Large Trucks

Background

In 2006, 159[16] lives were lost on Illinois highways in crashes involving large trucks. Approximately one out of every eight highway deaths involved a large truck, which is defined as a vehicle having a gross vehicle weight rating (GVWR) over 10,000 pounds. These crashes differ from others in that the large trucks typically increase crash severity due to their size and weight. When compared to the overall crash picture, large truck crashes are typically attributed to unit separations, jackknifes, cargo losses and shifts, and increases in rear-end collision fatalities, work zone fatalities, multi-vehicle crashes, and on-the-road crashes. Furthermore, it has been shown that a disproportionate number of work zone fatal crashes involve large trucks.

According to the *2006 Illinois Crash Facts & Statistics*, there were 16,064[1] crashes involving tractor-trailers in Illinois in the year 2006. From these tractor-trailer crashes, 115[1] were fatal crashes, 2,310[1] were injury crashes, and 13,639[1] were property damage crashes. The majority or 85[1] percent of the tractor-trailer crashes in 2006 occurred in urban areas. From the total tractor-trailer crashes, 86[1] percent of the fatalities that occurred included persons in the other vehicle or pedestrian/pedalcyclists. Likewise, 79[1] percent of injured persons involved in tractor-trailer crashes were in the other vehicle or pedestrian/pedalcyclist.

Figure 10. Illinois Large Truck Fatalities [16]



Source: Fatality Analysis Reporting System (FARS) Internet

Challenges

- Compliance with federal and state safety regulations.
- Safety compliance of large trucks operated exclusively within Illinois.
- Truck driver seat belt usage.
- Fatigue resulting from unusual work hours.
- Identification of truck driver needs that can help improve safety.
- Noncommercial driver behaviors that contribute to large truck crashes.
- Identification of causal factors through data analysis.
- Coordination between local municipalities, state districts, and federal agencies to address large truck safety issues through engineering, enforcement, educational and emergency medical service solutions.
- Limited number of compliance reviews capable of being conducted by current IDOT personnel.
- Inability to accurately identify intrastate not-for-hire carriers.
- Trucking industry push for higher speed limits, larger and heavier trailers, multiple trailers and access to more state and local routes.
- Delivery of real-time road information such as congested routes and unexpected backups.
- Lack of destination sites willing to allow access for motor coach inspections.

Recent Implemented Strategies

Engineering

- Implemented the Commercial Vehicle Information Systems and Networks (CVISN).
- Implemented the Performance Registration Information Systems Management (PRISM).
- Innovative use of MCSAP funds (i.e., work zones)

Enforcement

- Implemented commercial driver license requirements mandated by the Motor Carrier Safety Improvement Act of 1999.
- Utilized ISP Motor Carrier Safety Assistance Program (MCSAP) focused on CMV speed enforcement. The campaign also emphasized interaction of non-CMV's operating in the vicinity of CMV's.
- Information obtained from IDOT Traffic Safety regarding roadside hireback activities performed by IDOT compliance officers.

Proposed Strategies

Engineering

- Identify high-crash corridors and initiate appropriate engineering and enforcement interventions.
- Continue to work on the accuracy and timeliness of data submitted to federal databases.
- Pursue use of ITS or use of "detectors" and message boards to communicate congested areas and back up occurrences to truck drivers.
- Increase the number of weigh stations since new technology allows quicker inspections.
- Add large truck exterior lighting to indicate restraint usage.

- Utilize NCHRP Report 500 - Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks.
- Implement other strategies identified in the Illinois' annual MCSAP.
- Investigate all recent implemented strategies for success.

Enforcement

- Pursue legislation to prevent triple trailers.
- Train local, ISP, Illinois Commerce Commission (ICC), and Secretary of State (SOS) police to "cross enforce" safety laws.
- Work with local training boards to train officers to properly identify carriers to accurately report crash data.
- Aggressively identify carriers with recurring unsafe practices.

Education

- Illinois Citizens for Safer Roads work to address safety issues concerning the weight and size of large trucks.
- Conduct a survey to establish a baseline for seatbelt usage among CMV drivers.
- Education and awareness to trucking population about the risks of drowsy driving.
- Promote in-cab video monitoring of commercial drivers.

Successes

- As a result of ISP enforcement campaign, it was reported that as of Jun 25, 2006 there were 1,196 CMV inspections, 40 CMV out of service, and 49 CMV drivers placed out of service. This also resulted in 471 citations, including 189 speeding citations and 49 seatbelt citations.
- Officer enforcement training and drilling this initiative as a priority to officers through the chain of command.
- Enforcement details/blitzes.
- Terminal inspections are a proactive high road means of improving compliance.
- Ability to conduct motor coach inspections at New Salem State Park and the Illinois State Fair.
- New Entrant Auditors hired and conducting reviews as of December, 2005.
- ISP moving forward with plans to include electronic inspection software on the IWIN devices for ISP field personnel.
- The blind zone stickers on the back of large trucks are useful in reminding motorists where not to be.

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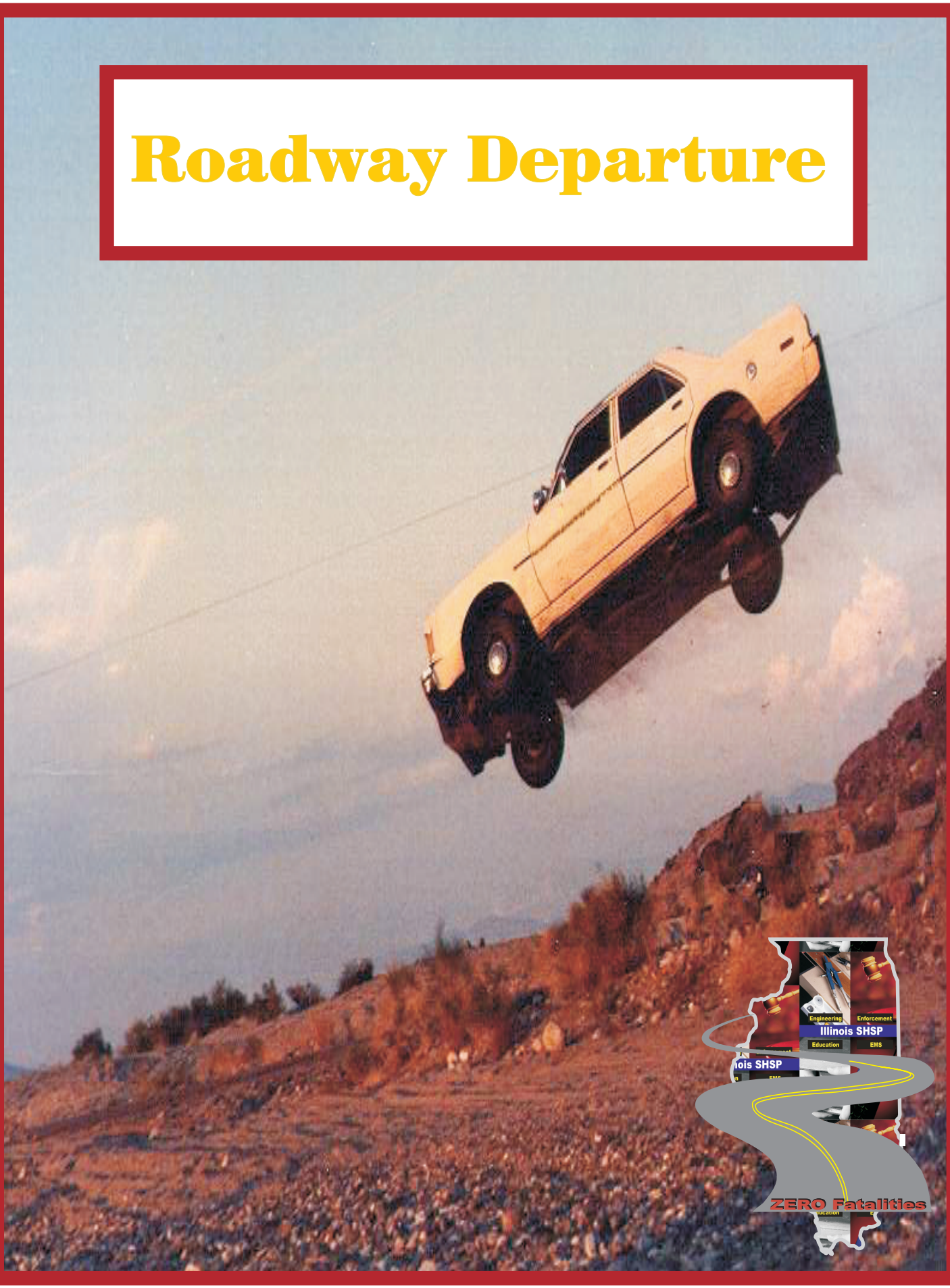
Roadway Departure



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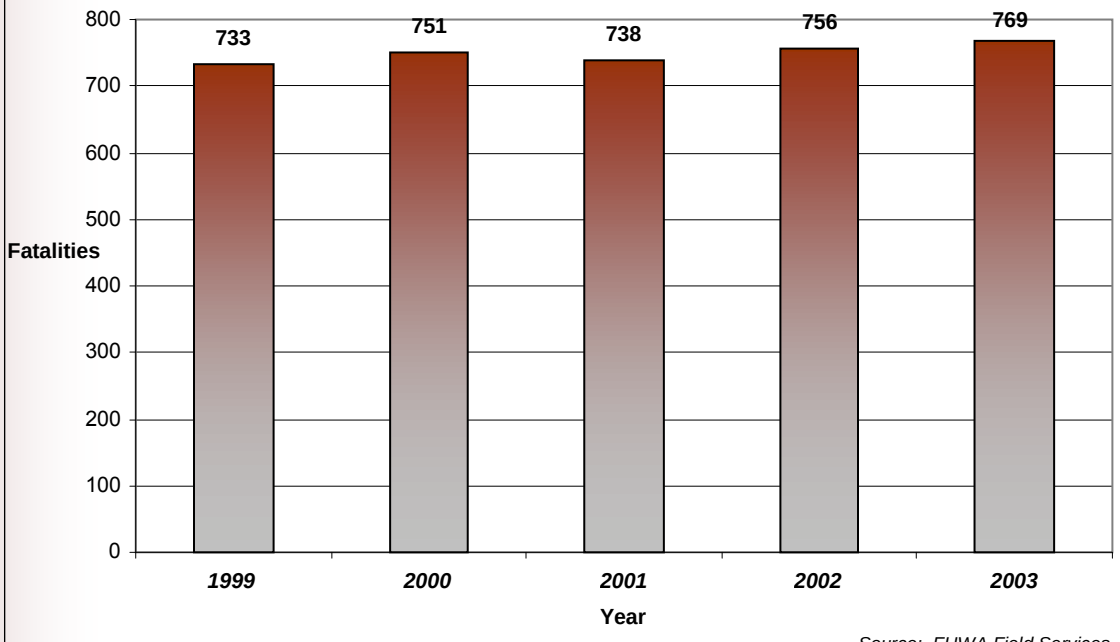
Roadway Departure

Background

Each year, roadway departure crashes account for more than 700 deaths, or about half of all Illinois highway fatalities. One of the most serious roadway departure crashes is a "head-on" crash, which occurs when a vehicle departs its travel lane and collides with an oncoming vehicle. Another roadway departure crash that often results in fatalities and life-altering injuries is a "run-off-road" crash, which occurs when a vehicle departs its travel lane and collides with a fixed object or overturns.

The ideal solution to roadway departure crashes is to keep vehicles from leaving the travel lane. One means of doing so is to identify cost-effective strategies that reduce unintentional roadway departures. For events when departure is imminent, the primary objective is to alert the driver beforehand. The secondary objective is to assist the driver in safely returning to the travel lane and minimize the consequences of departure by creating clear zones along the roadside. The most common fixed objects involved in run-off-road crashes are trees, and the results of such crashes are generally quite severe. Nationally, fatal tree crashes account for 8 percent of all traffic fatalities, with 90 percent occurring on two-lane roads.

Figure 11. Illinois Roadway Departure Fatalities



Source: FHWA Field Services

Utility poles represent one of the more substantial objects that are intentionally placed on roadsides, and the United States has more than 88 million utility poles on highway right-of-way. Due to a pole's structural strength and small vehicle contact area, crashes involving them are often severe and are second only to trees for fatal fixed-object crashes.

Challenges

- Inaccurate crash locating from crash reports.
- Data issues regarding local system roadway characteristics and inventory.
- Lack of a common local reference system.
- Identification of driver and roadway causal factors.
- Instances of suicide unknown.
- Retro-reflectivity maintenance of signs.
- Development and retrofit of improved and crashworthy roadside hardware.
- Provide budget to allow Districts and BSE to identify locations where low cost safety improvements could be made for near immediate benefits.
- Processes and funding need to be developed to assess crashes and crash locations and inform and empower Operations to make immediate low cost improvements. Operations (Dist/CO) needs to be represented in the SHSP implementation team.
- Cable median barriers have little maintenance funding allocated.
- Cable median barrier installation program should identify high crash injury locations to determine where they will be included. To be cost effective, cable median barriers must be used where it can be expected to reduce fatal cross median crashes.
- In some states there have been issues with cable median barrier anchors. They tend to creep or otherwise move under loading. Larger anchors can be designed based on site specific conditions.
- Limited resources to upgrade or rebuild existing roadway infrastructures.
- Geographical constraints of EMS response capabilities and "911" range.
- Determination of accurate impact of deer crashes.
- Lack of trauma centers in lower half of the state.
- Malpractice crises limit the surgical resources available in some trauma centers and prevent recruiting effort for potential trauma centers.

Recent Implemented Strategies

Engineering

- Installed milled-in rumble strips to both shoulders of Interstate roadways.
- Installed centerline milled rumble strips on a major bridge.
- Updated IDOT's Resurface, Restoration, Rehabilitation (3R) policy, directing levels of improvement in pavement width, shoulder width and type, and roadside clearing and barrier installation.
- Continued IDOT's Hazard Elimination Safety Program through annual identification of high crash locations.
- Installed only new guardrail end sections that pass NCHRP 350 crash testing requirements.
- Installation of cable median barrier and Nucor cable.
- The adoption of the Midwest Guardrail System will be reflected in the January 2007 Highway Standards. Testing has shown that this guardrail system provides significant improvements in the performance envelope (slopes, guardrail height, and taper rates). This should reduce severe results from crashes into the guardrail.

Emergency Medical Services

- Enhanced county 911 systems to coordinate with highway road signs.

Proposed Strategies

Engineering

- Initiate and participate in Road Safety Assessments.
- Develop standard operating procedures for implementing roadway safety improvements such as:
    - Centerline rumble strips and stripes
    - Shoulder rumble strips and stripes
    - All-weather pavement markings
    - Wide pavement markings
    - Raised pavement markings
    - 3-D tape
    - Alignments meeting minimum design speeds
    - Improved shoulders
    - Directional signs
    - New median barrier devices and installations
    - Passing lanes on rural two-lane roads
    - NCHRP 350 crash tested devices
- Apply forgiving roadway design concepts such as:
    - Fixed object removal and relocation
    - Barrier protections of fixed objects
    - Adequate clear zones
    - Flattened slopes
- Provide training to local agencies on roadside safety design.
- Implement asset management for roadside safety features.
- Expand and maintain roadway visibility features.
- Implement greater legibility standards, including Clearview Font, for sign fonts.
- Evaluate the use of Intelligent Transportation Systems (ITS) to alert traffic of errant vehicles.
- Develop processes and funding to make Operations a working partner to implement immediate low cost safety improvements.
- Look into processes to identify and fund improvements that can be implemented by Operations.
- Utilize NCHRP Report 500 - Volume 3: A Guide for Addressing Collisions with Trees in Hazardous Locations.
- Utilize NCHRP Report 500 - Volume 4: A Guide for Addressing Head-On Collisions.
- Utilize NCHRP Report 500 - Volume 6: A Guide for Addressing Run-Off-Road Collisions.
- Utilize NCHRP Report 500 - Volume 7: A Guide for Addressing Collisions on Horizontal Curves.
- Utilize NCHRP Report 500 - Volume 8: A Guide for Addressing Collisions Involving Utility Poles.
- Investigate all recent implemented strategies for success.
- Evaluate the effectiveness of cable barriers.

Enforcement

- Develop a procedure for law enforcement officers to request engineering assessments of crash sites.
- Provide selective enforcement directed at speeding and impaired driving.

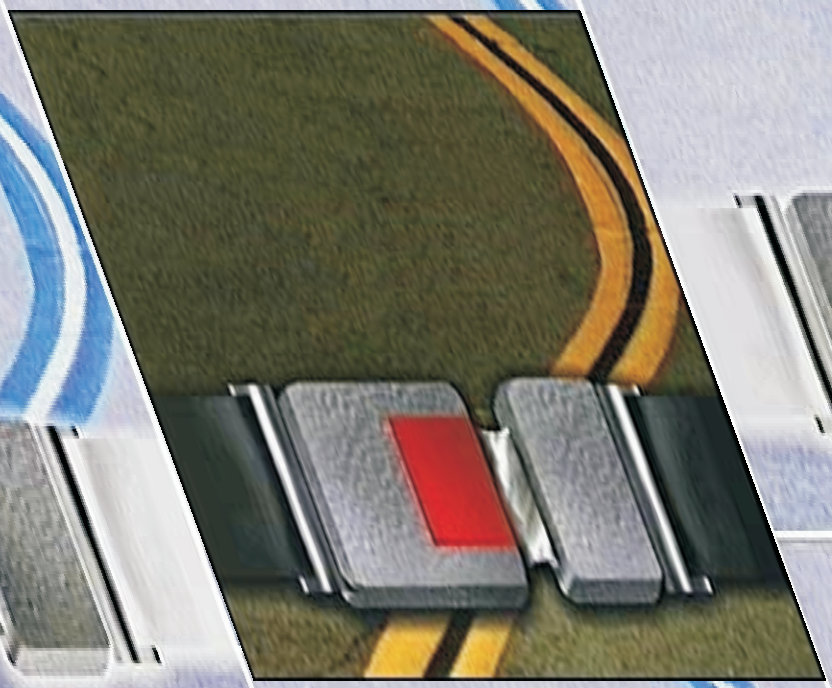
Education

- Train and educate drivers to safely recover after leaving the roadway.
- Implement driver awareness programs on the dangers of impaired, fatigued, and distracted driving.

Emergency Medical Services

- Update, enhance, and maintain 911 systems and databases to better facilitate EMS response.

Safety Belts/Occupant Protection



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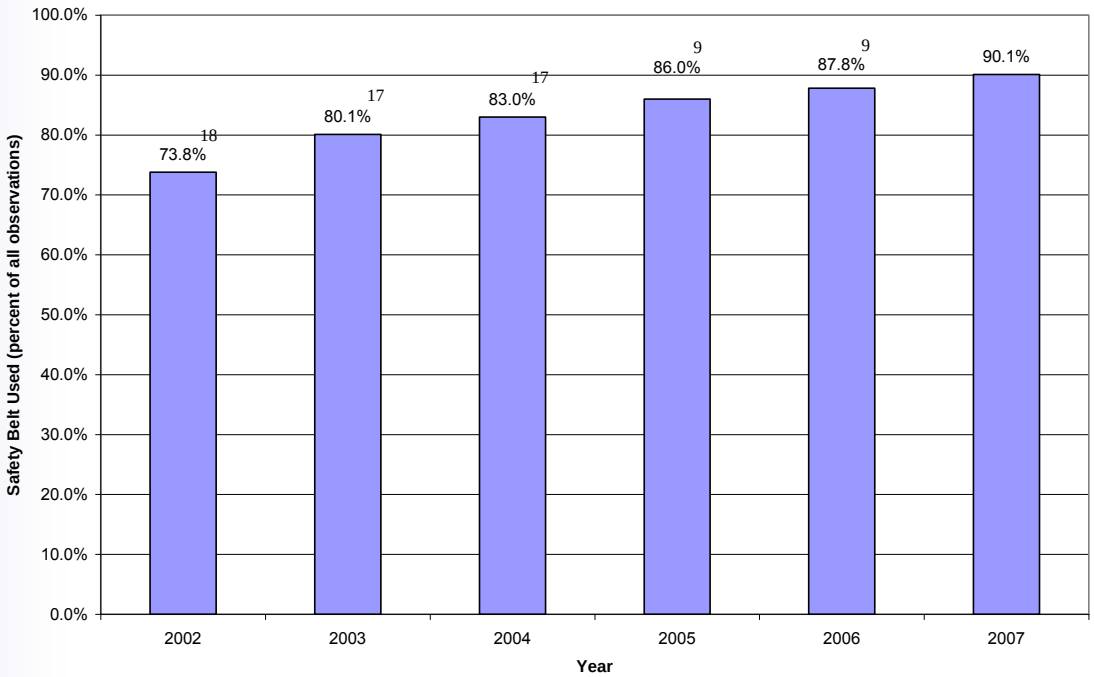
Safety Belts/Occupant Protection

Background

According to NHTSA, proper use of passenger restraints is the single most cost-effective and immediate means of reducing motor vehicle deaths and injuries. Drivers and occupants are becoming more aware of the importance of using safety belts, how to properly use them, and how to properly position children using safety restraints within air bag-equipped vehicles.

Safety belt usage in Illinois started increasing in the early 1990s but began leveling off and declining during the late 1990s. In July 2003, Governor Blagojevich signed the primary safety belt enforcement bill into law, making it possible for law enforcement to stop and ticket drivers based solely on a safety belt violation. Consequently, Illinois now has primary enforcement for the driver and front passenger, as well as an elevated child restraint requirement.

Figure 12. Illinois Observed Front Seat Safety belt Usage



In fatal crashes where occupant restraint usage was reported, 49 percent of those killed were not wearing safety belts. The statewide safety belt usage rate rose from 73.8 percent in 2002 to 90.1 percent in 2007. Refer to Figure 12. According to NHTSA, this increase translates into an estimated 90 lives saved and 2,791 injuries prevented. An overall increase in restraint usage, for both children and adults, will continue to decrease vehicular fatalities in Illinois. Public information and education campaigns, such as “Click It or Ticket,” have also increased

[17] *NHTSA Traffic Safety Facts 2004. Data Occupant Protection*
[18] *NHTSA Traffic Safety Facts 2003. Data Occupant Protection*

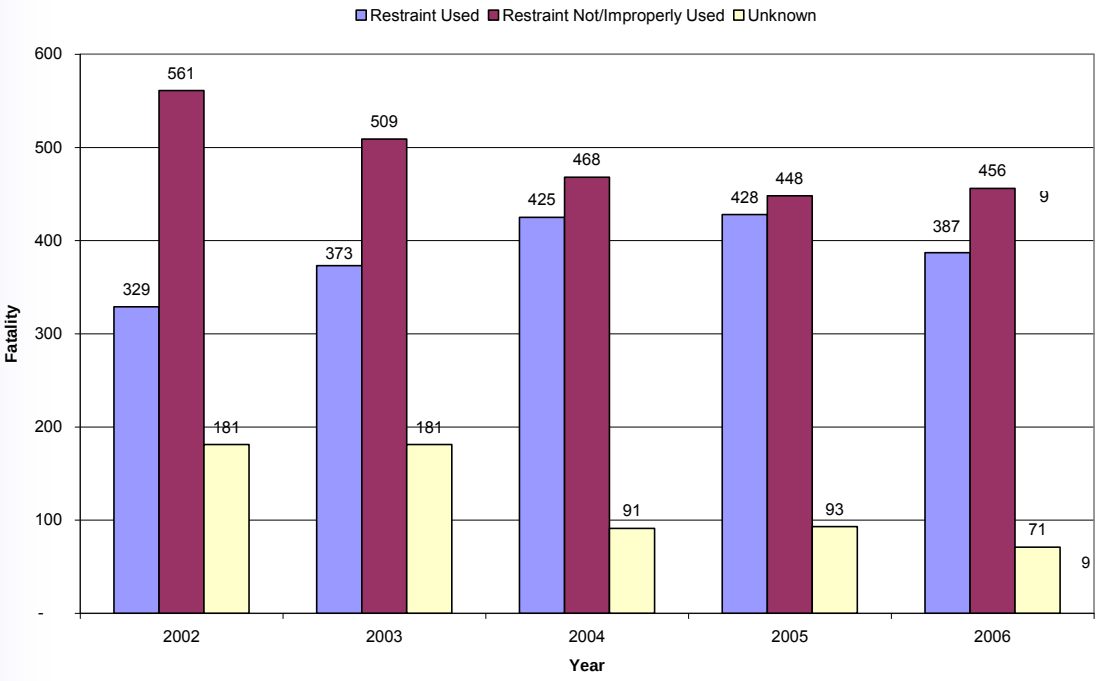
awareness on the importance of safety belt usage throughout the state. Furthermore, the fine for a violation is $25 plus a $55 required bond.

State and national fatality and injury data show that men ages 16-34 are most likely to be involved in a crash and least likely to be wearing safety belts. This group, identified as "at-risk," also engages in other high-risk driving behaviors such as speeding and reckless and impaired driving. Improving safety belt usage of this group will significantly decrease vehicular fatalities.

According to NHTSA, nearly 73 percent of child restraints are improperly used. Research on the effectiveness of child safety seats in passenger cars has found them to reduce fatal injuries for infants (children less than one-year-old) by 71 percent and by 54 percent for toddlers (children one- to four-years-old). For infants and toddlers placed in light trucks, the corresponding reductions are 58 percent and 59 percent, respectively.

On January 1, 2004, the Illinois Child Passenger Protections Act was amended to require that children under the age of eight must be secured in an appropriate child safety seat. A violation of the act is punishable by a fine of not more than $50 waived upon proving possession of an appropriate child restraint system. A subsequent violation of this Act is punishable by a fine of not more than $100.

Figure 13. Illinois Occupant Fatalities [19]



Source: Fatality Analysis Reporting System (FARS) Internet

Challenges

- Accurate crash reporting of restraint usage.
- Separation of not applicable and unknown usage on crash report.
- Limited public awareness of consequences of non-usage (i.e., fines, injury, death, etc.).
- Difficulty in reaching "at-risk" group (males ages 16-34).
- Limited personnel available to enforce occupant restraint laws.

[19] *FARS website: Occupants of Cars and Light Truck Killed in Crashes, www.fars.nhtsa.dot.gov/trends/trendsRestraints.aspx*

- Difficulty in determining safety belt usage in moving vehicles.
- Racial profiling concerns.
- Language barrier to educate Hispanic populations.

Recent Implemented Strategies

Enforcement

- Increased high-visibility law enforcement efforts.
- Provided incentives to law enforcement for their efforts.
- Continued implementation of IDOT's Highway Safety Plan initiatives:
    - Funded Speeding and Traffic Accident Reduction (STAR) programs enabling Secretary of State Police to utilize roving patrols
    - Promoted Child Passenger Safety initiatives among small law enforcement agencies
    - Enabled increased ISP enforcement of occupant protection laws
    - Provided hireback hours during enforcement campaign periods

Education

- Identified and focused efforts on nonusers and part-time belt users.
- Supported public information and education campaigns, including earned and paid media.
- Educated Latino populations with low seatbelt usage in their language as follows:
    - Translated Safety Belt usage and Child Safety Seats material into Spanish.
    - Provided educational programs and demonstrations at area schools, churches and organization centers in Spanish.
    - Provided minority High School students with the "Street Smart" program which gave students a realistic and graphic view of the consequences of failure to wear a safety belt.
    - Provided Child Safety Seat checks throughout the State to educate, demonstrate and provide information in Latino communities in the proper use of child seats.
    - Attended various health, wellness and safety fairs to provide information on the use of safety belts.
    - Utilized Spanish media outlets to provide special segments and programs dedicated to discuss the statistics and importance of safety belt usage within the Latino community.
- Continued implementation of IDOT's Highway Safety Plan initiatives:
    - Funded "Click It or Ticket" paid media and campaign efforts
    - Revitalized "Saved by the Belt" program
    - Funded the Protectors Program
    - Enabled purchasing of child safety seats and promotional material to demonstrate proper usage
    - Continued operation of child passenger safety resource centers
    - Maintained five child safety seat installation check locations
    - Funded child safety seat technician training

Proposed Strategies

Engineering

- Improve crash reporting accuracy.
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Utilize NCHRP Report 500 - Volume 11: A Guide for Increasing Seatbelt Use.
- Investigate all recent implemented strategies for success.

Enforcement

- Increase fines for not using safety restraints.
- Aggressively enforce occupant restraint laws.
- Enhance "Safety Belt Enforcement" programs at the local level.

Education

- Increase public awareness of consequences of non-usage (i.e., fines, injury, death, etc.).
- Provide safety belt/occupant protection literature to increase awareness via:
    - Safety partner facilities
    - Project public information meetings
- Identify and focus efforts on underserved and at-risk populations.
- Educate children at a young age on the importance of wearing a safety belt.
- Survey focus groups, such as by school district, age group, short distance travel, etc., on safety belt usage.
- Provide funding to local organizations to assist IDOT in addressing and educating communities that currently have a lower percentage of safety belt compliance.
- Educate parents and other caregivers on proper child restraint selection and installation.
- Determine quantity of child safety seats needed to sufficiently address the low socio-economic community.
- Incorporate child passenger safety into "Click It or Ticket" mobilizations.

Successes

- The 2005 annual safety belt survey in Illinois showed a statewide compliance rate of 86%.

Vulnerable Users

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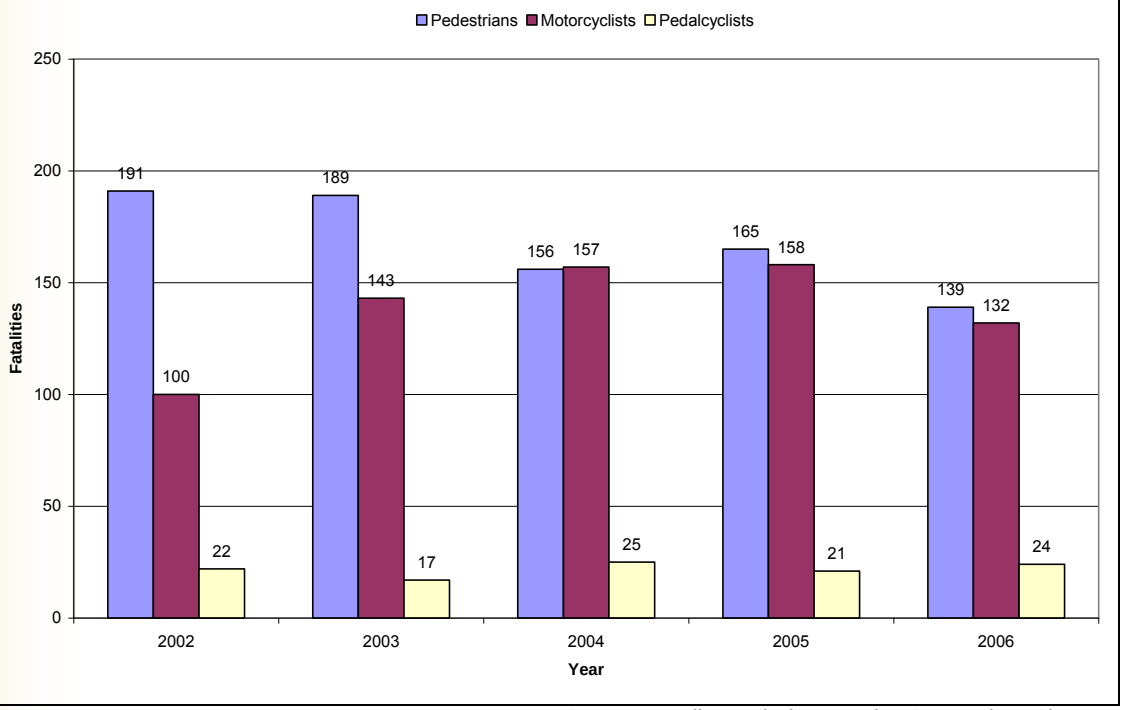
Vulnerable Users

Background

Traffic is a relatively broad term that encompasses more groups than just passenger cars and large trucks. Pedestrians, pedalcyclists, motorcyclists, and other alternative transportation mode users, all deemed "vulnerable users," are part of the everyday roadway environment and attention should be paid to their presence. Even though vulnerable users are legitimate roadway users, they are frequently overlooked in the quest to develop today's transportation systems, and understanding the associated traffic safety issues has proven difficult for engineers and planners.

Figure 14. Illinois Vulnerable User Fatalities [20]



Source: Fatality Analysis Reporting System (FARS) Internet

In 2006, 139[20] pedestrians were killed and 6,221[1] were injured in Illinois traffic crashes. Over 95[1] percent of all reported pedestrian crashes occurred in urban areas. Although pedestrian crashes make up less than two percent of all traffic crashes, pedestrian fatalities account for over 11[1] percent of all Illinois traffic fatalities. Furthermore, approximately one-third of these killed pedestrians had been drinking.

From 2002 to 2005, motorcycle fatalities increased by 50 percent, totaling 158[20] motorcycle riders killed in 2005 or 11.6[13] percent of all traffic fatalities in 2005. In the same time period, registered motorcycles increased from 237,319 to 254,643. In 2006, motorcycle fatalities decreased by 16 percent with 132 fatalities.

[20] *FARS website. Persons Killed by Person Type and Vehicle Type. www-fars.nhtsa.dot.gov/trends/trendsGeneral.aspx*

Pedalcyclist fatalities from 2002 to 2006 range from 17 to 25 fatalities. The number of pedalcyclist fatalities increased from 2003 to 2004 by 47 percent. Refer to Figure 14.

Challenges

- Resistance to and lack of a mandatory motorcycle helmet law.
- Roadways with speed bumps that are safer for motorcyclists.
- Impaired pedestrians.
- Nighttime vulnerable user conspicuity.
- Limited pedestrian crash and exposure data.
- Lack of pedestrian advocacy groups.
- Lack of marked and lighted crossings and sidewalks.
- Incorporation of pedestrian facilities into all road projects.
- 50/50 state and local cost sharing.
- Local agency concern for exposure to liability.
- Capture of accurate crash data.
- Combination of contributing driver and vulnerable user factors.
- Educating citizens as to the dangers of exiting their vehicle onto the roadway after involvement in a crash, or motor vehicle break-down.
- Increasing number of cyclists and pedestrians since gas prices continue to increase.
- Accommodations for bicycles/pedestrians in urbanized areas (13 ft outside lanes) are not enough.
- Increase awareness of pedestrians, pedal cyclists and motorcyclists to the dangers of walking/riding behind vans and large trucks.
- Increased recognition by the engineering community of the need to make provisions for all modes of transportation.

Recent Implemented Strategies

Engineering

- Increased roadway safety enhancements:
  - Countdown pedestrian crosswalk signals
  - Enhanced roadway lighting
  - In-pavement lighting
- Continued analysis and problem identification of motorcycle crash data.
- Consideration of use of roundabouts as a tool for improving pedestrian safety.

Education

- Implemented “Safe Routes to School” programs.
- Continued implementation of IDOT’s Highway Safety Plan initiatives:
  - Funded a 50,000-copy reproduction of “Safe Bicycling in Chicago” in Spanish and English
  - Funded a motorcycle assessment to review program administration, personal protective equipment, rider education, licensing, and impaired riding

Proposed Strategies

Engineering

- Identify locations having disproportionately large numbers of vulnerable user crashes.

- Increase lighting at high-crash locations.
- Improve pedestrian signing and pavement markings.
- Update existing and prepare new guidelines for pedestrian facilities at new construction and reconstruction projects.
- Include additional sidewalks in roadway improvements, particularly for urban/suburban areas. Revise sidewalk participation policy to reduce local cost share, thereby, encouraging inclusion of sidewalks in roadway projects.
- Increase state financial contributions for pedestrian facilities.
- Participate in NCHRP "Lead City" program for pedestrian safety (Chicago Area Transportation Study (CATS) and Chicago Department of Transportation (CDOT).
- Continue implementing and developing IDOT's Highway Safety Plan initiatives.
- Utilize NCHRP Report 500 - Volume 10: A Guide for Reducing Collisions Involving Pedestrians.
- Investigate all recent implemented strategies for success.

Enforcement

- Pursue legislation for a mandatory motorcycle helmet law.
- Propose legislation, similar to California, to give pedestrians right-of-way.
- Increase enforcement and education at identified high-crash zones.
- Consider further use of cops on bikes to improve pedestrian and pedal cyclist safety.
- Ticket pedestrians who violate the law.

Education

- Promote programs to discourage drinking and motorcycling.
- Increase pedestrian and bicycle safety education programs in schools.
- Encourage communities to enact local mandatory bicycle helmet ordinances.
- Implement bicycle helmet distribution programs.
- Pursue further "Safe Routes to School" programs.

Successes

- Many jurisdictions have added bicycle lanes and bicycle paths specifically for bicyclists to minimize their presence on roadways.
- Marking designated bike routes and providing maps to local bike groups increases ridership on the safest routes.

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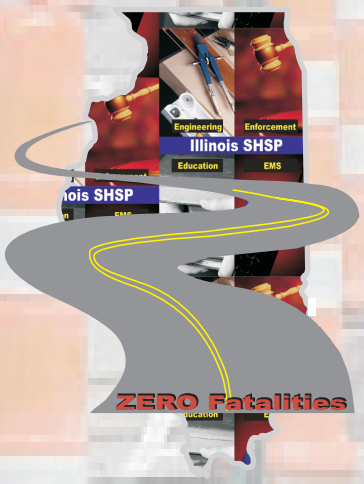
Work Zones


HIT A
WORKER
$10,000 FINE
14 YRS JAIL


Engineering
Enforcement
Illinois SHSP
Education
EMS
ZERO Fatalities

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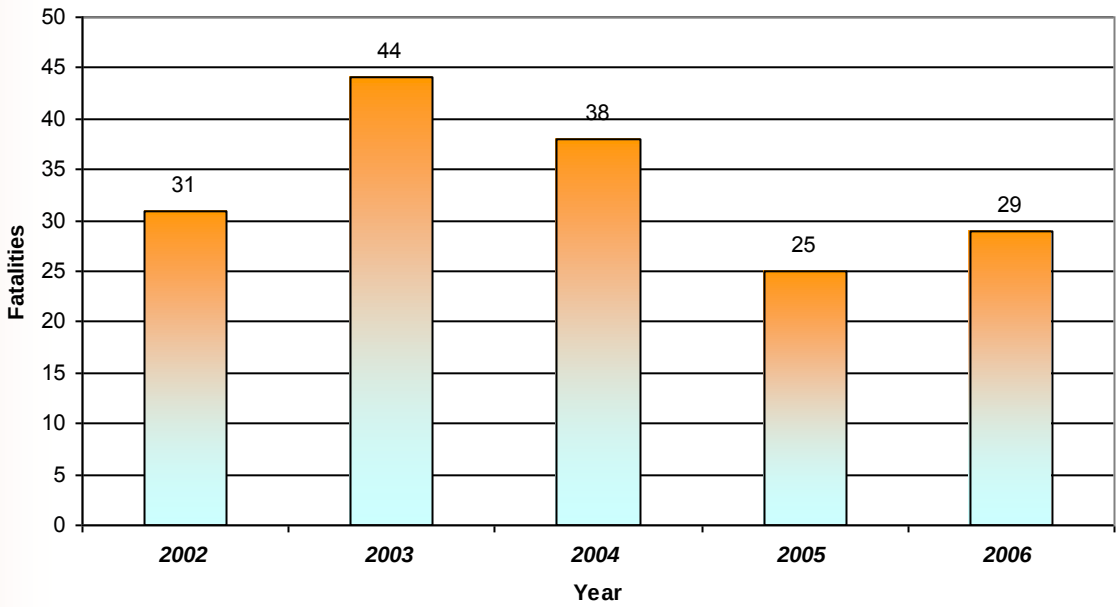
Work Zone

Background

Each year, hundreds of work zones present hazards, inconveniences, and delays to motorists. The definition of a work zone-related motor vehicle crash is a crash that occurs in the vicinity of a work zone (construction, maintenance, or utility) or within an area marked by signs, barricades, or other devices. This designation does not imply that the crash was caused by the work activity or zone. In 2006, work zone crashes supplied two percent of all Illinois fatalities and 20 percent of Interstate fatalities. These percentages are the result of 8,326 Illinois work zone crashes, 23 of which were fatal. These crashes left 27 roadway users dead, including 1 worker and 1 pedestrian.

In Illinois, disproportionate numbers of work zone fatalities occur on the Interstate system and involve large trucks. Furthermore, most crashes in 1999 occurred during the morning and afternoon rush "hours." This trend has shifted, and a majority of crashes are now occurring late at night or during early morning hours. To improve work zone safety and address current trends, increased communication, coordination, and cooperation among stakeholders is necessary. To facilitate this process, IDOT has a Work Zone Safety Committee that was created by legislation in response to high-profile fatal crashes and includes a wide range of representatives.

Figure 15. Illinois Work Zone Fatalities [3]



Source: Illinois Crash Facts & Statistics (2002-2006)

Challenges

- Inaccurate crash locating from crash reports.
- Speed enforcement and driver behavior in work zones.
- Maintenance of proper work zone signing and traffic control devices.
- Turnover of public and private work zone personnel.
- Relationship between contractors and unions for addressing safety issues. Work zone barricades and detour areas should be established for worker and driver safety.
- Development and implementation of cost-effective ITS and other emerging technologies to improve mobility and safety.
- Limited resources for public agency and industry personnel training.
- Limited resources to develop and conduct public outreach campaigns.
- Delivery of real-time work zone information to the traveling public.
- Determine cost-effective ways to vary the speed limit in a work zone to reflect the type and/or existence of construction work taking place.
- Make it clear to motorists that work zone speeds are enforced at all times in the work zone, regardless if construction/work is underway at that particular time.
- Driver compliance with laws, especially in work zones, even if enforcement is not there. Queuing beyond the work zone area.

Recent Implemented Strategies

Engineering

- Implemented several recommendations from the Governor's Work Zone Safety Task Force:
    - Revised highway standards to provide more consistent work zones on high-speed facilities
    - Enhanced use of stationary and portable changeable message signs in and near work zones
    - Revised highway standards to provide more consistent work zones on high-speed facilities
    - Enhanced use of stationary and portable changeable message signs in and near work zones
- Conducted work zone reviews with IDOT central office and FHWA staff.
- Continued the Illinois Road and Transportation Builders Association (IRTBA) Safety Committee.
- Redirected focus of the Work Zone Safety Committee.

Enforcement

- Implemented several recommendations from the Governor's Work Zone Safety Task Force:
    - Revised legislation to clarify the definition of work zone speeding
    - Increased minimum fine for speeding to $375 for the first offense and $1000 for the second offense
    - Legislatively enabled photo speed enforcement in work zones
    - Photo radar vans
    - Increased the use of police authority in work zones
    - Implemented ISP hireback program and increased its funding
    - Implemented "Trooper in a Truck" program

- Implemented “Scott’s Law” regarding proper action in response to emergency vehicles in the roadway and added “Hit a Worker” signs to construction projects.
- Continued implementation of IDOT’s Highway Safety Plan initiatives: Funded local police departments to conduct Work Zone Safety patrols to reduce speeds and increase worker safety.

Education

- Provided work zone training and information for public agencies and industry personnel.
- Initiated a plan for the Work Zone Public Relations Committee.

Proposed Strategies

Engineering

- Identify contributing factors for fatal work zone crashes.
- Provide real-time work zone information to the traveling public with frequent updates..
- Utilize ITS technology to provide accurate queuing information.
- Pursue use of “detectors” and message boards to communicate to motorists when a backup occurs.
- Provide improved signage and lighting in work zone areas, so that instruction to the drivers are clear while traveling the work zone area.
- Lengthen the narrowing and serpentine distance in advance of work zones on highly traveled roadways.
- Add rumble strips within and prior to work zones.
- Design enforcement “pull over” areas into roadway construction projects.
- Design work zones that larger vehicles, such as CMV’s, can pass safely.
- Implement innovative merge techniques.
- Work with contractors and labor unions to improve safety.
- Expand Work Zone Safety Committee membership to include engineering, enforcement, education, and emergency medical service organizations.
- Provide greater emphasis on publication of Work Zone Safety Committee (and IDOT) accomplishments, not only to the public, but also to IDOT employees.
- Expand membership into other organizations’ work zone safety committees.
- Continue implementing and developing IDOT’s Highway Safety Plan initiatives.
- Investigate all recent implemented strategies for success.

Enforcement

- Work Zone speed legislation is weak and needs improving. The registered owner needs to be responsible for the vehicle. Companies who own vehicles should be fined if they do not give up the employee who is speeding. Currently, there is nothing in legislation which allows for this.
- Increase enforcement at work zones and pull speed reductions when workers are not present.
- Pilot and implement photo speed enforcement as well as other innovative speed enforcement strategies.
- Pursue use of speed trailers to determine speed problem areas.
- Encourage scheduling of a meeting of the Article V Committee to consider issues pertinent to photo enforcement.

- Increase fines and penalties for contractors who do not properly construct work zone area barricades.
- Develop a procedure for law enforcement officers to request engineering assessments of crash sites.

Education

- Create a five-year strategic plan for outreach opportunities.
- Prepare and air public service announcements in coordination with work zone safety campaigns.
- "My mommy/daddy" signs are successful in gaining driver attention, but there is a challenge in how to get drivers to pay attention to the signage without being distracted by it.

Successes

- Fines have increased for violations within work zones.
- Having officers at work sites during peak hours has drastically reduced work zone speeds.
- Programs such as "Jack Hammer" (I-74 Project) have been successful in informing the public of what is being constructed. This has an added benefit in that motorists then tend to pay more attention to the road and less to staring at construction.
- The orange ribbon campaign has been effective within IDOT and the state police, but the general public needs to become aware of what the orange ribbon means.
- Public service commercials such as "Drive 45…Stay Alive" and signs such as the "My Mommy/Daddy Works Here" program have been major successes in getting the message across.

Next Steps

Implementation Teams will be created for all ten emphasis areas. Existing groups consistent with the emphasis areas will be utilized when possible and members will be representative of Engineering, Enforcement, Education, and Emergency Medical Services, including representation from IDOT's Bureau of Safety Engineering and Division of Traffic Safety. Implementation Teams will develop action plans, including priorities and detailed processes, to begin implementing strategies for the emphasis areas. Routine meetings will be held and minutes will be recorded to document past efforts, reviews of national databases, additional proposed strategies, and results from prior implementations. All information, data, and ideas will be assembled to create a "Tool Box" for each emphasis area.

Immediately following implementation, Result Assessment Units will begin measuring the success of implemented strategies through evaluation and investigation in order to determine their effectiveness. In particular, they will analyze whether crash numbers have increased or decreased and where they are being best influenced. Next the units will determine whether the strategies should be further implemented in other areas. Following their recommendations, strategies will be added, removed, or modified to enhance the safety of Illinois roadways.