O In many states, Native Americans are three times over represented in fatal crashes

WASHINGTON STATE NATIVE AMERICANS 3.3 TIMES MORE THAN ALL OTHERS

According to the Fatality Analysis Reporting System (FARS):
- 2008, 467 Native American Fatalities
- 2007, 619 Native American Fatalities
- 2006, 653 Native American Fatalities
- 2005, 593 Native American Fatalities
- 2004, 585 Native American Fatalities

Five year total of 2,917... that are reported
Costs and Benefits

The following are typical values...

- **Audit Costs**: $5k to $30k per audit stage
- **Design Costs**: vary (change drawings)
- **Construction Costs**: vary (to build accepted audit suggestions)
- **Benefits**: Lives saved, crashes prevented, or severity decrease
- **Benefit / Cost ratio**: 10:1 or better
- **Crash reductions up to 60%**

Why Do We Need Audits?

Planning / Design / Operations / Maintenance involve Complexity, Constraints, and Trade-Offs:
- Cost
- Right of Way
- Environment
- Geotech Conditions
- Socio Economics
- Capacity / Efficiency
- Politics
Access Funding

- RSA shows an effort to plan
- May be key to funding
- Smith River Rancheria received TIGER Grant to implement RSA Recommendations

Road Safety Audit (RSA)

What?

July 19 – 20, 2011
Elliott Highway
Dalton Hwy to Manley
Road Safety Assessment
An RSA is NOT:

... a simple standards check for adherence to design guidelines.

BUT...

An RSA is a process that looks beyond normal design guidelines to improve the substantive safety performance.

Nominal vs. Substantive Safety

- **Nominal** safety is meeting the standards

- **Substantive** safety is going beyond nominal standards. Ultimately, it is doing what works for the site.

Definition

**Road Safety Audit**

A **formal and independent** safety performance review of a road transportation project by an experienced team of safety professionals, addressing the safety of all road users.
Key Points

- **Formal**: Procedures & Documentation
- **Independent**: Auditors Detached from Road Agency & Design Team, No Bias
- **Safety Performance**: Focus on Substantive Safety
- **Experienced Team**: Audit work is based on experience and knowledge
- **All Road Users**: All relevant human travel modes are considered

Road Safety Audits (RSA)

How?

Responsibilities

RSA Team
Design Team / Project Owner
Safety Planning to Select RSA Routes

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Owner’s Permission

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Responsibilities

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RSA Team
Design Team / Project Owner
The Team

- Alaska DOT & PF
- Alaska State Troopers
- Alaska TTAP
- FHWA IRR

Responsibilities

1. Identify project
2. Select RSA team
3. Conduct kick-off meeting
4. Analyze and assess
5. Prepare a report to Project Owner
6. Provide findings to Project Owner
7. Prepare formal response
8. Incorporate findings
RSA Kick-off Meeting

Objectives
• Input from owner/operator
  • Available Data
  • Planned Projects
  • Owner’s Operations
  • Contact info for key individuals
  • Expectations
• Questions from team on Road’s History
• Inform everyone of RSA process
• Coordinate available resources

Public Meeting

Identify project
Select RSA team
Conduct Kick-off meeting
Perform data & field reviews
Conduct analysis and prepare report
Present findings to Project Owner
Prepare formal response
Incorporate findings

Responsibilities

RSA Team
Design Team / Project Owner
**RSA Team Data Review**

- Data Review
  - Planned projects, construction history
  - Traffic volumes
  - Existing Infrastructure
  - Crash Reports
  - Crash Statistics
  - Trends in People, Roadway, Environment, Vehicles, Location, etc.

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**Contributing Factors**

- DWUI
- Southbound (leaving Recreation sites)
- Roadside Design
- Driver expectation after several miles of long, straight highway
- Drop wheel to right, overcorrect, overturn
0716343 – DARK, dry, clear, SB car dropped tire to right, overturned, low severity.
0712721 – SB pickup with camper, gravel on road caused ROR.
0712706 – L2 having car trouble, turned left with hazards on, hit by passing L2.
0615554 – Day, dry, clear – SB SUV dropped tire to right, overturned.

0807882 – Clear, Dry, Day, SB SUV dropped tire to right, overcorrected, overturned. BAC 0.15

0412208 – Clear, Dry, Day, SB Motorcycle rider age 24, inexperienced, from Rawlins, hit shoulder, lost control.
03097930 – Muddy Road, Day, Clear, SB car dropped tire to right, overcorrected, rolled.

0712706 – Dark, Dry, Clear, SB car dropped tire to right, overcorrected, rolled.

0712706 – Dark, Dry, Clear, SB car dropped tire to right, overcorrected, overturned, No belts.

0712706 – Dark, Dry, Clear, SB car dropped tire to right, overcorrected, overturned.

0712706 – Clear, Dry, Day, SB SUV dropped tire to right, overcorrected, overturned. BAC 0.15

0412208 – Clear, Dry, Day, SB Motorcycle rider age 24, inexperienced, from Rawlins, hit shoulder, lost control.
03097930 – Muddy Road, Day, Clear, SB car dropped tire to right, overcorrected, rolled.

0712706 – Dark, Dry, Clear, SB car dropped tire to right, overcorrected, overturned.

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RSA Team Field Review

Field Review
- Day / Night
- Peak Traffic Volumes
- Observe Intersections/turn-outs
- Field review of serious crash sites

Field Review = Brainstorm

No Question or observation is stupid

Idea Parking Lot

- Identified Risks are documented/photographed
- Potential countermeasures discussed in next step
Field Review

Good
Notes are
Critical!

Good Practices

Signing Suggestions

Recommend 2 chevrons in initial view, check spacing
Over the Hill

Pullout @ MP 94.5

Trooper & Public Identified issues
Pull out in curve = Alignment difficult to detect in winter
Reverse Super in pullout

Pullout @ MP 94.5

Trooper & Public Identified issues
Pull out in curve = Alignment difficult to detect in winter
Reverse Super in pullout
**Dangerous Guardrail Ends**

- Blunt Ends
- Turn Down Terminals

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**Responsibilities**

1. Identify project
2. Select RSA team
3. Conduct Kick-off meeting
4. Perform data & field reviews
5. Conduct analysis and prepare report
6. Present findings to Project Owner
7. Prepare formal response
8. Incorporate findings

---

**Prepare Draft Risk ID**

- Caffeine
RESOURCES
- Tribal Technical Assistance Program (TTAP)
- Strategic Highway Safety Plan
- TTP Safety Website
  - (in development)
- FHWA TTP Website:
- Local Roads Safety Plans Guide (online)
- CMF Warehouse Online
- NCHRP 500
- Email: TTPSF@dot.gov

Winter Visibility on Ptarmigan Pass

- Long Term:
  - Grade Raise
  - Snow Fence

- Lower cost:
  - delineate
  - consider 511 on Highway Advisory Radio (HAR)

Risk 1: Sight Distance @ Farm Rd

- Description of Risk:
  - Vehicles turning left from Farm to SR-123 WB have obstructed sight distance.
    - Vehicles pull past stop bar to turn left.
  - Location:
    - SR-123 & Farm Rd Intersection

- Collision types experienced:
  - Turning, Angle, Rear-End, Intersection related

- Solutions:
  - Low Cost: Move stop bar closer to SR-123 while avoiding turning path of trucks/buses.
  - Intermediate Cost: Reduce embankment height in Southeast corner.
  - Ultimate: Reconstruct SR-123 with vertical profile that allows for proper sight distance.
**Risk Assessment Scale**

<table>
<thead>
<tr>
<th>RISK CATEGORY</th>
<th>SEVERITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Crash Frequency</td>
<td></td>
</tr>
<tr>
<td>Frequent</td>
<td>B</td>
</tr>
<tr>
<td>Occasional</td>
<td>A</td>
</tr>
<tr>
<td>Infrequent</td>
<td>A</td>
</tr>
<tr>
<td>Rare</td>
<td>A</td>
</tr>
</tbody>
</table>

**Risk Levels**

- A: Minimal
- B: Low
- C: Moderate
- D: Significant
- E: High
- F: Extreme

**Responsibilities**

- RSA Team
- Design Team / Project Owner
- 1. Identify project
- 2. Select RSA team
- 3. Conduct Kick-off meeting
- 4. Perform data & field reviews
- 5. Conduct analysis and prepare report
- 6. Present findings to Project Owner
- 7. Prepare formal response
- 8. Incorporate findings
- • Presentation to owner
- • Written Report
- • Risk areas
- • Multi-disciplinary recommendations
- • Request for feedback

**RSA Report**

- Presentation to owner
- Written Report
- Risk areas
- Multi-disciplinary recommendations
- Request for feedback
Responsibilities

RSA Team
Design Team / Project Owner

1. Identify project
2. Select RSA team
3. Conduct Kick-off meeting
4. Perform data & field reviews
5. Conduct analysis and prepare report
6. Incorporate findings
7. Present findings to Project Owner
8. Prepare formal response

RSA Report is not for the Round File!

Owner’s Response

- Written response
- Improvements to be programmed
- Reasons for non-implementation
- Document will be considered for plans
Discovery

Use of RSA is believed to be protected under federal law
23 USC 409 – Discovery and Admission as evidence of certain reports and surveys

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360-619-7751
Adam.Larsen@dot.gov

http://safety.fhwa.dot.gov/rsa/resources/p2p/brochure/

Questions?
Program Testimonials

Peer Testimonial
“A road safety audit is an excellent tool to help agencies create safer roadways. As a Peer, I draw from my experiences conducting RSAs on Iowa’s state and local roadways, both urban and rural, to assist other agencies with their RSAs. Whether it’s providing guidance on the data to collect, or serving onsite as an RSA team member, I enjoy helping public agencies with their RSA program.”
— Tom McDonald, P.E., Safety Circuit Rider
Iowa Local Technical Assistance Program
Institute for Transportation

Agency Testimonial
“Through the P2P program we were able to access years of RSA knowledge for our first RSA. This resource not only helped make our first RSA a success, but also provided a solid basis for the development of our statewide RSA program.”
— Elias Archuleta, P.E., New Mexico DOT State Traffic Engineer

Find FHWA RSA resources at:
http://safety.fhwa.dot.gov/rsa

FHWA sponsors the Roadway Safety P2P Program which provides assistance to State, local, and tribal road owners free of charge.

FHWA, Office of Safety
Rebecca Crowe
rebecca.crowe@dot.gov
804-775-3381

For More Information:
Email safetyp2p@dot.gov
Call 866-P2P-FHWA

Cover Photo Credits (Clockwise from left): FHWA; T. McDonald, Institute for Transportation at Iowa State University; Matt Buchanan, Mo-Kan Regional Council
FHWA-SA-10-019
What is Road Safety Audit Peer Assistance?

As a state, local, or tribal road owner considers the use of RSAs, technical or procedural questions often arise. In order to provide assistance, FHWA’s Office of Safety established the Roadway Safety Peer-to-Peer (P2P) Program to provide technical assistance on a broad range of safety topics including RSAs.

RSA experts volunteer their time to serve as Peers and provide guidance to agencies requesting assistance.

Assistance can range from phone consultations to on-site participation in an RSA to training recommendations.

How Can Transportation Agencies Benefit From RSA Peer Assistance?

• Free and convenient access to professionals experienced in RSAs.
• Increased understanding of the RSA process.
• Onsite assistance to help ensure successful completion of your first RSA.
• Guidance on available funding options for performing RSAs and RSA recommendations.
• Guidance on RSA Team composition and information that should be collected in advance of the RSA.

Call: 866-727-3492
Email: safetyp2p@dot.gov
Online: http://rspcb.safety.fhwa.dot.gov/p2p/p2p_app.aspx