Incorporating Safety Data In the Planning Process at the Rural Level

May 4, 2017

Presented by: Nicole Waldheim & Danena Gaines
Webinar Logistics

- Duration is 11:00 AM - 12:30 PM Mountain
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- At the end of each section, there will be time for Q&A
- There is a handout pod at the bottom of the screen
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Presenters

Nicole Waldheim
Cambridge Systematics, Inc.

Danena Gaines
Cambridge Systematics, Inc.
Goals of this Webinar

Once you have completed this webinar, you will be able to:

Summarize the elements of safety data and analysis and understand opportunities to utilize both into the transportation planning process
Learning Outcomes

To achieve the webinar goal, you will learn to:

- Summarize the purpose of transportation safety planning.
- List approaches to collect safety data.
- Compare safety analysis methods.
- Identify opportunities to apply safety data and analysis to the planning process.
Summarize the purpose of transportation safety planning.

List approaches to collect safety data.

Compare safety analysis methods.

Identify opportunities to apply safety data and analysis to the planning process.
Importance of Incorporating Safety into the Planning Process

• **Address severe crashes** on public roads in nonmetropolitan areas

• **Use low cost countermeasures** to address high risk roadway features at multiple locations

• Help the state and your local agency **meet fatality and serious injury targets** for all public roads

• Consider safety within the context of **all transportation projects** to make the future system safer

• **Save Lives!**
Saving Lives!

- Motor vehicle fatalities have leveled out for the last five years and are projected to rise in the coming years.

- Over 40,000 estimated motor vehicle fatalities in 2016
  - 6% increase from 2015
  - 14% increase from 2014

- In 2014, motor vehicle fatalities was the single largest cause of death for persons aged 15-29.
The Rural Safety Context

• 19 percent of the United States population lives in rural areas, but rural fatalities account for 51 percent of all fatalities (2014)

• 16,710 out of 32,675 traffic fatalities occurred in rural areas (2014)

• Traffic crashes increased in 2015 and 2016 – inexpensive gas, distracted driving, and speeding

• Other contributing factors to rural crashes – roadway geometry, physical limitations, speed, exposure

Regional Transportation Planning Organization (RPO/RTPO) Planners Role

- Forum for identifying regional priorities
- Conduct public involvement
- Connection to elected officials
- Lead or support long range planning processes
- Staff expertise
- Boots on the ground
- Champions
### RTPO Planning Processes

1. Develop a regional transportation plan
2. Provide input into the statewide plan
3. Coordinate the development of other planning documents

#### Planning Tasks

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Involvement and Outreach</td>
</tr>
<tr>
<td>Multidisciplinary Coordination and Input</td>
</tr>
<tr>
<td>Data Collection and Analysis</td>
</tr>
<tr>
<td>Development of Goals and Objectives</td>
</tr>
<tr>
<td>Identification of Performance Measures and Targets</td>
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<tr>
<td>Project Prioritization and Programming</td>
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<tr>
<td>Monitoring and Evaluation</td>
</tr>
</tbody>
</table>
# Seven Transportation Safety Principles

1. Include safety data and/or discussions in public and stakeholder engagement activities

2. Discuss safety at committee meeting or identify opportunities to engage safety stakeholders in transportation plans

3. Collect and analyze crash and roadway data to identify transportation safety goals, objectives, and project priorities

4. Utilize public and stakeholder input, the results of data analysis, and information in other plans to develop safety goals and objectives in planning documents

5. Identify safety performance measures and targets to track progress towards the safety goals and objectives

6. Establish safety as a decision factor for the selection of transportation projects

7. Routinely track and monitor safety performance and evaluate safety programs and policies
Directing Your Questions via the Chat

1. Chat pod is on left side of screen between attendees pod & closed caption pod

2. Type your question or comment here

3. Answers will appear here unless addressed verbally
Summarize the purpose of transportation safety planning.

List approaches to collect safety data.

Compare safety analysis methods.

Identify opportunities to apply safety data and analysis to the planning process.
Data Collection Questions

• What types of data are available to address safety?
• Where can I go to obtain data?
Common Types of Traffic Safety Data

- **Roadway**
- **Traffic Volume**
- **Citation and Adjudication**
- **Injury Control**
- **Driver and Passenger**
- **Vehicle**

Datasets addressed in detail in this guidebook:
- Roadway
- Traffic Volume
- Citation and Adjudication

Other safety datasets that are not addressed in detail in this guidebook:
- Injury Control
- Driver and Passenger
- Vehicle

Source: Adapted from FHWA Applying Safety Data and Analysis to Performance-Based Transportation Planning. November 2015
Crash Data

- For each crash that meets a minimum injury or property damage reporting threshold, a large set of information is collected and entered into a State database

- Where, why, what, and how fatalities and serious injuries are occurring

- Fatal and suspected serious injuries (K’s and A’s)
Crash Data Process

Data Standards
- MMUCC

Crash Scene
- Crash Report

Data Storage
- State Database

Crash Data Access
- DOT or Data Owner

Analysis and Mapping

Countermeasure Development

Implementation

Evaluation
Roadway Data

• States collect and inventory data on roadway features and traffic elements
  – Physical attribute and condition of the roadway network
  – Associate crashes with road features to further investigate and identify solutions

Model Inventory of Roadway Elements (MIRE)
Recommended listing of roadway characteristics to be collected.

Examples:

- Roadway classification
- Paved surface characteristics
- Number and type of travel lanes
- Shoulder, median, and roadside descriptors
- Curve and grade information
- Traffic control devices
- Intersection Features
- Pedestrian and Bicycle Facilities
Traffic Volume

- All States are required to collect and submit traffic count data to understand traffic volume

FHWA’s Highway Performance Monitoring System (HPMS)

- Ability to identify dangerous segments/intersections based on traffic volume (vehicle miles traveled)

- Ability to compare/contrast different planning areas (state versus planning area or jurisdiction versus jurisdiction)
Learning More About Safety Data

• Explore Traffic Records Coordinating Committee activities
• Utilize Online and In-Person Training and Education Tools
• Attend a safety meeting (Strategic Highway Safety Plan, emphasis area team, statewide summit)
• Meet with your DOT District/Division person or headquarters staff
• Meet with law enforcement in your community
Obtaining Safety Data – Primary Sources

• State crash/roadway database (raw data or custom inquiries)

• Fatality Analysis Reporting System (FARS) https://www-fars.nhtsa.dot.gov/Main/index.aspx

• FHWA Safety Data program (http://safety.fhwa.dot.gov/rsdp/)

• Centers for Disease Control WISQARS Injury Database

• Transportation and safety planning documents (SHSP, HSP, HSIP, LRTP)
Obtaining Safety Data – Additional Sources

- Local safety agencies/organizations (MADD)
- Qualitative data (public input, surveys)
- Regional/local crash database
- Local law enforcement
- LTAP/TTAP
**Directing Your Questions via the Chat**

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Summarize the purpose of transportation safety planning.

List approaches to collect safety data.

Compare safety analysis methods.

Identify opportunities to apply safety data and analysis to the planning process.
Data Analysis Questions

• What types of safety analysis methods can be utilized to inform transportation safety plans and projects?

• What do the different types of analyses tell me?
## Common Types of Data Analysis

<table>
<thead>
<tr>
<th>Analysis Category</th>
<th>Analysis Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benchmarking</strong></td>
<td>• How many fatalities and serious injuries are occurring in my area?</td>
</tr>
<tr>
<td></td>
<td>• How does this compare to other areas or my State?</td>
</tr>
<tr>
<td><strong>Identify Crash Trends</strong> and Contributing Factors</td>
<td>• Who is involved in crashes?</td>
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<td></td>
<td>• When are the crashes occurring?</td>
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<td></td>
<td>• What are the major contributing factors to crashes?</td>
</tr>
<tr>
<td><strong>Identify and Evaluate Focus Crash Types</strong></td>
<td>• What are the most common crash types?</td>
</tr>
<tr>
<td></td>
<td>• What are the most common contributing factors?</td>
</tr>
<tr>
<td></td>
<td>• What are the characteristics of the over representation?</td>
</tr>
<tr>
<td><strong>Network Screening—Identify Sites for Safety Improvement</strong></td>
<td>• What locations (intersections or segments) show the most potential for safety improvements?</td>
</tr>
<tr>
<td><strong>Systemic Analysis—Identify Safety Risk Factors</strong></td>
<td>• What are the common characteristics of locations with crashes?</td>
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<tr>
<td></td>
<td>• What are the countermeasures to address these characteristics?</td>
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<td></td>
<td>• How should we prioritize system wide implementation?</td>
</tr>
<tr>
<td><strong>Corridor and Intersection Planning Safety Analysis</strong></td>
<td>• What are the safety effects of alternative roadway or intersection cross sections?</td>
</tr>
</tbody>
</table>
Benchmarking

**What It Does**

- Establishes a baseline for performance
- Tracks performance
- Provides a basic understanding of the safety problem
- Allows for comparisons

![Graph showing serious injuries and fatalities trend from 2009 to 2013.]

- Serious Injuries
- Fatalities
- Trend
Contributing Factors

What It Does

- Provides high level information on crash characteristics
  - Who is involved
  - What is involved
  - When the crash occurred
  - Where the crash occurred
  - Why a crash occurred
- Identifies areas of concern
- Establishes emphasis areas
- Leads to development of strategies and actions

![Bar chart showing the number of serious injuries and fatalities for different crash types.](chart.png)
Contributing Factors

[Pie chart showing gender distribution in fatal crashes: Male 72%, Female 2%, Unknown 26%]

[Bar charts showing monthly and weekly fatal and serious injury crashes with AZ K+A trend lines]

[Map with accident data markers and categories: 1 to 4 crashes (0th - 20th percentile), 5 crashes (21st - 80th percentile), 6 to 8 crashes (81st - 90th percentile), 9 to 10 crashes (91st - 95th percentile), 11 to 42 crashes (96th - 100th percentile)]
Crash Types

What It Does

- Identifies over-represented and severe crash types
- Leads to development of strategies and actions to address
- Provides initial set of data points for a systemic analysis
Network Screening

What It Does

• Identifies sites (intersections, segments) that would benefit from safety improvements

  • Crash frequency, crash rate, equivalent property damage only (EPDO), or other performance metrics

• Prioritizes Sites

• Enables the use of field investigations or safety audits to recommend countermeasures

• Understand where safety improvements could be made in coordination with other transportation projects in the planning area
## Network Screening

<table>
<thead>
<tr>
<th>Final Rank</th>
<th>Intersection</th>
<th>Traffic Control</th>
<th>Frequency Rank</th>
<th>EPDO Rank</th>
<th>Crash Rate Rank</th>
<th>Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>U.S. 60 at Randanovich Boulevard at Globe Food Mart access road</td>
<td>Signal</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>SR 87/Beeline Highway at Longhorn Road at U.S. 260</td>
<td>Signal</td>
<td>1</td>
<td>9</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>SR 260 at Manzanita Drive at Granite Dells Road</td>
<td>Signal</td>
<td>4</td>
<td>12</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>SR 260 at Valley Road at Highline Drive</td>
<td>Stop Sign</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>Broad Street at Oak Street</td>
<td>Stop Sign</td>
<td>7</td>
<td>16</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>6</td>
<td>SR 87/Beeline Highway at Bonita Street</td>
<td>Signal</td>
<td>2</td>
<td>10</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>7</td>
<td>SR 188/Apache Trail at U.S. 60 at Russell Road</td>
<td>Signal</td>
<td>7</td>
<td>8</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>8</td>
<td>U.S. 60/Ash Street at Hill Street</td>
<td>Signal</td>
<td>6</td>
<td>15</td>
<td>11</td>
<td>32</td>
</tr>
<tr>
<td>9</td>
<td>U.S. 60 at Escudilla Drive at Main Street</td>
<td>Signal</td>
<td>3</td>
<td>26</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>10</td>
<td>SR 347/John Wayne Parkway at Papago Road</td>
<td>Stop Sign</td>
<td>14</td>
<td>3</td>
<td>24</td>
<td>41</td>
</tr>
</tbody>
</table>
Network Screening
Predictive Analysis – Systems and Corridor/Intersection Planning

**System Planning**
Planners identify needs and program projects

**HSM Application - Part B**
- Identify sites most likely to benefit from safety improvement
- Identify targeted crash patterns for the network
- Prioritize expenditures for efficiency

**Operations and Maintenance**
Traffic and Operations Engineers modify existing conditions to maintain and improve safety and efficient operation

**HSM Application - Part B and C**
- Identify crash patterns at existing locations
- Evaluate safety effectiveness of potential countermeasures
- Modify policies and design criteria for future planning and design

**Project Planning & Preliminary Engineering**
Safety Engineers and Project Managers identify alternatives and choose the preferred solution

**HSM Application - Part B**
- Identify targeted crash patterns for the project
- Evaluate countermeasures’ costs and effectiveness
- Compare change in crash frequency to predict safety effect of alternatives

**Design and Construction**
Project Managers, Designers, and Construction Engineers develop design plans and build projects

**HSM Application - Part C**
- Evaluate how performance measures are impacted by design changes and construction
- Assess potential change in crash frequency during design exception evaluation
Systemic Analysis

What It Does

• Reduces crash frequency and severity through implementation of low-cost safety improvements to address high-risk roadway features correlated with specific severe crash types
  • (What) Select Focus Crash Types: Fixed Object
  • (Where) Select Focus Facilities: Rural major collector
  • (Why) Identify and Evaluate Risk Factors: Speed
  • Screen and prioritize candidate locations
  • Select and implement countermeasures
Systemic Analysis – Identify Crash Type

<table>
<thead>
<tr>
<th>Emphasis Areas</th>
<th>Total Fatalities</th>
<th>Percentage of Total Fatalities</th>
<th>Total Serious Injuries</th>
<th>Percentage of Total Serious Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Departure</td>
<td>464</td>
<td>52%</td>
<td>3,894</td>
<td>34%</td>
</tr>
<tr>
<td>Aggressive Drivers</td>
<td>343</td>
<td>39%</td>
<td>5,344</td>
<td>47%</td>
</tr>
<tr>
<td>Younger Driver (15-25)</td>
<td>303</td>
<td>34%</td>
<td>4,710</td>
<td>41%</td>
</tr>
<tr>
<td>Unrestrained</td>
<td>301</td>
<td>34%</td>
<td>1,446</td>
<td>13%</td>
</tr>
<tr>
<td>Intersection</td>
<td>212</td>
<td>24%</td>
<td>3,671</td>
<td>32%</td>
</tr>
<tr>
<td>Speeding</td>
<td>188</td>
<td>21%</td>
<td>1,280</td>
<td>11%</td>
</tr>
<tr>
<td>Impaired Driver</td>
<td>172</td>
<td>19%</td>
<td>1,147</td>
<td>10%</td>
</tr>
<tr>
<td>Older Driver (65+)</td>
<td>156</td>
<td>18%</td>
<td>2,173</td>
<td>19%</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>106</td>
<td>12%</td>
<td>638</td>
<td>6%</td>
</tr>
<tr>
<td>CMV</td>
<td>90</td>
<td>10%</td>
<td>523</td>
<td>5%</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>88</td>
<td>10%</td>
<td>373</td>
<td>3%</td>
</tr>
<tr>
<td>Distracted Drivers</td>
<td>72</td>
<td>8%</td>
<td>756</td>
<td>7%</td>
</tr>
</tbody>
</table>

- Greatest number of severe crashes across the roadway system being analyzed
- Greatest potential to reduce fatalities and severe injuries

![Percentage of Regional Multi-Vehicle Crashes](chart.png)
Systemic Analysis – Focus Facilities

UTAH SYSTEMIC SAFETY ANALYSIS: MULTIPLE VEHICLE CRASHES ON URBAN PRINCIPAL ARTERIALS (2008-2012)

Legend
- Crash Type:
  - Total Crashes (% of Parent Category)
  - Fatal and Serious Injury Crashes (% of Parent Category)

Statewide Crashes: 250,948
  - 6,533

Urban Crashes: 190,438 (75.9)
  - 3,952 (60.5)

Rural Crashes: 60,510 (24.1)
  - 2,581 (39.5)

Pedestrian: 3,096 (1.2)
  - 562 (14.7)

Bicycle: 3,412 (1.3)
  - 285 (7.2)

Motorcycle: 4,044 (1.6)
  - 609 (16.7)

Commercial Vehicle: 30,354 (9.8)
  - 1,783 (5.8)

Single Vehicle: 28,277 (16.8)
  - 558 (14.1)

Two or More Vehicles: 145,896 (24.8)
  - 2,490 (42.8)

Local Street: 20,734 (16.7)
  - 146 (0.9)

Collector: 15,502 (19.5)
  - 186 (1.0)

Minor Arterial: 26,808 (19.0)
  - 385 (22.8)

Principal Arterial: 72,283 (49.5)
  - 827 (40.9)

Interstate: 73,824 (15.3)
  - 144 (0.5)

Intersection-related: 35,520 (62.3)
  - 600 (12.8)

Not Intersection-related: 21,398 (37.7)
  - 224 (2.7)

Signalized: 27,037 (75.9)
  - 408 (15.5)

Not Signalized: 8,593 (24.1)
  - 115 (10.3)

Rear-End: 12,799 (47.0)
  - 93 (7.1)

Angle: 4,148 (15.3)
  - 126 (25.0)

Left Turn: 7,448 (27.6)
  - 236 (4.2)

Sideswipe (Same Dir.): 5,120 (19.4)
  - 46 (8.8)

Left Turn: 2,804 (26.8)
  - 56 (46.7)

Sideswipe (Opposite Dir.): 78 (8.9)
  - 2 (3.7)

Head-On: 804 (13.6)
  - 47 (3.8)

Sideswipe (Opposite Dir.): 78 (8.9)
  - 2 (3.7)

Head-On: 148 (3.7)
  - 2 (2.1)

Parked Vehicle: 55 (0.8)
  - 8 (2.6)

Other: 65 (0.8)
  - 2 (0.4)

Parked Vehicle: 55 (0.8)
  - 8 (2.6)

Other: 65 (0.8)
  - 2 (0.4)

Parked Vehicle: 55 (0.8)
  - 8 (2.6)

Other: 65 (0.8)
  - 2 (0.4)
Systemic Analysis – Risk Factors

- Identify potential risk factors
  - Roadway and intersection features
  - Traffic volume
  - Transit stops, land use, etc.
- Evaluate risk factors
- Select final risk factors

### Potential Risk Factors

#### Roadway and Intersection Features
- Number of lanes
- Lane width
- Shoulder surface width and type
- Median width and type
- Horizontal curvature, superelevation, delineation, or advance warning devices
- Horizontal curve density
- Horizontal curve and tangent speed differential
- Presence of a visual trap at a curve or combinations of vertical grade and horizontal curvature
- Roadway gradient
- Pavement condition and friction
- Roadside or edge hazard rating (potentially including sideslope design)
- Driveway presence, design, and density
- Presence of shoulder or centerline rumble strips
- Presence of lighting
- Presence of on-street parking
- Intersection skew angle
- Intersection traffic control device
- Number of signal heads vs. number of lanes
- Presence of backplates
- Presence of advanced warning signs
- Intersection located in or near horizontal curve
- Presence of left-turn or right-turn lanes
- Left-turn phasing
- Allowance of right-turn on red
- Overhead versus pedestrian-mounted signal heads
- Pedestrian crosswalk presence, crossing distance, signal head type

#### Traffic Volume
- Average daily traffic volumes
- Average daily entering vehicles
- Proportion of commercial vehicles in traffic stream

#### Other Features
- Posted speed limit or operating speed
- Presence of nearby railroad crossing
- Presence of automated enforcement
- Adjacent land use type (e.g., schools, commercial, or alcohol sales establishments)
- Location and presence of bus stops
Directing Your Questions via the Chat

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Summarize the purpose of transportation safety planning.

List approaches to collect safety data.

Compare safety analysis methods.

Identify opportunities to apply safety data and analysis to the planning process.
How the results of safety data analysis can be used to inform
- Goals and objectives
- Performance measures and targets
- Projects and programs
Why Safety Data Analysis Should Inform Planning Decisions

- **Vision**: Safety community
- **Goal**: Safe transportation system
- **Objectives** (Usually several objectives)
  - Reduce fatal crashes
  - Reduce ped/bike crashes
  - Enhance transit safety
  - Reduce serious injuries

- **Key Performance Measures**
  - # of fatal crashes
  - # of serious injuries
  - Fatalities per 100M VMT

- **Target**
  - Decrease fatal crashes by 5% each year

- **Project Evaluation Criteria**
  - Decrease in crashes
  - Decrease in serious injuries
  - Decrease in societal costs due to crashes
  - Decrease in conflict points
Benchmarking

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal</th>
<th>Objectives</th>
<th>Performance</th>
<th>Programs/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>121</td>
<td>329</td>
<td>319</td>
<td>90</td>
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<td>2010</td>
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<td>2011</td>
<td>99</td>
<td>276</td>
<td>136</td>
<td>413</td>
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<tr>
<td>2012</td>
<td>136</td>
<td>413</td>
<td>100</td>
<td>294</td>
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<tr>
<td>2013</td>
<td>100</td>
<td>294</td>
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## Contributing Factors

### Goal
Set specific safety goals
Reduce lane departure fatalities

### Objectives
Better understanding of what is occurring in planning area to specify approaches to address safety goals

### Performance
Ability to establish a baseline and track trends by specific issue

### Programs/Projects
Adopt/reference applicable safety programs/projects
Consider specific safety programs that address priority issues
Conduct road safety audits

<table>
<thead>
<tr>
<th>Lane Departure</th>
<th>Speeding</th>
<th>Young Drivers</th>
<th>Impaired</th>
<th>Motorcyclist</th>
<th>Unrestrained</th>
<th>Intersection</th>
<th>Drowsy Drivers</th>
<th>Elder Drivers (70+)</th>
<th>Bicyclist</th>
<th>Drunk Drivers</th>
<th>Heavy Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>168</td>
<td>109</td>
<td>100</td>
<td>79</td>
<td>45</td>
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<td>4</td>
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<tr>
<td>Serious Injuries</td>
<td>Fatalities</td>
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### Serious Injuries

### Fatalities

<table>
<thead>
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<th>Serious Injuries</th>
<th>Fatalities</th>
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<tbody>
<tr>
<td>65</td>
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Crash Types

**Goal**
- Set specific safety goals
  - Reduce single vehicle crashes

**Objectives**
- Better understanding of what is occurring in planning area to specify approaches to address safety goals

**Performance**
- Ability to establish a baseline and track trends by specific issue
  - # single vehicle crashes

**Programs/Projects**
- Adopt/reference applicable safety programs/projects
- Consider programs and projects that address the key safety needs
- Portion of the data to conduct systemic analysis

![Crash Types Chart](chart.png)
## Network Screening

<table>
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<tr>
<th>Goal</th>
<th>Objectives</th>
<th>Performance</th>
<th>Programs/Projects</th>
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</thead>
<tbody>
<tr>
<td>Set specific safety goals</td>
<td>Better understanding of what is occurring in planning area to specify approaches to address safety goals</td>
<td>Ability to evaluate trends by specific locations</td>
<td>Consider specific safety programs and projects that address priority locations (RSAs)</td>
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<td>Address priority segments and intersections</td>
<td></td>
<td>Track impact of countermeasure implementation</td>
<td>Understand where safety improvements could be made in coordination with other transportation projects in the planning area</td>
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Systemic Analysis

**Goal**
Set specific safety goals
Address safety on a systemic basis

**Objectives**
Better understanding of what is occurring in planning area to specify approaches to address safety goals
Reduce two or more vehicle crashes on principal arterials

**Performance**
Ability to evaluate trends by specific crash or roadway type
Track impact of countermeasure implementation

**Programs/Projects**
Consider specific safety programs and projects that address risk factors
Understand where safety improvements could be made in coordination with other transportation projects in the planning area
Directing Your Questions via the Chat

1. Chat pod is on left side of screen between attendees pod & closed caption pod

2. Type your question or comment here

3. Answers will appear here unless addressed verbally
Learning Outcomes

In this webinar, you have learned to:

- Summarize the purpose of transportation safety planning.
- List approaches to collect safety data.
- Compare safety analysis methods.
- Identify opportunities to apply safety data and analysis to the planning process.
Upcoming 2017 Webinars

ITE Vision Zero Virtual Toolbox

Thurs., June 1, 2017 11:00-12:30 PM Mountain

How to Address Roadway Safe Issues for ATVs and Other Off-Road Vehicles

Wed., July 12, 2017 11:00-12:30 PM Mountain

Archived Webinars

Access the webinar archives
Training Videos

- Introduction to Road Safety Audits on Tribal Lands
- Introduction to Road Safety Culture

Watch these videos
Contact Information

If you have any questions related to this webinar, please contact the instructors at:

NWaldheim@camsys.com or Dgaines@camsys.com

Or contact the National Center for Rural Road Safety Help Desk at:

(844) 330-2200 or info@ruralsafetycenter.org

http://ruralsafetycenter.org/