Integration of Safety into Transportation Planning

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Overview

- What is safety?
- Federal requirements - MAP21 and FAST
- How does the NMDOT integrate safety into planning?
  - The Plan - Strategic Highway Safety Plan (SHSP)
  - The Program - Highway Safety Improvement Program (HSIP)
- Safety data NM – where are we?
- SHSP Emphasis Areas
Safety factors

- Built environment/infrastructure – design, construction and performance of facilities (roads, sidewalks, bike lanes, bridges, curves, intersections)
- Behavioral – how people behave (texting, seat belts, obeying traffic laws, driving under the influence, etc.)
- Who is the user? – pedestrians, bicyclists, elderly, young, limited abilities
The Safety Mission

To reduce the number of crashes on U.S. roadways and the severity of crash impacts.

“Toward Zero Deaths: A National Strategy on Highway Safety”
Federal Safety Requirements

MAP-21 (2012) and FAST Act (2015)

- Strategic Highway Safety Plan with regular evaluation – due 8/1/2017
- Transparency and public input
- Coordination of plans and consistency between goals
- Sets performance measures for Serious Injuries and Fatals
- Requires program of projects/strategies consistent with SHSP
- More emphasis on tribal considerations and planning
- Greater emphasis on Road Safety Audits and systemic approaches
What is the SHSP?

Statewide plan to reduce the number of severe crashes across the state and improve the safety of New Mexico’s roads and highways.
SHSP Key Considerations

- Data-driven (primarily crash data)
- Comprehensive and multidisciplinary
- Includes performance measures – reduction of SIs/Fatals
- Integrates the 4Es: engineering, education, enforcement, and emergency medical services
- Describes a program of strategies to improve safety
- Connects other state highway safety plans
- Requires evaluation
- Transparent and seriously considers stakeholder input
Strategic Direction and Coordination
SHSP - Process

1. Project Management Team uses crash data to identify, analyze and prioritize Emphasis Areas
2. Develop draft set of strategies for each Emphasis Area based on national best practices, current Safety Plan and input
3. Groups of knowledgeable stakeholders develop, critique and prioritize safety strategies – DOT Project Management Team finalizes

   Fall 2013 – Safety Launch
   2014-2015 Four Focus Group meetings
   Spring 2015 – Safety Summit
   Spring 2016 – SHSP Draft Issued
Emphasis areas are key focus areas that affect highway safety – based on:

- Data-driven process looking at NM serious crashes (fatalities plus incapacitating injuries)
- Areas of greatest potential for reducing fatalities and incapacitating injuries
- Based on best national practices
- Project Management Team approves based on Stakeholder input: Safety Launch, Focus Groups develop, review, Summit final
Highway Safety Improvement Program

- Implements SHSP
- Projects must meet Emphasis Area strategy
- Infrastructure projects only (as of FAST) – education and enforcement from NHTSA/HSP
- Annual report – projects funded, programmed, obligated and constructed; crash data – trends; evaluation
HSIP - Eligible Projects/Activities

- 9 Proven safety countermeasures (rumble strips, road diets, roundabouts, etc.)
- Road Safety Audits/Assessments (RSAs)
- Projects resulting from RSAs (must comply with SHSP and be approved by DOT and FHWA)
- Public rail crossings (Section 130 program set aside)
- Data collection and analysis
- Program administration
NMDOT Changes in 2015

SHSP and HSIP moved from Engineering to Planning for better integration into other programs

- Federal Aid programs - TAP, RTP, SRTS, CMAQ Flex
- Bicycle Pedestrian Equestrian Program
- MPOs/RTPOs
- Statewide Long Range Transportation Plan
- Tribal Liaison
- Asset Management
- Data Management
HSIP – NMDOT Program

- $21 million/year (slight increase under FAST)
- $11 million to Highway Maintenance for District projects – proven safety countermeasures
- $1.6 million to Section 130
- Remainder to:
  - Programmed projects selected in previous years (currently programmed through FFY2018)
  - Projects resulting from RSAs
  - Other projects selected by HSIP Committee
  - Rail crossing projects (beyond Section 130)
Pop Quiz

How many traffic fatalities occurred on New Mexico roads in 2015?

a) 484
b) 361
c) 300
d) 150
e) 753
Highway Safety Clock 2013 – 2015

Worldwide (World Bank)
- 133 persons were killed per hour in traffic crashes in 2013.

United States (NSC)
- Over 4 persons were killed per hour in traffic crashes in 2015. (38,300 per year) (Over +8%)

New Mexico – Ped crashes
- 2014 - NM 3.55 fatalities/100k – highest in US (1.53 avg. US)
- Overall US ped crashes up +10% 1st 6 months

New Mexico (300 killed 2015)
- One person was killed every 30 hours in traffic crashes in 2015. (20% decrease, 2014 - 383)

Over 4 persons were killed per hour in traffic crashes in 2015. (38,300 per year) (Over +8%)
Safety is Everybody's Business
SHSP - Data

- Current SHSP based on crash data from 2009-2013
- Crash data collected from police reports entered in UNM database
- Fatal crash data from Fatality Analysis Reporting System (FARS)
- Improvements to data over past year
  - More data being reported/collected, better analysis
  - Crashes geo-coded (mapped) – by functional class (type) of road and road ownership
Data Driven Problem Identification

Additional safety factors to consider:

- Safety on **all** public roads, including non-State-owned and tribal
- **RSA** findings
- Locations that pose risk factors for **potential** crashes
- **Rural roads**, including all public roads, with fatal crashes
- Motor vehicle crashes with **bikes/peds** resulting in F/SI
- **Cost-effectiveness** of improvements
- Improvements to **rail-highway grade crossings** (Section 130)
New Mexico Crash Fatalities (K) (2007-2015)

NUMBER OF FATALITIES

YEAR


413 366 361 349 350 366 311 383 300

No. of Fatalities  Linear (No. of Fatalities)
New Mexico Crash Serious Injuries (A) (2007-2014)
New Mexico and National Fatal Crash and VMT Trends – 2000 to 2012
New Mexico Fatal Crashes
Ranking by EA (2007-2012)
Performance Measures – FAST

- Total number of fatalities
- Total fatalities per VMT
- Total number of serious injuries
- Total serious injuries per VMT
- Total pedestrian and bicycle fatalities and serious injuries
# SHSP Road Departure Data

## Road Departure Emphasis Area

### Total Fatal and Incapacitating Injury Crash Statistics, 2007 to 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Characteristics</th>
<th># of Crashes</th>
<th>% of Total</th>
<th># of Crashes</th>
<th>% of Total</th>
<th># of Crashes</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road Departure Statewide Totals</strong></td>
<td></td>
<td>1,051</td>
<td>100.0%</td>
<td>3,021</td>
<td>100.0%</td>
<td>4,072</td>
<td>100.0%</td>
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<tr>
<td>Urban</td>
<td></td>
<td>204</td>
<td>27.0%</td>
<td>1,237</td>
<td>40.6%</td>
<td>1,643</td>
<td>40.6%</td>
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<tr>
<td>Rural</td>
<td></td>
<td>707</td>
<td>73.0%</td>
<td>1,562</td>
<td>54.4%</td>
<td>2,409</td>
<td>59.2%</td>
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<tr>
<td>Tribal Land</td>
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<td>52</td>
<td>7.9%</td>
<td>123</td>
<td>4.1%</td>
<td>206</td>
<td>5.1%</td>
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<tr>
<td>Intersection Related</td>
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<td>78</td>
<td>7.4%</td>
<td>189</td>
<td>6.2%</td>
<td>200</td>
<td>5.1%</td>
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<tr>
<td>Road Departure</td>
<td></td>
<td>1,051</td>
<td>100.0%</td>
<td>3,021</td>
<td>100.0%</td>
<td>4,072</td>
<td>100.0%</td>
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<tr>
<td>Work Zone Related</td>
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<td>21</td>
<td>2.0%</td>
<td>51</td>
<td>1.7%</td>
<td>72</td>
<td>1.8%</td>
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<tr>
<td>Young Driver</td>
<td></td>
<td>174</td>
<td>16.5%</td>
<td>573</td>
<td>18.9%</td>
<td>740</td>
<td>18.4%</td>
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<tr>
<td>Older Driver</td>
<td></td>
<td>174</td>
<td>16.5%</td>
<td>251</td>
<td>8.3%</td>
<td>365</td>
<td>9.0%</td>
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<tr>
<td>Pedestrian Involved</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Bicyclist Involved</td>
<td></td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>Alcohol Involved</td>
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<td>417</td>
<td>39.7%</td>
<td>649</td>
<td>21.5%</td>
<td>1,066</td>
<td>26.2%</td>
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<tr>
<td>Distracted Driving</td>
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<td>644</td>
<td>61.8%</td>
<td>1,028</td>
<td>34.0%</td>
<td>2,369</td>
<td>58.1%</td>
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<tr>
<td>Drug Involved</td>
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<td>16</td>
<td>1.5%</td>
<td>54</td>
<td>1.8%</td>
<td>70</td>
<td>1.7%</td>
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<tr>
<td>Impaired Driving</td>
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<td>424</td>
<td>40.3%</td>
<td>707</td>
<td>23.4%</td>
<td>1,131</td>
<td>27.5%</td>
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<tr>
<td>Unlicensed Motorcyclist</td>
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<td>130</td>
<td>12.4%</td>
<td>233</td>
<td>8.0%</td>
<td>373</td>
<td>9.2%</td>
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<tr>
<td>No Safety Restraint Used</td>
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<td>349</td>
<td>32.8%</td>
<td>252</td>
<td>8.3%</td>
<td>597</td>
<td>14.7%</td>
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<tr>
<td>Sleepy / Fatigued Related</td>
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<td>59</td>
<td>5.6%</td>
<td>153</td>
<td>5.1%</td>
<td>212</td>
<td>5.2%</td>
</tr>
<tr>
<td>Speeding / Aggressive Driving</td>
<td></td>
<td>531</td>
<td>50.5%</td>
<td>1,112</td>
<td>36.8%</td>
<td>1,643</td>
<td>40.5%</td>
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<tr>
<td>Motorcycle Involved</td>
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<td>330</td>
<td>31.8%</td>
<td>632</td>
<td>20.9%</td>
<td>762</td>
<td>18.7%</td>
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<tr>
<td>Other Involved</td>
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<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
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<tr>
<td>Heavy Vehicle Involved</td>
<td></td>
<td>107</td>
<td>10.3%</td>
<td>150</td>
<td>5.0%</td>
<td>257</td>
<td>6.3%</td>
</tr>
<tr>
<td>Multiple Vehicles</td>
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<td>245</td>
<td>23.3%</td>
<td>706</td>
<td>23.4%</td>
<td>951</td>
<td>23.4%</td>
</tr>
<tr>
<td>Inclement Weather</td>
<td></td>
<td>112</td>
<td>10.7%</td>
<td>293</td>
<td>9.7%</td>
<td>405</td>
<td>9.9%</td>
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<tr>
<td>Wildlife/Animal Related</td>
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<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dusk/Dawn</td>
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<td>57</td>
<td>5.4%</td>
<td>133</td>
<td>4.4%</td>
<td>100</td>
<td>2.5%</td>
</tr>
<tr>
<td>Dark-No Light</td>
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<td>367</td>
<td>34.9%</td>
<td>643</td>
<td>21.3%</td>
<td>1,010</td>
<td>24.8%</td>
</tr>
</tbody>
</table>

### Severe Road Departure Crashes in New Mexico by Year, 2007 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal</th>
<th>Incapacitating Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>241</td>
<td>535</td>
</tr>
<tr>
<td>2008</td>
<td>211</td>
<td>629</td>
</tr>
<tr>
<td>2009</td>
<td>198</td>
<td>678</td>
</tr>
<tr>
<td>2010</td>
<td>203</td>
<td>600</td>
</tr>
<tr>
<td>2011</td>
<td>200</td>
<td>579</td>
</tr>
<tr>
<td>2012</td>
<td>164</td>
<td>420</td>
</tr>
</tbody>
</table>

### Annual Trend in Total Severe Road Departure Crashes, 2007 to 2012

[Graph showing annual trend with data points for 2007 to 2012]
Contributing Factors and Countermeasures – Road Departure Crashes

- 73% fatal crashes rural; 54% A crashes urban
- Distracted driving -- 52% fatal crashes; 62% A crashes
- Speeding/Aggressive driving – 50% fatal crashes; 37% A crashes
- Alcohol involved – 40% fatalities

Potential countermeasures
- Shoulder rumble strips
- Fix sharp curves
- Cable Median Barrier
- Widen shoulders
Pedestrian Injuries at Impact Speeds

**MPH**

- **40 MPH**
  - 85% death
  - 15% injured

- **30 MPH**
  - 45% death
  - 50% injured
  - 5% uninjured

- **20 MPH**
  - 5% death
  - 65% injured
  - 30% uninjured
Knowing is not enough; we must apply.

- Leonardo da Vinci
Questions?

Thanks!