

# CHAPTER 10

## MAKING TRANSPORTATION SAFER

### Background

The 2005 federal *Safe, Accountable, Flexible, and Efficient Transportation Equity Act-A Legacy for Users* (SAFETEA-LU) legislation included safety as one planning factor (23 CFR 450.306). Safety needs to be integrated into all phases of transportation planning, design, construction, maintenance, and operation.

In addition, SAFETEA-LU established a core safety program called the Highway Safety Improvement Program (23 U.S.C. 148), which introduced a mandate for Strategic Highway Safety Plans (SHSPs) that are collaborative, comprehensive, and based on accurate and timely safety data. An SHSP is a statewide coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. The SHSP strategically establishes statewide goals, objectives, and key emphasis areas developed in consultation with federal, state, local, and private sector safety stakeholders, as well as operators of other modes. Metropolitan and statewide transportation planners must be an integral part of the SHSP process. The goals, objectives, and strategies of the SHSP should be integrated into statewide and metropolitan transportation plans as well as Transportation Improvement Programs to place safety on par with other planning factors, particularly in choosing or evaluating new and continuing projects and initiatives.

23 CFR 450.306 (h) states that the metropolitan transportation planning process should be consistent with the SHSP, and other transit safety and security planning and review processes, plans, and programs as appropriate.

23 CFR 450.322 (h) encourages the inclusion of a safety element in the metropolitan transportation plan [regional long-range transportation plan] that incorporates or summarizes the priorities, goals, countermeasures, or projects for the planning area contained in the SHSP, as well as (as appropriate) emergency relief and disaster preparedness plans and strategies and policies that support homeland security (as appropriate) and safeguard the personal security of all motorized and non-motorized users.

### State Highway Safety Plan

In 2007, the state of Idaho approved its SHSP. Titled *Toward Zero Deaths: A Partnership to Develop Idaho's Comprehensive Highway Safety Plan*, the SHSP was a culmination of a collaborative process that involved state and local governments, tribal governments, various associations, the private sector, and other parties.<sup>1</sup>

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<sup>1</sup> *Toward Zero Deaths: A Partnership to Develop Idaho's Comprehensive Highway Safety Plan*. Idaho Transportation Association. 2007. Found on-line in March 2010 at <http://www.itd.idaho.gov/ohs/SHSP.htm>.

A draft update of the SHSP, dated June 8, 2010, is in process. Data from this draft will be identified as the 2010 SHSP. The 2010 SHSP includes data from 2004-2008. Note that Ada and Canyon Counties' data were extracted from the Idaho Transportation Department (ITD)'s *Web Crash Analysis Reporting System* (WEBCARS). Data for 2009 may be incomplete.

The Governor's Highway Safety Summit, "Toward Zero Deaths," was held in October 2005. Idaho stakeholders were invited to participate and answer the challenge of reducing highway-related fatalities and life-altering injuries. These stakeholders include 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 providing post-crash assistance (emergency medical services). Challenges and strategies were solicited from all participants. From their input, ten data-driven emphasis areas were identified to focus immediate efforts. These emphasis areas were:

1. Aggressive Driving
2. Commercial Vehicles
3. Emergency Medical Services
4. Highway-Railroad Grade Crossings
5. Impaired Drivers
6. Mature Drivers
7. Occupant Protection
8. Road Related Crashes
9. Vulnerable Users
10. Young Drivers

The 2010 update did not address rail crossings. The 2007 SHSP found that national and state fatality rates have declined since 1996. The national fatality rates (number per 100 million vehicle miles of travel or 100MVT) went from 1.69 deaths per 100MVT to 1.46. The corresponding state traffic fatality rate went from 1.84 deaths per 100MVT to 1.52 deaths per 100MVT (2010 SHSP). Idaho rates remained significantly higher than national rates and for two years, 2000 and 2003, rates increased. Higher percentages of travel on rural, high speed roadways could contribute to the higher rates.

The following extracts from the SHSP focus on those elements germane to the functions and roles of metropolitan transportation planning and programming. The SHSP includes a broad range of issues and strategies, many focusing on legislation, improved enforcement, public education, and targeted training (e.g., motorcycle operations). These strategies are certainly important in improving transportation safety, but their implementation is addressed under other processes than metropolitan system planning and investment.

## ***Aggressive Driving***

Aggressive driving behaviors are defined as:

- Failure to yield the right of way
- Following too close
- Disregarding a stop sign
- Disregarding a traffic signal
- Exceeded the posted speed limit
- Driving too fast for conditions.

Aggressive driving collisions are those where a law enforcement officer indicates that at least one aggressive driving behavior was a contributing factor. The SHSP includes the following as contributing to aggressive driving behavior:

- Increasing vehicle miles of travel, traffic congestion, and travel delays. These result in frustration and impatience, which are reflected in driver behavior.
- Age of drivers. Drivers, ages 19 and younger, are more than four times as likely to be involved in an aggressive driving collision as all other drivers.

The first cause would indicate that congested roads during peak hour would be more likely to experience a higher rate of aggressive driving and aggressive driving related crashes.

The SHSP noted a variety of challenges in addressing aggressive driving. Political and cultural issues (lack of respect, inadequate funding for enforcement) contribute to the issue. Two areas more germane to

*Communities in Motion* are:

- Technology – Funding/implementation of existing technology
- Systems (traffic flow) – Congestion

### **Implemented Strategies**

- A three-month intensive law enforcement campaign, in conjunction with other youth programs, targeting aggressive driving.
- A multi-media ad campaign targeting aggressive drivers to support the law enforcement campaign and to raise awareness.
- Year-long aggressive driving grants with agencies in area that experience a large number of aggressive driving-related crashes.
- Distribution of public awareness materials to educate the public regarding aggressive driving behaviors.
- Establishment of Selective Traffic Enforcement Program (STEP) Teams.
- Use of performance measures to identify focus areas.

## Potential New Strategies

- Technology
  - Increase number of traffic cameras
  - Increase number of dynamic message signs
  - Continue implementation of 511 system
  - Improvements to Web site with easy link
- Education – School programs (public service announcements, check 511, Web)
- Political – Pass primary seat belt law (would make Idaho eligible for additional safety funds)
- Systems (traffic flow)
  - High occupancy vehicle lanes, roundabouts
  - Predictable delay
  - Bypass
- People
  - Encourage reporting of inappropriate driving
  - Provide seat belt education/demos, such as “Seat Belt Barbie”; work to change attitudes of youth

## Implementation through *Communities in Motion*

The primary link with *Communities in Motion* is in the following areas:

- Planning and programming improvements to the intelligent transportation system (ITS) in collaboration with ITD, the Ada County Highway District (ACHD) and other transportation agencies. More information is provided in Chapter 7, which addresses operations and management techniques. Installation of cameras providing real-time information on traffic flows tied to a number of reader boards has been a major element of ITS during the past decade. ITD and ACHD have tied these cameras into web sites at <http://hb.511.idaho.gov/main.jsf> and <http://www.achdidaho.org/ATIS/Default.aspx>.
- Developing transportation system management approaches, including improved access management and intersection design. Corridor studies developed for State Highway 44 and US 20/26 both include access management plans that would not only improve travel flow but reduce accident rates by eliminating hazardous left turns at many locations.<sup>2</sup> COMPASS also sponsored an evaluation of “innovative” intersection designs in 2008.<sup>3</sup> A number of options were considered, including:

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<sup>2</sup> More information on these studies can be found at <http://itd.idaho.gov/Projects/D3/US2026Corridor/> and <http://itd.idaho.gov/Projects/D3/SH44Corridor/>.

<sup>3</sup> *Innovative Intersections: Overview and Implementation Guidelines*. Community Planning Association of Southwest Idaho. April 21, 2008. Submitted by Wilbur Smith Associates. On-line at [http://compassidaho.org/documents/planning/studies/Vol1\\_Implementation\\_Guidelines\\_Final\\_May30.pdf](http://compassidaho.org/documents/planning/studies/Vol1_Implementation_Guidelines_Final_May30.pdf).

- Continuous Flow Intersections
- Parallel Flow Intersections
- Town Center Intersections
- Median U-Turn (“Michigan Left Turn”)
- Quadrant Roadway Intersections
- Jug handle/Mini-Cloverleaf Intersections
- Roundabouts

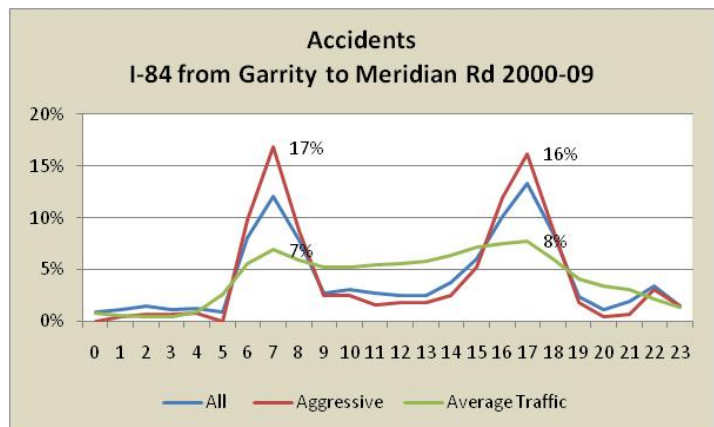


**Figure 10-1: Roundabout Example**

This study found that these types of intersections provided greater safety by reducing the number of conflict points, spreading them out, restricting and/or rerouting movements, or reducing the complexity of traffic signal phasing.

For example, when a roundabout is used (Figure 10-1), accident rates may not decline, but the severity of accidents is decreased by reducing the speed and force of collisions. The opportunity for head-on collisions is nearly eliminated. The Insurance Institute for Highway Safety sponsored research on 29 roundabouts and found “... a 39 percent overall decrease in crashes and a 76 percent decrease in injury-producing crashes. Collisions involving fatal or incapacitating injuries fell as much as 90 percent.”<sup>4</sup> While concerns about pedestrian safety remain, properly design roundabouts such as that depicted above contribute to pedestrian safety by reduced speed and the provision of refuge islands.

Congested corridors and aggressive driving could be an issue in the region. An analysis of traffic accidents on one stretch of I-84 between Garrity Boulevard and Meridian Road (Figure 10-2) appears to demonstrate that a much higher percentage of accidents occur during peak hours.<sup>5</sup>



**Figure 10-2: Accidents on I-84**

A combination of congested roads with much less distance between vehicles and aggressive driving shows that the percentages of accidents in the morning and evening peak are double the peak traffic volume percentages. The most common accident is a rear end, with 80% of the aggressive driving citations. Aggressive driving accidents constituted 61% of the 809 accidents occurring on this stretch of highway.

<sup>4</sup> “Status Report.” Insurance Institute for Highway Safety. May 13, 2000. Vol.35. No. 5. Found on-line in March 2010 at <http://www.iihs.org/externaldata/srdata/docs/sr3505.pdf>.

<sup>5</sup> Crash data shown in this chapter were extracted from the Idaho Transportation Data website Web Crash Analysis Reporting System (WEBCARS) at <http://apps.itd.idaho.gov/apps/webcars/Default2.aspx>.

## ***Commercial Vehicles***

Commercial motor vehicles are defined as buses, truck tractors, truck-trailer combinations, trucks with more than two axles, trucks with more than two tires per axle, or trucks exceeding 8,000 pounds gross vehicle weight that are primarily used for the transportation of property.

The 2010 SHSP found that in 2008, 36 people died in collisions with commercial motor vehicles, representing 16 percent of all motor vehicle fatalities in Idaho. Of persons killed in collisions with commercial motor vehicles, 61 percent were occupants of passenger cars, vans, sport utility vehicles, and pickup trucks.

In 2008, 56 percent of all collisions and 73 percent of all fatal collisions involving commercial motor vehicles occurred on rural roadways. Rural roadways are defined as any roadway located outside the city limits of cities with a population of 5,000 or more. The majority of fatal commercial motor vehicle collisions (55 percent) occurred on U.S. and state highways, although the majority of total accidents involving commercial vehicles occurred on local roadways. These statistics point to the relationship of higher speeds in rural areas, particularly on state highways in fatal accidents.



### **Challenges**

- Enforcement - safety violations, rumble strips enable driver inattention, lack of enforcement by local officers, drivers using drugs and alcohol. Too little overweight enforcement, driving too fast, trucks pulling triple trailers going too fast, drivers can't see triple trailer.
- Education/Attitudes - fatigued drivers, heavy vehicles hitting lighter ones, safety devices only required on vehicles weighting more than 6500 lbs, trucks not yielding to traffic entering the interstate.
- Improved Laws - uncovered loads, no chain-up law in Idaho in bad weather, exemptions: intrastate operations like logging, agriculture, and sand and gravel, unsafe passing.

### **Recent Implemented Strategies**

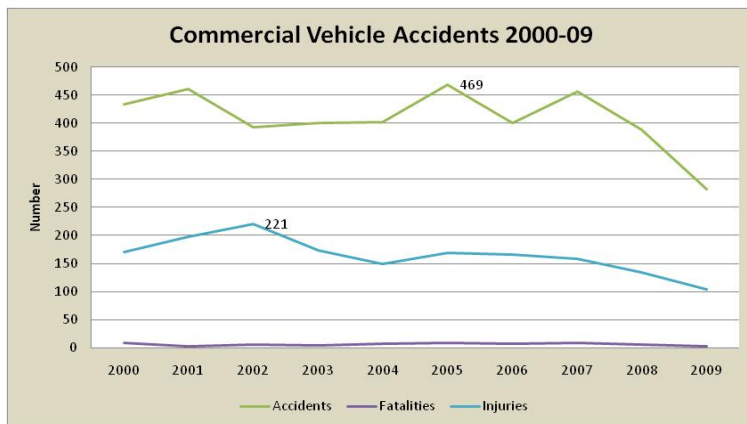
- Established partnerships to address low seat belt usage among commercial motor vehicle (CMV) drivers.
- Distributed informational brochure regarding positive effects of CMV seat belt usage.
- Used Commercial Vehicle Information Systems and networks to improve quality and timeliness of enforcement of CMV laws.
- Used a proactive approach of education and enforcement for passenger carriers.
- Targeted identified commercial vehicle high crash corridors and provided funding for partner agencies to enhance education and enforcement of hazardous moving traffic violations by CMVs.
- Improved accuracy and timely submission of crash reports.

## Potential New Strategies

- Improve laws and enforcement.
- Increase the number of Commercial Vehicle Safety Officers.
- Get (or gain) legislative and Idaho State Police buy-in to increase the number of full time employees.
- Use the available federal funding currently left on the table.
- Get unsafe vehicles off the road by reducing exemptions from laws and safety standards for intrastate vehicles.
- Legalize sobriety checkpoints, mandate judicial support of laws by instituting mandatory penalties for impaired driving, provide a driving under the influence (DUI)/drug court in every Idaho county with supervised DUI probation
- Implement automated enforcement of aggressive driving infractions, educate non-CMV drivers on aggressive driving around CMVs and its impact on fatality numbers in Idaho.

## Implementation through *Communities in Motion*

Only two areas noted were germane to the physical transportation system: rumble strips to enable driver attention and unsafe passing (added passing lanes). While not specifically noted in the SHSP, identification of and improvements to high truck traffic routes and facilities would also be a strategy. *Communities in Motion*



**Figure 10-3 : Commercial Vehicle Accidents in Ada and Canyon Counties**

identifies a number of corridors, especially I-84, in need of major widening. Between 2000 and 2009, there were more than 5,064 accidents involving commercial vehicles within Ada and Canyon Counties (Figure 10-3). The number of commercial vehicle accidents peaked in 2005 and has declined since. A sharp drop in the number of accidents between 2007 and 2009 is likely related to the economic downturn. These accidents resulted in 61 fatalities and 2,035 injuries between 2000 and 2009.

Not surprisingly, I-84 accounted for 856 of the accidents, 17 fatalities, and 402 injuries. This does not include overpass or interchange ramp accidents. Other high commercial vehicle accident corridors include:

- Eagle Road – 242 accidents, 1 fatality, 117 injuries
- Franklin Road – 116 accidents, 0 fatalities, 52 injuries
- Chinden Boulevard (US 20/26) – 140 accidents, 1 fatality, 48 injuries
- Cole Road – 125 accidents, 0 fatalities, 60 injuries
- Fairview Avenue/Cherry Lane – 113 accidents, 0 fatalities, 53 injuries
- Broadway Avenue – 85 accidents, 0 fatalities, 16 injuries
- Karcher Road – 69 accidents, 0 fatalities, 23 injuries

### **Emergency Medical Services**

Emergency medical service (EMS) is a coordinated system to respond to injured drivers, passengers, and pedestrians, members of the traveling public experiencing a medical emergency, and the public at large for injuries and medical emergencies.



### **Challenges**

- Lack of interagency cooperation: turf wars/jurisdiction
- Inadequate infrastructure – including equipment and communications
- Ineffective response time – in part due to congested roads and/or poor communications systems
- Education
- Politics
- Technology – communications, lack of coordinated radio systems, data analysis
- Personnel
- Money – for all the above

### **Samples of Recent Implemented Strategies**

- Statewide implementation of the Next Generation Patient Care Report and Trauma Registry.
- Initiation of the Web-based Electronic Resource Tracking system (WERT).
- Initiation of the Interagency Resource Operations Center (IROC) study. This is a multi-agency planning process with ITD and ACHD about the next generation communications center that will exploit contemporary technology in the avoidance and detection of motor vehicle related crashes and expedite deployment of resources to highway and main arterial incidents.
- Newly promulgated rules for EMS providers' scope of practice.
- An overhaul practical exam process.

- The development of a Statewide Mass Casualty Incident (MCI) plan.
- The development of a Critical Access Hospital (CAH) Regional Integration Plan.

### Potential New Strategies

- Response Time - intergovernmental agreement among jurisdictions for cooperative effort to improve rural addressing through GIS for dispatch and support efforts to achieve statewide interoperability.
- Infrastructure - seek legislation for more funding, provide emergency response agencies with latest technology, plan to coordinate equipment between state and local responders, and pursue data linkages.
- Interagency Cooperation - incident control strategies system training broadened, regional multi-jurisdictional meetings to develop cooperation, post-incident review

### Implementation through *Communities in Motion*

One strategy specifically noted was the IROC, which would coordinate communications and operations among a number of local and state agencies. The IROC would address many of the issues noted in the SHSP, such as improved communications, coordination, and general technology. The IROC was estimated to cost \$38 million (January 2008) based on assumptions of three major entities collocating in IROC: ITD Mobility Services, ACHD Congestion Management section, and the Idaho Emergency Management Services Bureau and Communications Center. The IROC study considered a number of funding mechanisms, including federal grants under Federal Highway Administration, Federal Transit Administration, and Homeland Security.<sup>6</sup> The IROC is addressed in the ITS portion of *Communities in Motion*. No decision has been made on IROC at the time of this plan. The concept is on hold.

### **Highway-Rail Grade Crossings**

The SHSP found that Idaho has approximately 1,665 miles of railroad line and 1,439 public highway-railroad grade crossings. Of these crossings, 1,260 or 88 percent, are on the local system.



### *Challenges*

- Enforcement - lack of enforcement for vehicles running stop signs and electric signals, weak penalties for driving around stop arms, no automated enforcement, trespassing on tracks, lack of time and human resources to monitor tracks.
- Education - areas with whistle bans and quiet zones, inattention, ignoring warning devices, drivers become complacent because of low number of trains at some intersections, not enough use of Operation Lifesaver's look, listen, and live program.

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<sup>6</sup> IROC Phase II: *Concept of Operations/Location Study, Implementation Plan and Timeline*. Kimley-Horn and Associates. January 2008. Found on-line in December 2009 at <http://iroc.idaho.gov/deliverables.html>.

- Engineering - multiple tracks, middle of train is hard to see at night (lack of reflective materials on rail cars), crossings are unsafe for motorcycles, train stopping distance, lack of signalized crossings (people don't pay attention to stop signs at crossings), limited funds for signalization and crossing upgrades.

### Specific Strategies Relevant to Metropolitan Planning Organizations (MPOs)

- Develop comprehensive engineering grade crossing reviews, including corridor-based studies.
- Upgrade crossings marked with only passive crossbuck warning signs with Ida Shields.
- Initiate a light emitting diode (LED) signal upgrade program.
- Begin experimental use of polymer concrete bridge panel and edge beam crossing surface with flashing in-roadway warning lights.
- Begin experimental use of directional Wayside Horn warning system.
- Install crossing gates, signs, and signals at crossings.
- Upgrade crossing signal equipment circuitry to constant warning time.

### Implementation through *Communities in Motion*

Within Ada and Canyon Counties, there are 161 railroad crossings. The railroad tracks are owned by the Union Pacific Railroad (UP), which has leased track rights on the Boise Cutoff and other spur lines to Watco Transportation Services, Inc. Union Pacific maintains control over the UP mainline track that enters the region from the northwest and exits to the southeast for a distance of 67 miles. The main track is traveled by 35+ trains per day. Maximum track speeds vary up to 79 mph.

The spur lines consist of three elements:

- The Boise Cutoff consists of 44 miles of track from the main line yard in Nampa to its reconnection with the UP main south of Boise. The City of Boise purchased approximately 18 miles of the Boise Cutoff starting approximately 1 mile north of the Cutoff/Main junction south of Boise. This track is traveled by 1-2 trains per day, generally consisting of less than 15 cars per train. These are shuttles delivering or picking up local freight. Operating speeds run from 20 to 59 mph.<sup>7</sup>
- The Wilder spur consists of 11.1 miles of track from the main line in north Caldwell to its terminus in Wilder. The majority of traffic is generated by major agricultural industries near Caldwell.
- The Middleton spur consists of 6.6 miles of track from the main line north of Nampa to a terminus north of US 20/26.

See Figure 10-4 for locations of the lines and the crossing types and locations. Figure 10-5 shows crossing-related accident locations between 2000 and 2009.

The number of rail crossings in Ada and Canyon Counties are show in Table 10-1 and described below:

- Separated – rail line passes over or under crossing roadway.
- Gated –actuated by an on-coming train drop across the approach road. Often combined with signals.

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<sup>7</sup> A short spur runs from the Boise Cut-off near Curtis Road northeast to Orchard Street for a distance of 1.1 miles. No crossing data were available and no accidents were reported on this spur.

- Signaled – lights on the side of the road or on horizontal bars across the road warn drivers of trains.
- Signed – combination of crossbuck and stop signs.No Controls/Not Required – not warranted due to extremely low volumes. Typically these are private roads.

**Table 10-1- Rail Crossings in Ada and Canyon Counties<sup>8</sup>**

Type of Crossing	Count
<b>Separated</b>	19
<b>Gated</b>	28
<b>Signaled</b>	21
<b>Signed</b>	65
<b>No Controls/Not Required</b>	23
<b>Unknown</b>	5
<b>Total</b>	161

Growth in many areas will put additional pressure on existing crossings. This is particularly true in southern Ada County, where numerous developments have been approved south of the UP main track. No grade separated crossings exist in this area. The City of Kuna has requested a grade separation in the vicinity of Linder and/or Meridian Road (State Highway 69). The crossing is shown as unfunded in this plan.

Additional crossing safety issues could arise with consideration of high capacity transit services along rail corridors, particularly the Boise Cutoff. Assuming that a future service could include light or heavy rail vehicles, these crossings would need to be gated, preferably with a four-gate system, to reduce the chance of a train-vehicle collision.

Finally, there is the integration of rail crossings with ITS. According to the Federal Rail Administration website, “The ITS Architecture provides for the integration of the railroad operating systems with the traffic management systems... The result is a system that would have the capability for getting advance warning of approaching trains through interconnected information systems that link the motorist to the traffic management and rail operations systems. It also allows for the capability of warning the locomotive engineer of obstacles or trapped vehicles at grade crossings, and potentially for trespassers along the right-of-way.” Since a large train with 100+ cars can take more than a mile to stop, advance warning systems could reduce collisions.

<sup>8</sup> Information on rail crossing controls was obtained from the Federal Rail Administration web site at <http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/Downloaddbf.aspx>.

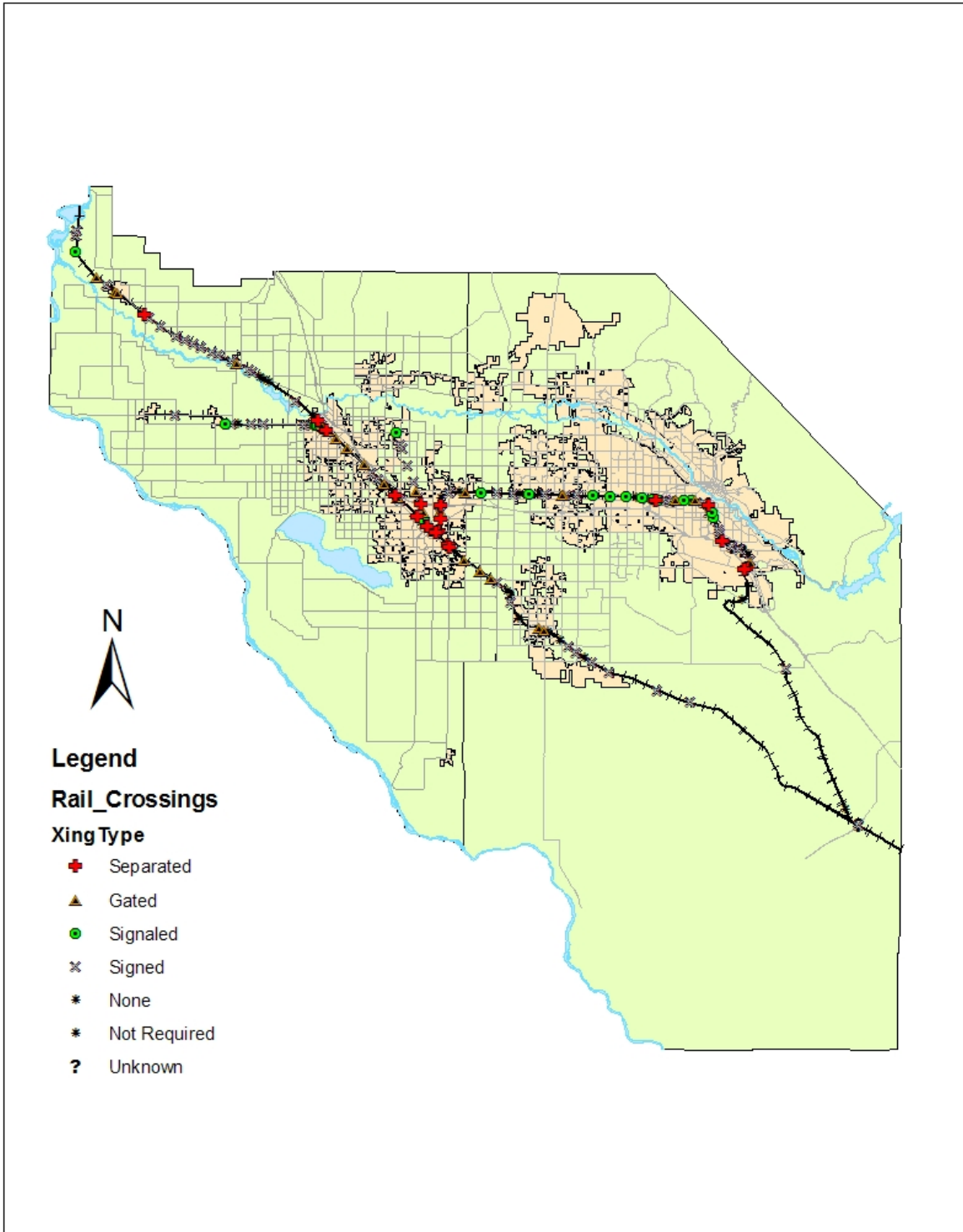


Figure 10-4: Rail Crossings

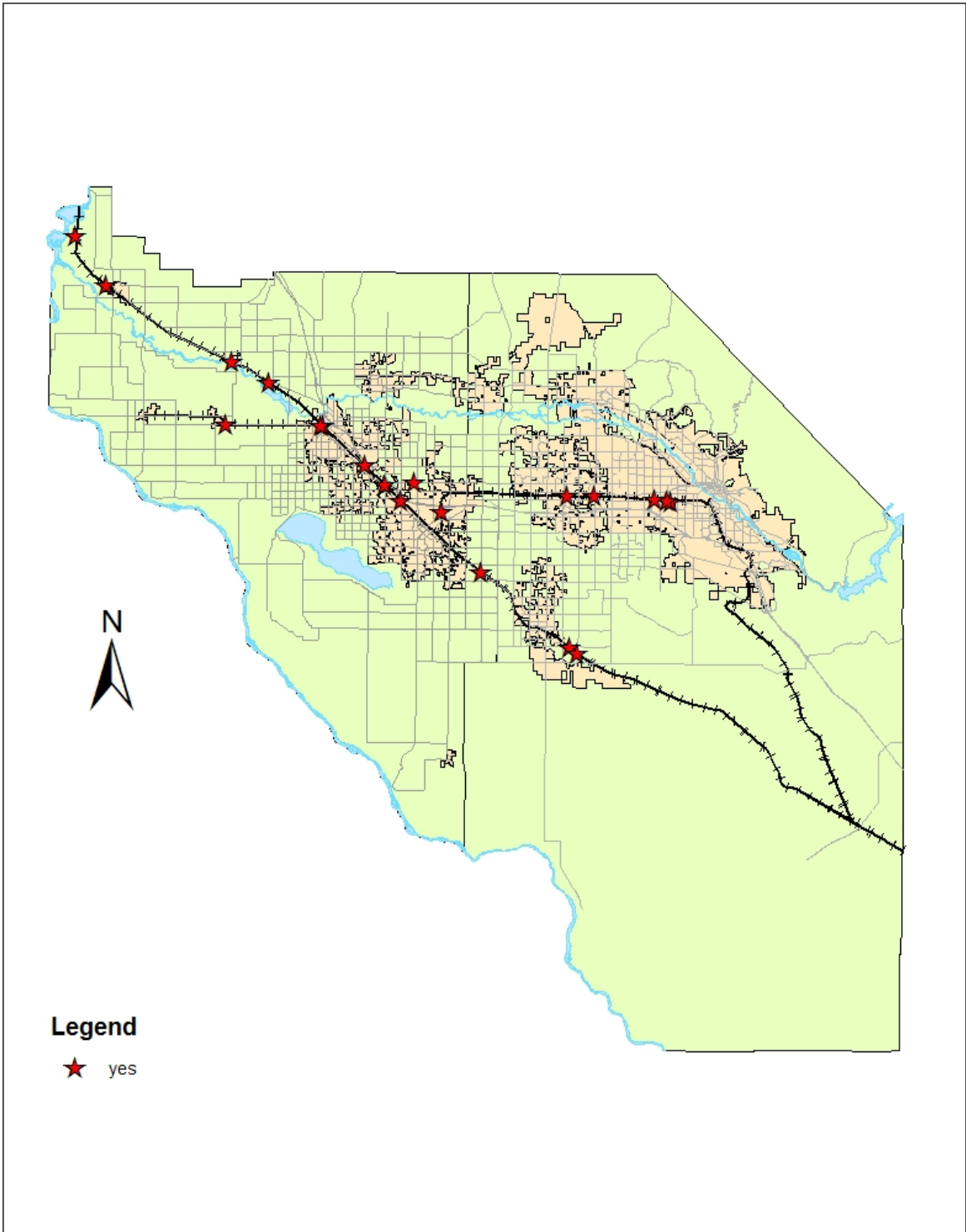


Figure 10-5: Rail Crossing Accident Sites

## Impaired Drivers

An impaired driving collision is one in which alcohol or drugs may have contributed to the collision. In 2008, 96 fatalities resulted from impaired driving collisions. This represents 41 percent of all fatalities. Only 14 (or 18 percent) of the 76 passenger vehicle occupants killed in impaired driving collisions were wearing a seat belt. Nearly 15 percent of impaired drivers in collisions were under the age of 21 in 2008, even though they are too young to legally purchase alcohol. Impaired driving collisions cost Idahoans nearly \$725 million in 2008. This represents 28 percent of the total economic cost of collisions.

### Implemented Strategies (Not All Listed from SHSP)

Most of the strategies for impaired driving addressed education, public awareness, and enforcement.

Examples included:

- Conducting intensive law enforcement campaigns each year targeting impaired drivers.
- Developing and delivering a multi-media ad campaigns targeting impaired drivers to support the law enforcement campaigns and to raise awareness.
- Helping law enforcement agencies establish Selective Traffic Enforcement Program (STEP) Teams that target impaired driving.
- Funding the Traffic Safety Resource Prosecutor position, DUI courts, and DUI probation officers.
- Distributing public awareness materials to educate the public regarding impaired driving.
- Implementing year-long impaired driving grants with law enforcement agencies in areas that experience a large number of crashes.

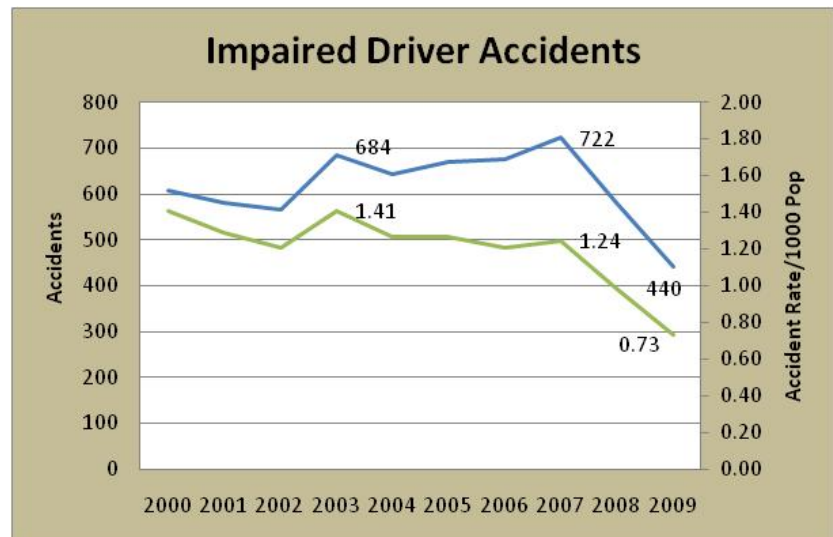


Figure 10- 6: Impaired Driver Accidents in Ada and Canyon Counties

### *Potential Strategies*

- Fund additional officers.
- Streamline paper work.
- Remove 15-minute observation period.
- MADD/other support groups make case to public for needed resources.
- Eliminate notary requirement.
- Increase use of motor vehicle inter-lock system.
- Form community coalitions to raise issues/resolutions.

The number of accidents related to impaired drivers has declined with stricter enforcement. Note that the rate per 1000 population in 2009 was half that of 2003. Whether SHSP was causal or coincidental, it is interesting to note the sharp drop since 2007. Note that part of this may relate to the economic downturn.

### Implementation through *Communities in Motion*

Nearly all the listed existing and potential strategies address enforcement or public education. Although there are no specific measures in *Communities in Motion* related to impaired drivers, transportation system projects that improve intersection design, street lighting, and other aspects can mitigate impaired driving. Increasing public transportation options could provide alternatives to driving.

### ***Mature Drivers***

Mature drivers, drivers over the age of 65, were involved in 3,036 collisions in 2008. This represents 12 percent of the total number of collisions. Collisions involving mature drivers resulted in 13 percent of the total number of fatalities in 2008. Mature drivers are underrepresented in fatal and injury crashes. Drivers over the age of 65 represented 14 percent of licensed drivers, but represent just 8 percent of drivers in fatal and injury collisions.

National research indicates drivers and passengers over the age of 75 are more likely than younger persons to sustain injuries or death in traffic collisions due to their physical fragility. Collisions involving drivers, age 65 and older, cost Idahoans nearly \$332 million dollars in 2008. This represents 13 percent of the total economic cost of collisions.

### Issues

As with impaired drivers, many of the strategies to addressing issues are outside the realm of a MPO, including education and enforcement. Yet there were some issues that derive from design of transportation facilities or the limited amount of services, specifically:

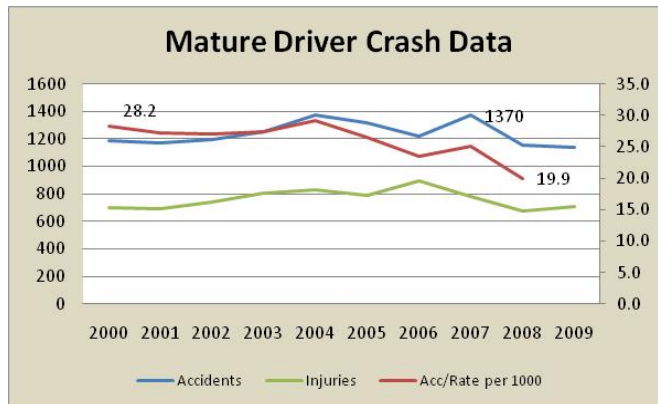
- Night driving and lighting needs
- Oncoming traffic headlights
- Limited transportation alternatives

- Traffic signs being too small
- General road designs

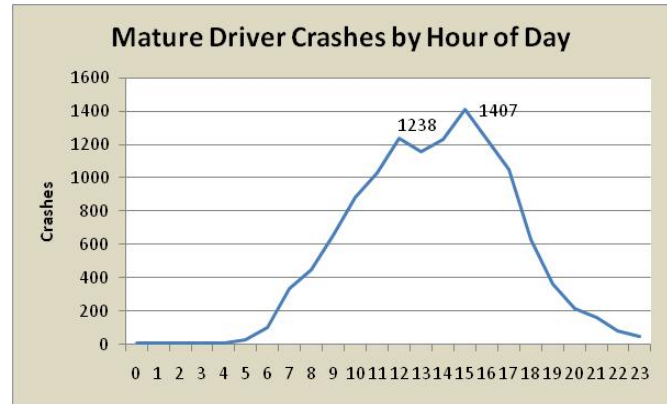
*Suggested Strategies*

- Improve lighting on roadways
- Improve transportation alternatives
- Use best striping materials
- Illumination technologies laws (restrict glaring light systems)
- Improve lighting, signage, pavement markings, rumble strips (center and or shoulder)

As with other accident trends, crash incidents have declined in the region somewhat, with the accident rate per 1000 (population 65+ years old) declining (Figure 10-7). Figure 10-8 shows that the distribution of accidents by time of day is different for mature drivers (65 and older) than for the total universe of drivers involved in accidents. The “normal” distribution of accidents tracks closely with traffic counts, peaking with high demand during rush hours. For mature drivers the peaks fall between noon and 3 pm.



**Figure 10-7: Mature Driver Crashes in Ada and Canyon Counties**



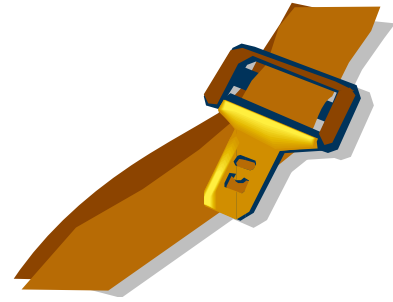
**Figure 10-8: Mature Driver Crashes by Time of Day**

Implementation through *Communities in Motion*

A complete streets approach considers the needs of all users, including mature drivers. This could be relevant in terms of improve street lighting and greater attention to wayfinding signage with a focus on better street addressing and directional signs. *Communities in Motion* has a priority on seeking funds to expand transportation alternatives, with an emphasis on a local option tax that could provide operating and capital funds for public transportation, vanpools, and pedestrian and bike modes. As the number of older residents increases in the region, demand for alternatives to driving will go up.

## Occupant Protection

In 2008, only 77 percent of Idahoans were using seat belts, based on seat belt survey observations. In 2008, seat belt usage varied by region around the state from a high of 88 percent in District 3 (southwestern Idaho) to a low of 60 percent in District 6 (northeastern Idaho). Only 33 percent of the individuals killed in passenger cars, pickups and vans were wearing a seat belt in 2008 (Table 10-2).



The SHSP concluded that both adults' and children's' lives would be saved if seatbelt and child seat usage were increased. Challenges focused on lack of awareness (e.g., need to wear a seatbelt even with airbag protection), political and public opposition to stronger enforcement (e.g., making seat belt a primary violation). No design or planning issues were identified, although the SHSP acknowledged that a stronger enforcement law would increase federal funds available for road improvements.

Review of crash data from the ITD WEBCARS system shows that there were 231,326 people involved in vehicle crashes (not including bicycles and motorcycles) in Ada and Canyon Counties from 2000 to 2009. Of this number, 90% of the occupants were wearing seatbelts.<sup>9</sup> Yet the fatalities among non-belted occupants were higher than for belted—meaning non-belted occupants had a fatality rate 13 times greater. For serious (incapacitating) injuries, non-belted occupants were six times more likely to be injured. Note that many of the incapacitating injuries among belted occupants might have resulted in death. Applying the fatality rate of non-belted occupants to all occupants indicates that another 1,600+ people would probably have died but for wearing seat belts.

**Table 10-2: Seat Belt Usage and Injury/Fatality Rates**

Injury Type	Belted		Not Belted	
<b>Death</b>	125	0.06%	166	0.78%
<b>Incapacitating</b>	2,875	1.37%	1,317	6.17%
<b>Non-Incapacitating</b>	10,214	4.86%	3,151	14.77%
<b>None Evident</b>	172,371	82.08%	13,944	65.37%
<b>Possible</b>	24,409	11.62%	2,754	12.91%
	209,994		21,332	

### Implementation through *Communities in Motion*

No measures discussed in the SHSP are addressed in *Communities in Motion*, notably because the measures do not involve transportation improvements, either through capacity, design, or travel alternatives.

Continued public education and enforcement are important to reduce deaths and injuries due to not using seat belts.

<sup>9</sup> This percentage of seatbelt use is consistent with the 2009 Seat Belt Usage Survey by ITD, which found that Ada County was 94% compliant, while Canyon County was 87.7% compliant. <http://itd.idaho.gov/ohs/ClickIt/Surveys/obsrd2009web.pdf>

## ***Road Related Crashes***

### **Distracted Driving**

In 2008, 6,672 collisions involved an inattentive driver. Distraction is a catch-all contributing circumstance. Collisions typically occur because at least one of the drivers was not paying attention, and according to the National Highway Safety Administration, there are no effective counter measures. Distracted driving collisions cost Idahoans almost \$828 million in 2008, representing 32 percent of the total economic cost of collisions.

### Challenges

Some of the challenges identified in the SHSP do intersect with MPO –related planning and programming:

- Political –Laws about doing distracting things while driving
- Political – Long commutes
- Political – Planning and zoning policy
- Political – Lack of sustainable transportation systems
- Systems – Lack of funding for roadside safety improvements (rumble strips, clear zones, shoulders, recovery)
- Systems – Lack of a convenient public transportation system
- Technology – Too much technology – CDs, cell phones, DVDs/VCRs, iPods
- Technology – Lack of advancements in highway technology

### Relevant Strategies

- Convenient mass transit
- Driver refresher classes
- Adopt uniform and statewide standards for rumble strip construction and implementation.
- Provide incentives for employers to pay more attention to employee work schedules.
- Review all existing rest areas for improvements in lighting, facilities, maintenance, etc. Make this the first priority and new construction a secondary goal.
- Refocus financing to make roadside improvements a priority and make recovery zones a part of all project strategies.

### Implementation through *Communities in Motion*

*Communities in Motion* has a long-term goal to promote and encourage reductions in long commutes by changing land use patterns and bringing more homes within walk and bike distance of employment, shopping, and services. An expanded public transportation system is dependent on getting a reliable source of operating funds. *Communities in Motion* does not include a greater level of transit services than what is currently provided due to financial limitations, primarily operating funds. COMPASS and its members have made obtaining financial resource for transit a high priority, and they were successful in getting legislation introduced in 2008 which would have allowed a local-option tax to be approved by voters. While this legislation was not passed, the statewide effort demonstrated the broad support for local option taxation for transportation.

While not specifically called for in *Communities in Motion*, COMPASS has backed legislation that would ban texting while driving.

### **Intersections**

Although intersections only constitute a small portion of the overall highway system, they were the location of 40 percent of all traffic crashes in Idaho in 2008. Urban areas accounted for 82% of the intersection crashes, but rural areas accounted for 60% of the intersection-related crash deaths. Furthermore, it is to be expected that crashes are concentrated at intersections since they create numerous conflict points where differing traffic movements converge in one place.

### Challenges at Signalized Intersections

- Drivers - insufficient turn lanes, geometry of intersection confuses drivers, access management, impaired drivers
- Roadway - sight distance, geometrics and design, lack of roundabouts, access management needed, visibility of traffic control device (signal), poorly timed signals, poor signing
- Political - need to legalize red light running cameras
- People/social - funding capacity for intersections
- Technical - lack of coordination to signalize lights, level of service capacity, poor signal timing leads to driver impatience

### Challenges at Unsignalized Intersections

- Roadway - pavement markings, lack of roundabouts, access management needed, visibility of traffic control device (signal), poorly timed signals, poor signing, vision obstructions/ trees, crops, poor sight distance
- Weather - poor visibility/fog , slick conditions make it tough to stop

- Political - void between misdemeanors and felonies , aggressive penalties, licensing younger/older drivers, allowing young drivers to have passengers, removal of unwarranted signs is difficult
- People/social - vandalism of stop signs/other traffic signs, educations about slowing/stopping, awareness of pedestrians/cyclists , unawareness of other vehicles and right of way, pedestrians/cyclists unaware of vehicles, lack of funding for bike lanes
- Technical – roundabouts, access management, lack of right of way to add signals, lack of proper mechanisms for traffic control

### Strategies

- Increased roadway safety enhancements
- LED signals, in-pavement lighting, interconnected signals, experimental use of flashing yellow arrows, signal timing and coordination, red light running cameras, audible pedestrian signals, countdown pedestrian crosswalk signals
- Exclusive left-turn lanes
- Roadway lighting
- Agency coordination - identify stakeholders/decision makers
- Change societal and cultural views on driving behavior, target youthful drivers, primary seat belt law
- Better roads, better engineering and maintenance, better pavement markings, add alternative types of intersections, such as roundabouts

Implementation through *Communities in Motion* Within the Managing Congestion (Chapter 7), options for improved intersection concepts, including roundabouts, are presented. The virtue of roundabouts was discussed earlier in this chapter. Prioritization of safety would include elements such as improved signal systems, signal progression, street lighting, poor geometrics (sharp curves, poor lines of sight, etc.). Access management is also discussed in Chapter 7 and is a corollary to the functional classification map shown in Chapter 5. Maintenance is another priority in *Communities in Motion* and would address pavement markings (lane striping, stop bars, pedestrian crosswalks) and signal/signage maintenance.

## Roadway Departure

In 2008, 5,985 roadway departure crashes accounted for 116 deaths, or about half of all Idaho highway fatalities. The majority of these crashed are on rural roadways. A roadway departure crash 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 lane 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.

Implementation through *Communities in Motion* Maintaining investments in operations and management will support many of the above measures. Chapter 7 discusses many of the measures such as innovative intersection designs (roundabouts, et. al.), signal improvements, access management, and other means of improving existing transportation systems. Complete street approaches (Chapter 6) will lead to more consideration of other transportation users and design needs, including improved pedestrian crossings, better street lighting for visibility, bike lanes, and other treatments.

These improvements will require higher levels of investment, which is the aim of Chapter 12.

## ***Vulnerable Users - Bicyclists, Motorcycles, and Pedestrians/School Children***

### Bicyclists

In 2008, 11 pedestrians and 2 bicyclists were killed in traffic crashes. Theses represented 6 percent of all fatalities in Idaho. Children, ages 4 to 14, accounted for 21 percent of the fatalities and injuries sustained in pedestrian crashes and 21 percent in bicycle collisions. Collisions involving bicyclists and pedestrians cost Idahoans nearly \$138 million dollars in 2008. This represents 5 percent of the total economic cost of collisions.

### Challenges

- Enforcement, wrong-way riding, night riding without lights, right of way conflicts, laws for bikes and cars not consistent (i.e. stoplight rules)
- Targeted education needed - car drivers not aware of bicycles, lack of bicycle rider education , no training on speed differences between bikes and highway users, cars and bikes sharing space, drinking pedestrians and bicyclists, pedestrian rules not understood or followed, not wearing helmets, who has the right of way, lack of tolerance (for bikes and pedestrians), difference between car rules and bike rules

## Infrastructure

- Roads designed for cars only; not for multiple users
- Lack of bike/pedestrian paths, sidewalk riding
- Schools built in residential areas without the path systems to handle increased bike and pedestrian traffic

## EMS

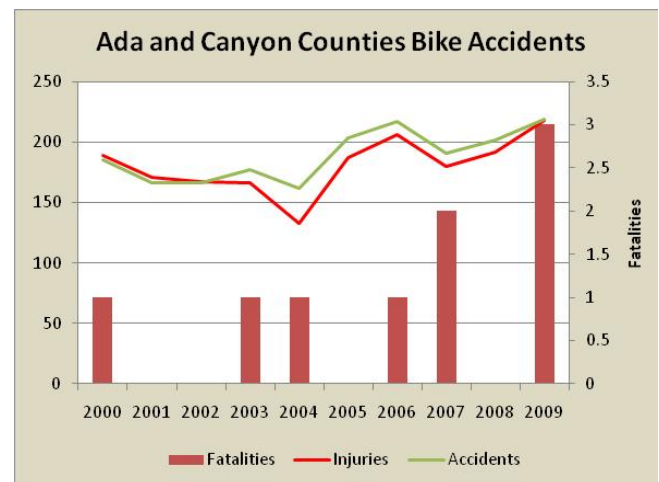
- Lack of training for removal of helmets on injured cyclists by EMS personnel
- Lack of training in motorcycle-specific injuries

Bicycle accidents have been a major topic during the past year due to some highly publicized fatal accidents (Figure 10-9).

Total bicycle accidents held steady from 2000 to 2004, but increased sharply in 2005. Injuries in these accidents track closely with the number of accidents due to the exposure of the cyclist. Fatalities are more erratic and involve the motor vehicle speed, size, and the angle of impact.

In 2009, 60% of the bicycle-involved accidents and injuries occurred at intersections. Two of the three fatalities were intersection related. This statistic presents a challenge when considering additional bike lanes or paths. In most cases, these paths and lanes will intersect with the roadway system. Improving signage, pavement marking, street lighting and other elements are critical. As the number of bicyclists increases, the need for improved facilities will grow.

ACHD adopted a Roadways to Bikeways Plan in May 2009, Meridian adopted a Pathways Master Plan in January 2010, and Caldwell adopted a Pathways and Bike Route Master Plan.<sup>10</sup>

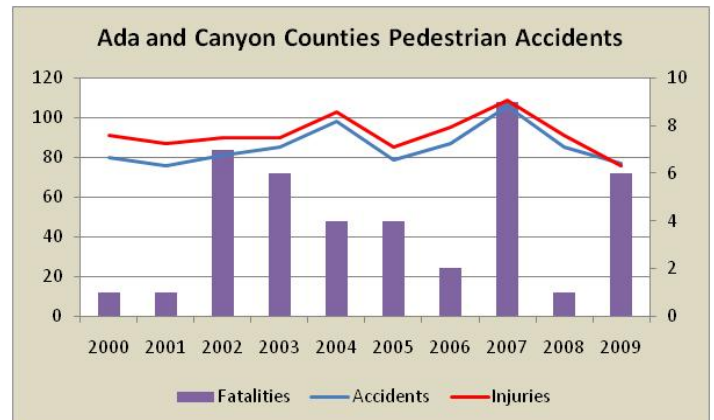


**Figure 10-9: Bike Accidents**

<sup>10</sup> [www.achdidaho.org/Projects/PublicProject.aspx?ProjectID=77](http://www.achdidaho.org/Projects/PublicProject.aspx?ProjectID=77), [http://www.meridiancity.org/parks\\_rec.aspx?id=2667](http://www.meridiancity.org/parks_rec.aspx?id=2667), [http://cityofcaldwell.com/file\\_depot/0-10000000/10000-20000/13986/folder/73810/Pathways+and+Bike+Routes+Master+Plan+2010.pdf](http://cityofcaldwell.com/file_depot/0-10000000/10000-20000/13986/folder/73810/Pathways+and+Bike+Routes+Master+Plan+2010.pdf)

## Pedestrians

Between 2000 and 2009 there were 917 accidents involving pedestrians. Typically these are pedestrians involved with cars or trucks, but the accident data also show accidents involving pedestrians and motorcycles or bicycles. Figure 10-10 shows that injury data track closely with accident data. Injuries exceed the number of accidents since there can be more than one pedestrian involved, or the vehicle driver or occupant may be injured. Fatality data are more erratic, with the second highest total in 2002, which was “average” for pedestrian involved accidents.



**Figure 10-10: Pedestrian Accidents**

The peak time for pedestrian accidents is between 7:00 am and 8:00 am. More than 10% of the total accidents during the past ten years happen then. The number of children going to school and people walking to work combined with poor lighting and drivers hurrying to their own destinations are deadly combinations. Of all the accidents, 40% occurred under poor lighting conditions (dawn/dusk or dark).

### Current Strategies

- Established bicycle/pedestrian advisory committees in most major cities
- All federal-aid projects in Idaho are reviewed to check for adequate bicycle accommodations.
- Over 50,000 copies of Idaho Bicycling Street Smarts are in the process of being distributed to the public at no cost.
- Updated the Idaho Bicycle Commuter Guide.
- Idaho has 11 League Cycling Instructors (six added in 2006), certified by the League of American Bicyclists
- Incorporated bicycling facilities in roadway projects
- Establishing bicycle advisory committees
- Established the Treasure Valley Cycling Alliance a nonprofit organization.
- Establish a Safe Routes to School program
- Established a Safe Kids program

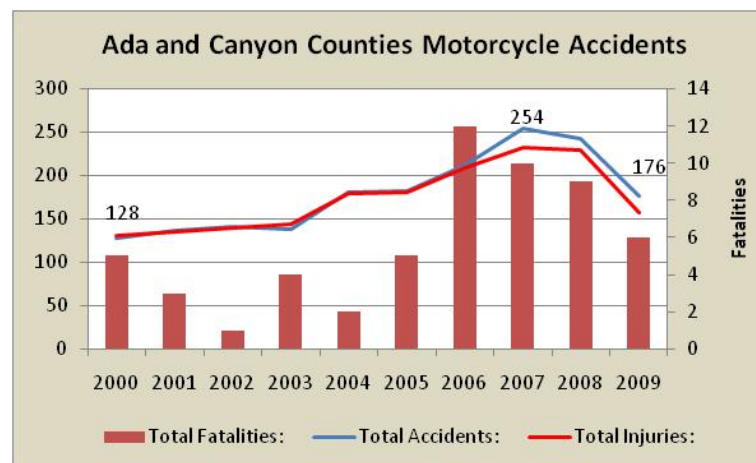
### Potential New Strategies

- Stop impaired driving - legalize sobriety checkpoints<sup>11</sup>, mandate judicial support of laws by instituting mandatory penalties for impaired driving, have a DUI/drug court in every Idaho county with supervised DUI probation, get legislative and Idaho State Police buy-in for increased personnel, use the available federal funding currently left on the table.
- Eliminate aggressive driving - increase the number of Idaho State Police troopers by 90 and support staff by 15 within 5 years, implement electronic enforcement, educate Idahoans about what aggressive driving is and its impact on fatality numbers

ACHD has resolved to dedicate 5% of its annual capital budget and half of its new vehicle registration fee revenues (approximately \$4M total each year) to sidewalk and other pedestrian projects.

### Motorcycles

In 2008, motorcycle collisions represented just 3 percent of the total number of collisions, yet accounted for just over 13 percent of the total number of fatalities and serious injuries (Figure 10-11). Just over half (55 percent) of all motorcycle collisions involved a single vehicle, and 48 percent of fatal motorcycle collisions involved a single vehicle. Idaho code requires all motorcycle operators and passengers



**Figure 10-11: Motorcycle Accidents**

under the age of 18 to wear a helmet. In 2008, only 27 of the 36 (75 percent) motorcycle drivers and passengers, under the age of 18 and involved in crashes, were wearing helmets. The National Highway Traffic Safety Administration estimates helmets are 37 percent effective in preventing motorcycle fatalities. In 2008, 61 percent of motorcyclists killed in collisions were wearing helmets. Motorcycle crashes cost Idaho \$262 million dollars in 2008.

<sup>11</sup> Under current law, sobriety checkpoints are illegal in Idaho in the absence of authorizing legislation. (State v. Henderson, 756 P.2d 1057 (Idaho 1988))

### Challenges

- Education - not wearing helmets, lack of high-speed training, motorcyclists not following the rules in congested areas, daring attitudes, scooters operated by youth, lack of ongoing education, lack of visibility to others (awareness of drivers) , lack of training for all riders
- Enforcement - impaired driving, definition of street legal not clear, too fast in curves, running between lanes of stalled traffic , not losing motorcycle endorsement for violations, aggressive driving
- Engineering – low visibility of scooters, scooters sold as toys, road hazards for motorcycles (i.e. pavement crack sealant, manhole covers in curves, slick road markings, etc.)

### Strategies

- Provide training through the statewide Skills Training Advantage for Riders (STAR) program.
- Provide motorcycle skills testing Increased motorist awareness by:
  - Operating booths promoting motorist awareness as well as rider training.
  - Forming and support the Governor’s Idaho Motorcycle Safety Advisory Council.
- Stop impaired driving - legalize sobriety checkpoints, mandate judicial support of laws by instituting mandatory penalties for impaired driving, have a DUI/drug court in every Idaho county with supervised DUI probation.
- Increase education, enforcement and awareness - increase training by having training facilities and staff available within 50 miles of all motorcycle users. Increase the number of citizen awareness programs regarding motorcycle, scooter, etc. rules and issues (targeted at all Idahoans), require training for all motorcycle users who are ticketed and do not have a motorcycle operator's endorsement to avoid license forfeiture.
- Get legislative and Idaho State Police buy-in for increased personnel - use the available federal funding currently left on the table, implement electronic enforcement.

The trend for motorcycle/moped accidents in Ada and Canyon Counties shows a dramatic increase from 2000 to 2007. During this period, the total number almost doubled. As Figure 10-11 shows, injuries track very closely with the accident figures given the speed and exposure of the motorcycle driver and any passengers. Declines since 2007 may be attributable to the programs under the SHSP.

### Implementation through *Communities in Motion*

Many of the challenges and strategies in the SHSP lie in improved training, education and enforcement. While these are critical areas, their implementation mostly lies outside of *Communities in Motion*. A rash of bicycle fatalities in 2009 triggered the attention of state and local officials, with legislation and local ordinances being considered to mandate minimum clearance distances when drivers are passing bicyclists.

Safe Routes to School funds are being programmed in the Transportation Improvement Program for education and physical improvements. A complete streets policy in *Communities in Motion* will encourage inclusion and consideration of project design elements to meet the needs of all users—not just those of vehicle drivers. This means that projects being considered for federal funding would need to identify the need for pedestrian crossings, bike lanes, sidewalks and pathways, appropriate street lighting, and other elements.

*Communities in Motion* also calls for prioritization of maintenance and safety projects. While maintenance is often overlooked as a safety feature, rough pavements, potholes, broken streetlights, and other deficiencies can present hazards to all transportation users. Users are not the only ones who might suffer from poor maintenance: the exposure of the transportation agency to a lawsuit based on inadequate maintenance contributing to an accident should not be overlooked.

### ***Young Drivers***

The SHSP found that drivers between ages 15 to 19 represented 6 percent of licensed drivers in Idaho in 2008, yet they were involved in 14 percent of the fatal and serious injury collisions. In 2008, drivers age 15 to 19 constituted 11 percent of the impaired drivers involved in collisions, despite the fact they were too young to legally consume alcohol. National and international research indicates youthful drivers are more likely to be in single-vehicle crashes, to make one or more driver errors, to speed, to carry more passengers than other age groups, to drive older and smaller cars that are less protective, and are less likely to wear seat belts. Only 3 of the 17 (18 percent) youthful drivers involved in fatal crashes were wearing a seat belt. Collisions involving youthful drivers cost Idahoans over \$536 million in 2008. This represents 21 percent of the total economic cost of collisions.

### **Challenges**

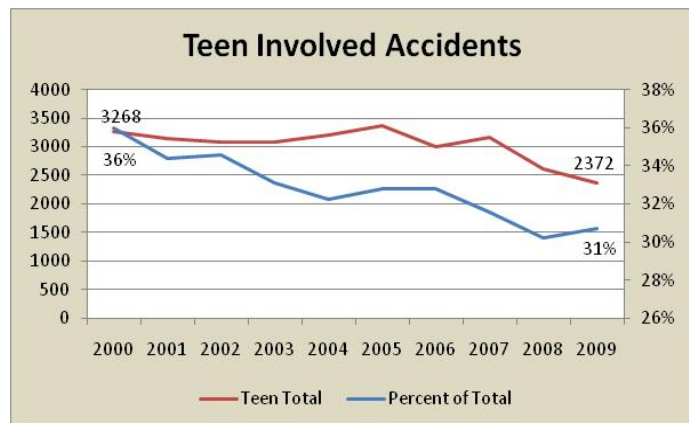
- Distractions (cell phones, music, food, and friends), multiple passengers
- Impairment via alcohol, drugs, or fatigue
- Night driving
- Immature brain and physical and emotional development, driving too young, inadequate training
- Speeding
- Too much car for young driver, junky cars (no airbags, unsafe)

### **Strategies**

- Three-month intensive law enforcement campaign, in conjunction with the aggressive driving program, targeting youthful aggressive drivers.
- A multi-media ad campaign to support the law enforcement campaign and to raise awareness.
- Add the “Drive Program” to Idaho driver’s education instructors in partnership with the Department of Education.

- Evaluate the effectiveness of program components to identify performance measures and find ways in which to improve the program.
- Change the law to limit number of passengers.
- Increase the number of enforcement personnel on the road.
- Institute a primary law seat belt law. Increase fine for no seat belt use.
- Apply for federal funding for education.
- Engage in stakeholder work to introduce legislation and sell public to increase the driver age for licensure.
- Increase education with “Click it or Ticket.”
- Award certification of usage linked to insurance policy coverage.
- Find additional methods to increase youth accountability.
- Mandatory education programs (in schools/drivers education).
- Campaign/media appeal to age groups for alcohol/drug abstinence Increase night time driving restrictions.
- Stiffen penalties for violations of passenger restrictions – include suspensions.
- Provisional licenses until 17 or 18.

Assuming that the 2008 Idaho percentage of young drivers<sup>12</sup> (6.2%) holds for Ada and Canyon Counties, how does this compare with this age group’s share of accidents in the region (Figure 10-12)? In 2008 there were 8,464 accidents, resulting in 42 deaths and 4,314 injuries. Accidents involving drivers between 15 and 19 years of age totaled 2,603, with 12 fatalities and 1,528 injuries. This means that teen-involved accidents represented 31% of the accidents, 28.6% of the fatalities, and 35.4% of the injuries.



**Figure 10-12: Young Driver Accidents in Ada and Canyon Counties**

These numbers are consistent with the most recent ITD reports on teen driving and safety, which notes that “...youthful drivers were involved in 2.6 times as many crashes as you would expect...and were 2.9 times as likely as all other drivers to be involved in a crash.”<sup>13</sup>

<sup>12</sup> 2008 Driver Collision Statistics (Age, Gender, Violations, License Suspensions). Idaho Transportation Department. Office of Highway Safety. <http://itd.idaho.gov/ohs/stats.htm>

<sup>13</sup> 2008 Youthful Drivers (Age 15-19). Idaho Transportation Department. Office of Highway Safety. <http://itd.idaho.gov/ohs/stats.htm>

Teen involved accidents have fallen in number and as a percentage of total accidents within Ada and Canyon counties (Figure 10-12). Some of this may be attributable to the drop in the percentage of population group between 14 and 19.

#### Implementation through *Communities in Motion*

While not included as a measure in *Communities in Motion*, COMPASS has backed legislation to make driving while texting a violation. Since distraction by texting—along with cell phone use and conversing with passengers—is a source of inattention, and inattention is the single largest cause of accidents where specific driver behavior is noted, this measure could assist in further reductions of accidents. Provision of alternatives to driving is not specifically noted as a measure in the SHSP, but *Communities in Motion* does promote alternatives, including transit, walking, and biking, that could also reduce teen accidents.