



New Mexico Comprehensive Transportation Safety Plan 2010 Update

Amendments

March 2012

5.0 Intersection Crashes

5.1 INTRODUCTION TO EMPHASIS AREA

Crashes are often concentrated at intersections because of the conflicting traffic movements. Intersections constitute a small part of the overall roadway system, yet intersection-related fatalities comprised approximately 20 percent of all fatalities on New Mexico roadways over the last six years (2004 to 2009). During this period, New Mexico experienced an average of 85 intersection-related fatalities and more than 1,800 intersection-related serious injuries annually (Figures 5.1 and 5.2).

5.3 STRATEGIES

STRATEGY IN-1

Strategy: **Develop and Implement Safety Countermeasures to Reduce Intersection-Related Crashes**

Objective: **Reduce Intersection-related Fatalities and Serious Injuries**

Description

A major portion of fatalities and serious injuries occur each year in New Mexico on both urban and rural intersections. Urban intersection crash locations are identified and prioritized using traditional “black spot” analysis techniques and benefit/cost ratios. Rural intersection crashes must be identified and prioritized through the more proactive systemic analysis approach. At-grade highway/ railroad crossings are a special category of intersections which must also be analyzed using a hazard risk index analytical model.

Performance Measures

- Number of fatal and serious injury crashes at urban and rural intersections.

Expected Outcome

- Data-driven identification and prioritization of high-crash rate intersections will lead to reductions in injuries and fatalities.

Challenges

- The data deficiencies need to be addressed, e.g., quality of data geocoding, inconsistent GIS networks, and the reactive emphasis on high-volume urban intersection crashes.

Funding Source

- NMDOT/HSIP.

Lead Agency: NMDOT

Contact: Steve Eagan

Phone: (505) 476-3545

E-mail: steve.eagan@state.nm.us

Action Step Responsible Agency Timeline/Due Date

Step 1: Following the procedures of the NM Highway Safety Improvement Program, plan, program, design, implement, and evaluate engineering type stand-alone safety improvement projects to reduce intersection-related fatalities and serious injuries by employing any of (but not limited to) the following countermeasures:

- Intersection lighting
- Intersection-related pavement markings
- Intersection-related warning signs
- Intersection-related regulatory signs
- Roundabouts
- signaling an unsignalized intersection,
- warning flashing signals on approaches to intersections,
- horizontal and vertical curve realignment,
- intersection relocation to reduce hazards of potential traffic collisions,
- Enhanced crosswalk pavement markings and signing to reduce pedestrian involved crashes,
- Community Pedestrian Travel Demand Study,
- Install signs, sidewalks, curb and gutter, median refuges, pedestrian detectors, and other devices to reduce pedestrian involved crashes,
- Urban Travel Lane Bus stop relocation to reduce vehicle queuing in intersection Improved Geometry of horizontal curves,
- Improvements to existing traffic signal devices,
- channelizing intersections,
- construct acceleration and deceleration lanes at intersections,

- augmenting Section 130 highway – railroad crossing safety funds with additional HSIP funds for improved crossing signals, gates, pavement markings, signs, crossing surface, and lighting at highway-railroad at-grade crossings,
- New generation pedestrian count-down signals at pedestrian crosswalks or intersections,
- install fencing to prevent unauthorized pedestrian travel and to separate pedestrians from vehicular traffic,
- construct relatively low construction cost pedestrian crossing grade separations for relatively high pedestrian traffic volume benefit.

(Responsible Agency)
 NMDOT Traffic Technical Support Bureau

(Timeline/Due Date) Ongoing

Step 2: Use available data resources, including, but not limited to, Annual New Mexico Transparency Report (5 % Most Severe Safety Needs), Mid –Region COG Annual Crash and Safety Report and NM Annual Traffic Crash Report to identify problem intersections.

(Responsible Agency)
 NMDOT Traffic Technical Support Bureau Districts/MPOs/RPOs
 (Timeline/Due Date) Ongoing

Step 3: Develop a prioritization process to identify focus intersections and communicate results to appropriate agencies.

NMDOT **Traffic Technical Support Bureau**, Districts/MPOs/RPOs STIP and TIP programming deadlines

Step 4: From the data analysis performed, develop project proposals using safety countermeasures with either proven effectiveness or the potential to reduce future hazards at identified intersection.

NMDOT **Traffic Technical Support Bureau**, Districts/MPOs/RPOs STIP and TIP programming deadlines

6.0 Lane Departure Crashes

6.1 INTRODUCTION TO EMPHASIS AREA

Lane departure includes run-off-the-road (ROR), head-on, cross-median, and overturn crashes. ROR crashes involve vehicles that leave the travel lane and encroach onto the shoulder and beyond and hit one or more of any number of natural or artificial objects, such as bridge walls, poles, embankments, guardrails, parked vehicles, and trees. Alcohol, speed, fatigue, and distraction are frequent contributing factors to lane departure crashes. ROR crashes typically involve a single vehicle. Sixtyfive percent of all fatalities and 44.5 percent of all serious injuries occurring on New Mexico roadways over the past six years (2004 to 2009) involved lane departure. During this period, New Mexico experienced an average of 274 fatalities and approximately 2,800 serious injuries involving lane departure annually (Figures 6.1 and 6.2).

6.3 STRATEGIES

STRATEGY LD-1

Strategy: Develop and Implement Safety Countermeasures to Reduce Lane Departure Crashes

Objective: Reduce Lane Departure-Related Fatalities and Serious Injuries by Planning, Programming, Designing, Implementing and Evaluating Engineering Type Stand-Alone Safety Improvement Projects

Departure Crashes

Description

On average, 300 fatalities and almost 3,000 serious injuries attributable to lane departures occurred every year on NM roadways between 2004 to 2008. Lane departure incidents include run-off-the-road, head-on, roll-over (overturn), and sideswipe crashes. This strategy will develop and analyze lane departure crash data to determine the types of facilities and contributing crash factors associated with lane departure fatalities and serious injuries in New Mexico.

Performance Measures

- Number of fatalities and serious injuries related to lane departure crashes.

Expected Outcome

- A reduction in lane departure-related fatalities and serious injuries by targeting safety investments to mitigation strategies with the highest likelihood of significant benefit.

Challenges

- Personnel and expertise to structure the analysis design.

Funding Source

- NMDOT (HSIP, High-Risk Rural Road funds; Federal Interstate Maintenance, National Highway System, Surface Transportation Program funds, NMDOT State Road Betterment funds, NMDOT State GRIP funds, and NMDOT State Maintenance funds; NHTSA Section 164 Sanctioned funds; and other city, county, and Tribal roadway capital improvement funds).

Lead Agency: NMDOT

Contact: Steve Eagan

Phone: (505) 476-3545

E-mail: steve.eagan@state.nm.us

Action Step Responsible Agency Timeline/Due Date

Step 1: Following the procedures of the NM Highway Safety Improvement Program, plan, program, design, implement, and evaluate engineering type stand-alone safety improvement projects to reduce lane departure-related fatalities and serious injuries by employing any of (but not limited to) the following countermeasures:

- pavement markings,
- warning signs,
- regulatory signs,
- chevrons,
- delineators,
- cable median barriers,
- concrete median barriers,
- median and shoulder guardrail and attenuation devices,
- roadway lighting,
- longitudinal shoulder rumble strips on rural high-speed roadways with four feet or wider shoulders,
- fencing to reduce wild life and livestock animal hits in rural areas,
- horizontal and vertical curve realignment,
- cut back overhanging vegetation in roadside obstructing travel lanes,

- cut back vegetation in roadside to reduce severity of lane departure fixed object crashes,
- cut back vegetation in roadside to increase visibility and avoidance of animals in roadside to reduce animal hit crashes,
- re-grade unpaved shoulders to eliminate travel lane pavement drop off,
- overlay paved shoulders to eliminate higher level paved travel lane drop off to lower level paved shoulder,
- striping centerlines of poorly maintained rural county roads and tribal roads to reduce likelihood of head-on crashes and lane departure crashes,
- Improved Geometry of horizontal curves,
- Widen roadside clear zones, by removing, delineating, shielding or relocating fixed objects or other hazardous objects,

LD-1 (continued)

Action Step Responsible Agency Timeline/Due Date

Step 2: Use available data resources, including, but not limited to, [Annual New Mexico Transparency Report \(5 % Most Severe Safety Needs\)](#), [Mid-Region COG Annual Crash and Safety Report](#) and [NM Annual Traffic Crash Report](#) to identify problem intersections.

(Responsible Agency)

NMDOT [Traffic Technical Support Bureau](#), Districts/MPOs/RPOs
(Timeline/Due Date) Ongoing

Step 3: Establish a [tracking program to monitor](#) HSIP project completion since 2007.

NMDOT and Traffic Technical Support Bureau, [Rhonda Lopez](#)
Ongoing

Step 4: Based on lane departure data collected, develop a statewide policy [of systemic engineering safety countermeasures](#) to reduce the number of lane departure fatal and serious injury crashes. [Such countermeasures introduced as proposed stand-alone safety project applications will receive year-round review and automatic approval, constrained by available budgeted federal HSIP funds, for programming in the STIP and immediate implementation.](#)

NMDOT and Traffic Technical Support Bureau
Ongoing

10.0 Special Users

10.1 INTRODUCTION TO EMPHASIS AREA

The Special Users Emphasis area includes pedestrians, bicyclists, motorcyclists, elderly motorists, and equestrian riders. New Mexico has one of the highest pedestrian fatality rates in the nation.

Pedestrians comprised 12.5 percent of all fatalities and 3.7 percent of serious injuries in New Mexico from 2004 to 2009. Fifty-eight percent of pedestrian fatalities involved alcohol. Bicyclists constituted a much smaller percentage of New Mexico traffic fatalities, just over 1 percent. From 2004 to 2009, New Mexico roadways averaged 53 pedestrian fatalities (31 involving alcohol) and 234 pedestrian serious injuries annually, as shown in Figures 10.1 and 10.2.

10.3 STRATEGIES

STRATEGY SU-1

Strategy:

Develop and Implement Safety Countermeasures to Improve Safety to Special Users: pedestrians, bicyclists, motorcyclists, elderly motorists, and equestrian riders.

Objective:

Reduce Fatalities and Serious Injuries to pedestrians, bicyclists, motorcyclists, elderly motorists, and equestrian riders throughout New Mexico.

Description

A major portion of fatalities and serious injuries occur each year in New Mexico concerning these special users, pedestrians, bicyclists, motorcyclists, elderly motorists, and equestrian riders. Such crash types must be identified and analyzed through the more proactive systemic analysis approach. This strategy will develop methods to analyze special user-related crashes to determine what types of facilities are most affected and to determine contributing crash factors associated with special user-related fatalities and serious injuries in New Mexico.

Performance Measures

- Number of **elderly motorist**, bicyclist, pedestrian, **motorcyclist** and equestrian fatalities, and serious injuries related to motor vehicle crashes.
- Number of roadway miles where BPE facilities or elements are available.

Expected Outcome

- Reduced on-street BPE/vehicular crashes, injuries, and fatalities.

Challenges

- Budgetary limitations on specific projects, interagency coordination, and staff training.

Funding Source

- NMDOT Transportation Design and Construction Funding.

Lead Agency Contact: NMDOT

Contact: **Steve Eagan**

Phone: **(505) 476-3545**

E-mail: steve.eagan@state.nm.us

Action Steps Responsible Agency Timeline/Due Date

Step 1: Following the procedures of the NM Highway Safety Improvement Program, plan, program, design, implement, and evaluate engineering type stand-alone safety improvement projects to reduce fatalities and serious injuries to special users who are pedestrians, equestrian riders, bicyclists, motorcyclists, and elder drivers by employing any of (but not limited to) the following countermeasures:

- Install signing and striping with enhanced visual conspicuity especially oriented for elder drivers with deteriorated eyesight
- Install crosswalks with signal systems especially oriented for elder pedestrians who are slower speed walkers
- Install signing and striping for designated bicycle routes and lanes to reduce bicyclist involved crashes;
- Construct bicycle-pedestrian trails to reduce pedestrian and bicyclist involved crashes.
- Fencing to reduce equestrian hits,

- Enhanced crosswalk pavement markings and signing to reduce pedestrian involved crashes,
- Community Pedestrian Travel Demand Study,
- Install signs, sidewalks, curb and gutter, median refuges, pedestrian detectors, and other devices to reduce pedestrian involved crashes,
- New generation pedestrian count-down signals at pedestrian crosswalks or intersections,
- Install fencing to prevent unauthorized pedestrian travel and to separate pedestrians from vehicular traffic,
- Construct relatively low construction cost pedestrian crossing grade separations for relatively high pedestrian traffic volume benefit.

(Responsible Agency)

NMDOT – Traffic Technical Support Bureau

(Timeline/Due Date)

Ongoing

(Note: All other Steps in Action Steps for Emphasis Area 10.0 Special Users, STRATEGY SU-1, have been deleted.)

STRATEGY LD-2

Strategy: Develop and Implement Wrong Way Driving Countermeasures for Interstates And Four Lane Divided Highways

Objective: Improve the NMDOT's ability to reduce or prevent wrong way driving by identifying best practices for reducing the potential of wrong way drivers and implement those practices through the development of design standards and deployment procedures.

Description

- From the Journal of Forensic Sciences, March 2010 Issue, a study titled "Fatal Wrong-Way Collisions on New Mexico's Interstate Highways, 1990 -2004" was published. This study revealed that during 1990 - 2004 spread out along all sections of all Interstate Routes 10, 25, and 40 in New Mexico there were a total of 49 wrong-way driver crashes causing 79 fatalities. These 49 fatal wrong-way driver crashes and 79 wrong-way driver related fatalities accounted for 5% of all fatal crashes (924) and 6.7 % of all fatalities (1,171) during 1990 -2004 on New Mexico's Interstate highway routes. It was determined that 66% of these wrong-way fatal crashes occurred when it was dark. Crash report data revealed that at least 5 of the wrong-way drivers were observed or admitted to entering the Interstate route by driving the wrong way up an exit ramp. Four drivers were observed making an illegal U-Turn across the median before traveling in the wrong direction. How the other 40 drivers involved in Interstate route wrong-way fatal crashes during 1990- 2004 originally began driving the wrong way on the Interstate routes is unknown. While the rates and frequency of wrong-way crashes may be lower and less concentrated than other types of crashes, the speeds associated with interstate and four lane divided highways increase the potential for a crash occurring on these routes to be a serious injury or fatal crash. More often than not a wrong-way interstate crash will result in at least one fatality.

Performance Measures

- Number of fatalities and serious injuries related to wrong way driving.

Expected Outcome

- Reduced fatalities and serious injuries attributable to wrong way driving.

Challenges

- Lack of designated funding.

Funding Source

- NMDOT (HSIP, High-Risk Rural Road fund; Federal Interstate Maintenance, National Highway System, and Surface Transportation Program funds, NMDOT State Road Fund, NHTSA Section 164 Sanctioned Funds; and other city, county, and Tribal roadway capital improvement funds)

Lead Agency: NMDOT

Contact: Rhonda Lopez

Phone: (505) 827-3274

Email: RhondaC.Lopez@state.nm.us

<i>Action Step</i>	<i>Responsible Agency</i>	<i>Timeline/Due Date</i>
<p>Step 1: Following the procedures of the NM Highway Safety Improvement Program, plan, program, design, implement, and evaluate engineering type stand-alone safety improvement projects to reduce lane departure related fatalities and serious injuries specifically related to wrong way driving on controlled access Interstate routes and four-lane divided highways. Such projects will employ any of (but not limited to) the following countermeasures: Install larger sign face and more numerous density sets of chevrons, delineators, raised pavement markers (buttons), striping and signs facing wrong-way travel on exit ramps or facing wrong way travel on divided highway travel lanes; or facing wrong-way travel on one-way streets or facing wrong-way travel on one-way frontage roads; Re-mount closer to the ground for better visibility at night to impaired drivers existing Do Not Enter and Wrong Way Signs.</p>	<p>NMDOT, Traffic Technical Support Bureau, Regional Design Bureaus, Districts</p>	<p>Ongoing</p>

6.3 Strategies

STRATEGY LD-3

Strategy: Develop and Implement ITS Plan and Countermeasures for The Reduction Of Secondary Crashes On Interstates And Major Commuter Routes In Accordance With The Adopted Statewide ITS Infrastructure

Objective: Improve the NMDOT's ability to reduce or prevent secondary crashes that occur on Interstate highways and major commuter routes through the development of criteria to identify locations with higher than average occurrences of secondary crashes and the development of an implementation plan in accordance with the adopted Statewide ITS Architecture.

Description

- Secondary crashes often occur on Interstate highways and high volume commuter corridors. These crashes occur in the queue that develops from traffic slowing or stopping as a result of the crash and subsequent investigation. The secondary crashes occur for various reasons but one common cause on Interstates and high speed commuter routes is the differential speed condition that occurs at the back end of the queue where vehicles travelling at normal running speeds encounter the dramatically slower traffic in the queue. When this differential speed interaction occurs with limited sight distance or when the driver of the approaching vehicle is distracted the potential for a crash increases dramatically. The use of ITS solutions such as real time traffic monitoring/surveillance and advanced driver warning systems can help to warn drivers of the crash and encourage the drivers to reduce speeds or seek alternate routes resulting in a reduced potential for secondary crashes.

Performance Measures

- Number of secondary crashes on Interstates and major commuter routes.

Expected Outcome

- A reduction in secondary crashes on Interstates and major commuter routes by investing safety funds in ITS solutions with the highest potential for significant benefit

Challenges

- Personnel and funding resources to identify and implement the ITS solutions

Funding Source

- NMDOT (HSIP, High-Risk Rural Road funds; Federal Interstate Maintenance, National Highway System, Surface Transportation Program funds, NMDOT State Road Betterment funds, NMDOT State GRIP Funds, and NMDOT State Maintenance Funds; NHTSA Section 164 Sanctioned funds; and other city, county, and Tribal roadway capital improvement funds).

Lead Agency: NMDOT

Contact Person: Charles Remkes
Phone: (505) 222-6554
Email: Charles.Remkes@state.nm.us

<i>Action Step</i>	<i>Responsible Agency</i>	<i>Timeline/Due Date</i>
<p>Step 1: Following the procedures of the NM Highway Safety Improvement Program, plan, program, design, implement, and evaluate engineering type stand-alone safety improvement projects to reduce lane departure related fatalities and serious injuries specifically related to secondary crashes on Interstates and major commuter routes. Such projects will employ any of (but not limited to) the following countermeasures: Install dynamic message signs and supporting components to be integrated into the adopted New Mexico statewide ITS Architecture.</p>	<p>NMDOT, Intelligent Transportation System (ITS) Bureau</p>	<p>Ongoing</p>