

# Utilizing the Road Safety Audit Process on Tribal Lands



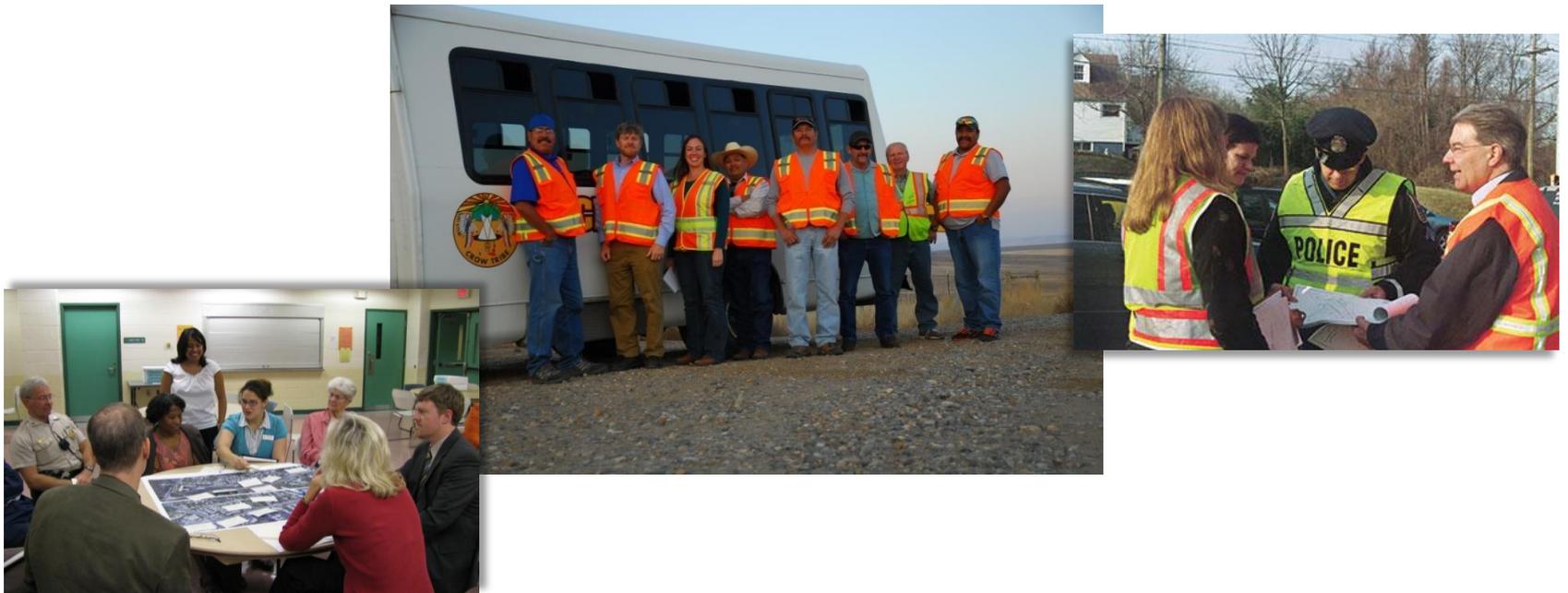
2013 Tribal Transportation Safety Summit

James Wilson, BIA Road Safety Audit Coordinator

The Gateway Center  
Helena, MT

# What is a Road Safety Assessment/Audit (RSA)?

A formal safety performance evaluation of an existing or future road or intersection by an independent, multidisciplinary team.



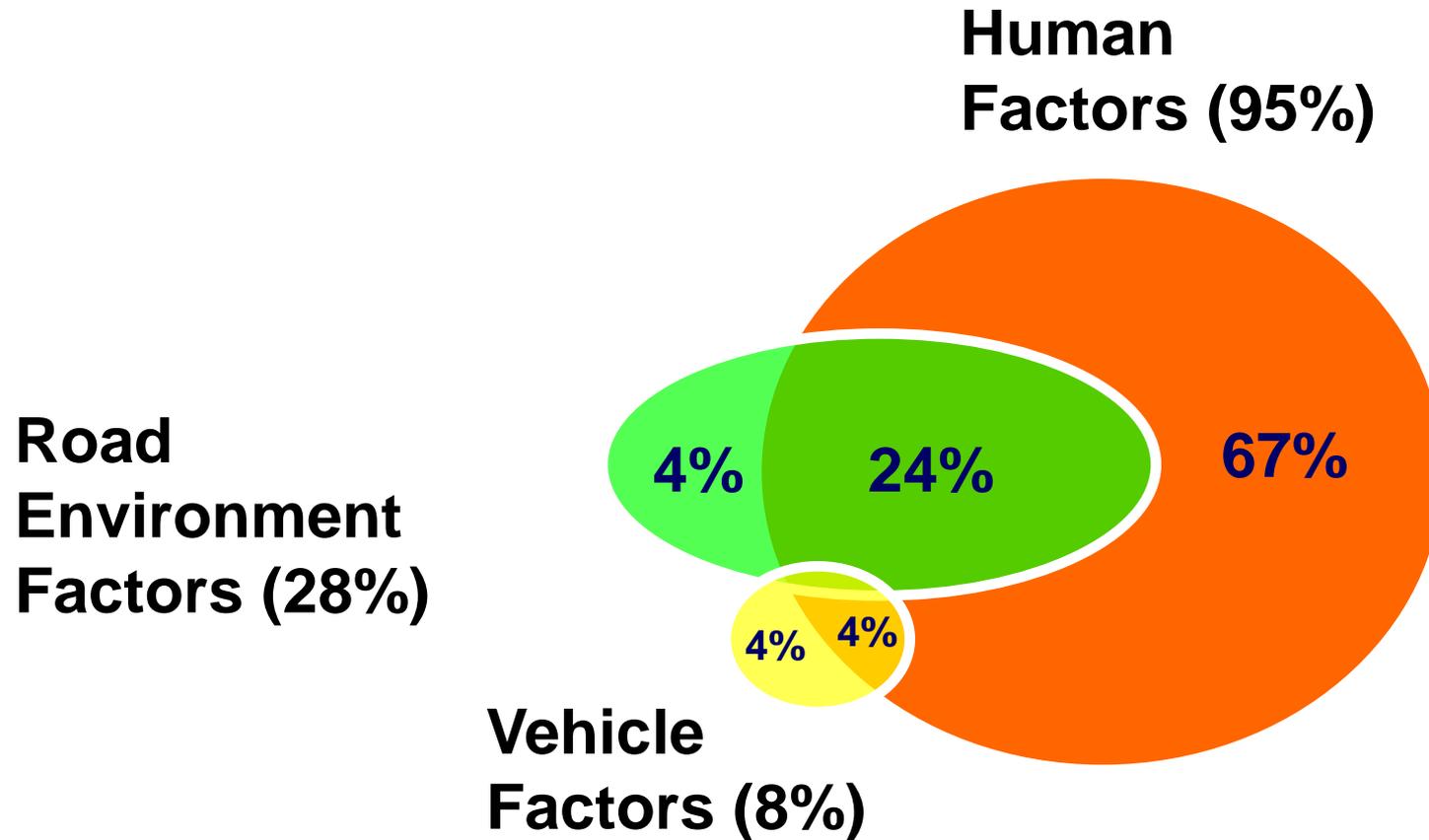
# What is a Road Safety Audit?

An RSA is a tool that:

- Reviews observed and potential safety issues to reduce risk
- Considers all environmental conditions
- Considers all road users



# Why are Road Safety Audits Needed?



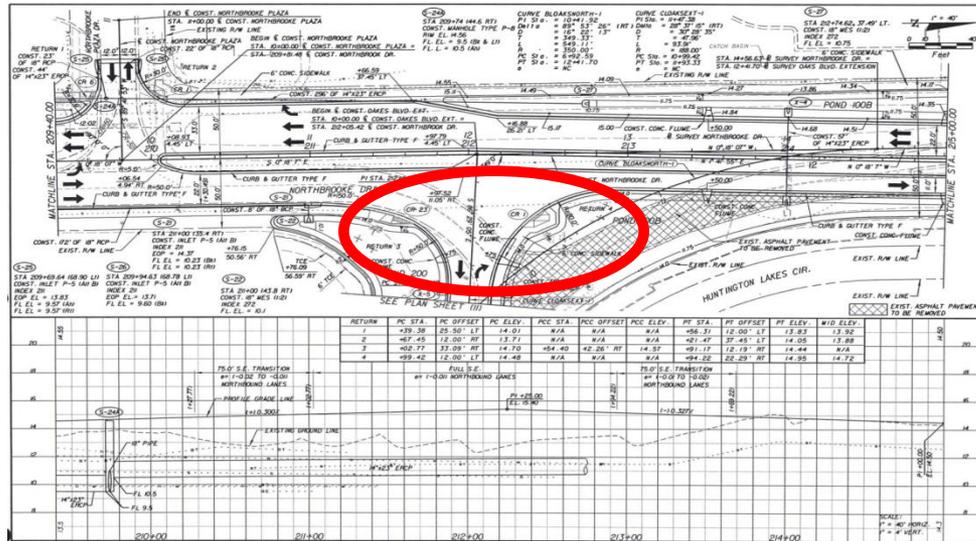
**TYPICAL REPORTED CRASH CAUSES**

# Why are Road Safety Audits Needed?

- Not all road-related safety issues are identified in collision reports.
- Road designs need to anticipate and accommodate common errors.



# When to Conduct RSAs



Design stage



Existing Facilities

# Who to Include in RSAs

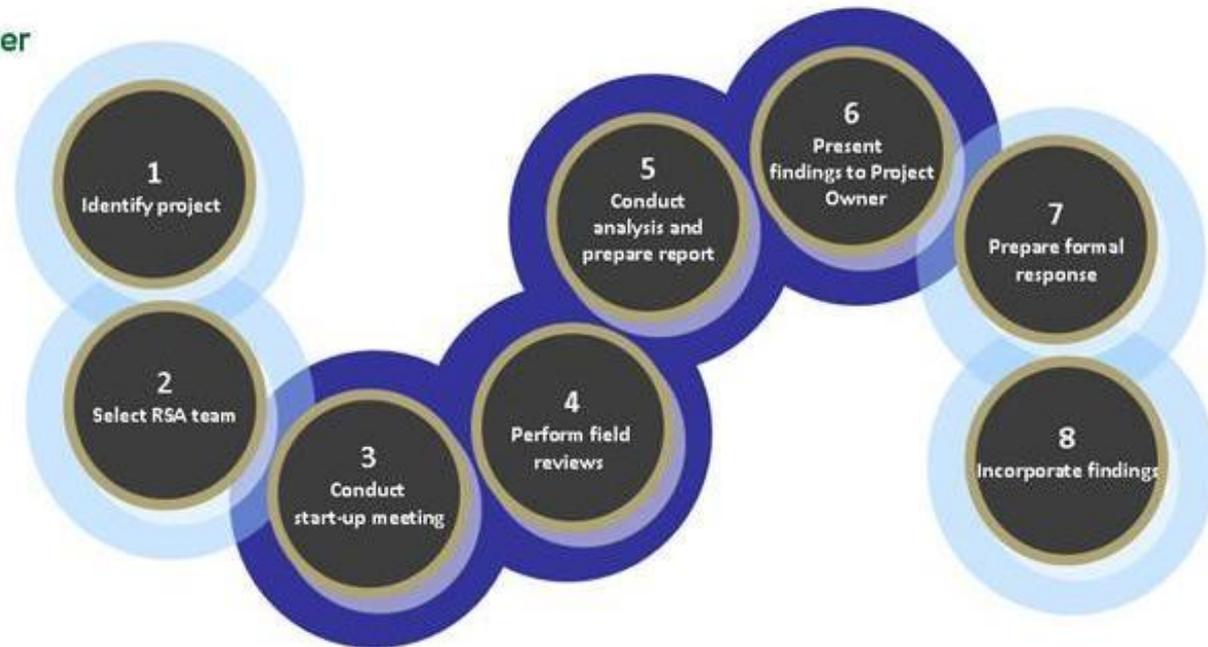
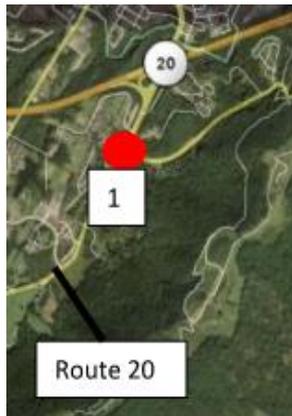


Independence = A fresh, unbiased assessment  
Multidisciplinary = Multiple perspectives, expertise

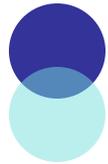
# How are RSAs conducted?

## Responsibilities

- RSA Team
- Design Team / Project Owner



# Responsibilities



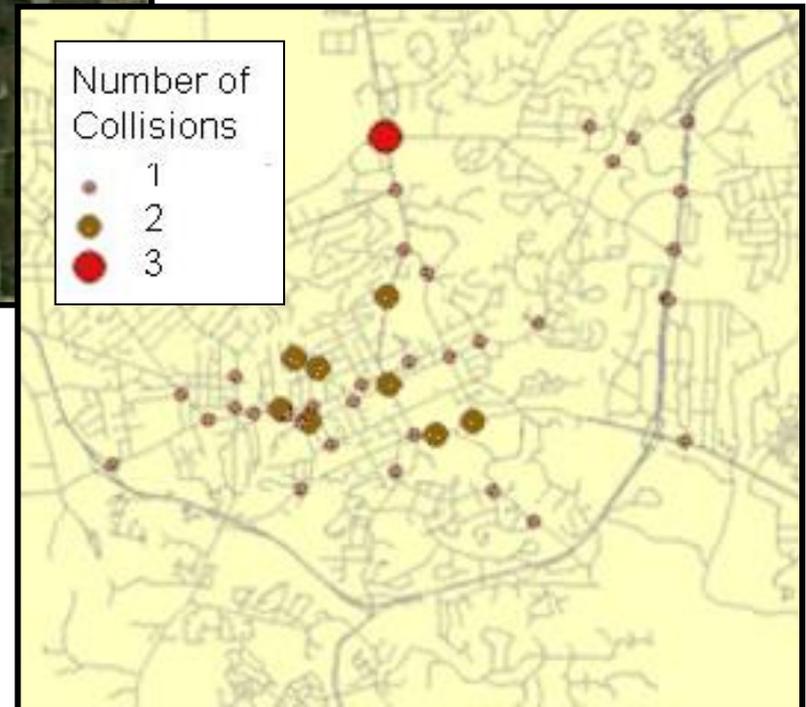
RSA Team

Design Team / Project Owner



# Step 1: Identify RSA Project

- High-collision sites
- High-profile (political or public interest)
- Context-sensitive design

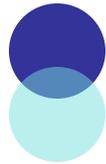


# Step 1: Identify RSA Project (cont.)

- Sites at which traffic characteristics have changed
- Unusual or new features
- Many interacting modes
- Seasonal changes in traffic
- Temporary use
- Atypical vehicle mix
- User skill or training
- Areas of opportunity



# Responsibilities



RSA Team

Design Team / Project Owner



# Step 2: Select RSA Team

## Should be:

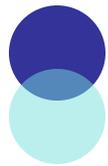
- Independent
- Experienced
- Multidisciplinary



## Core Skill Set

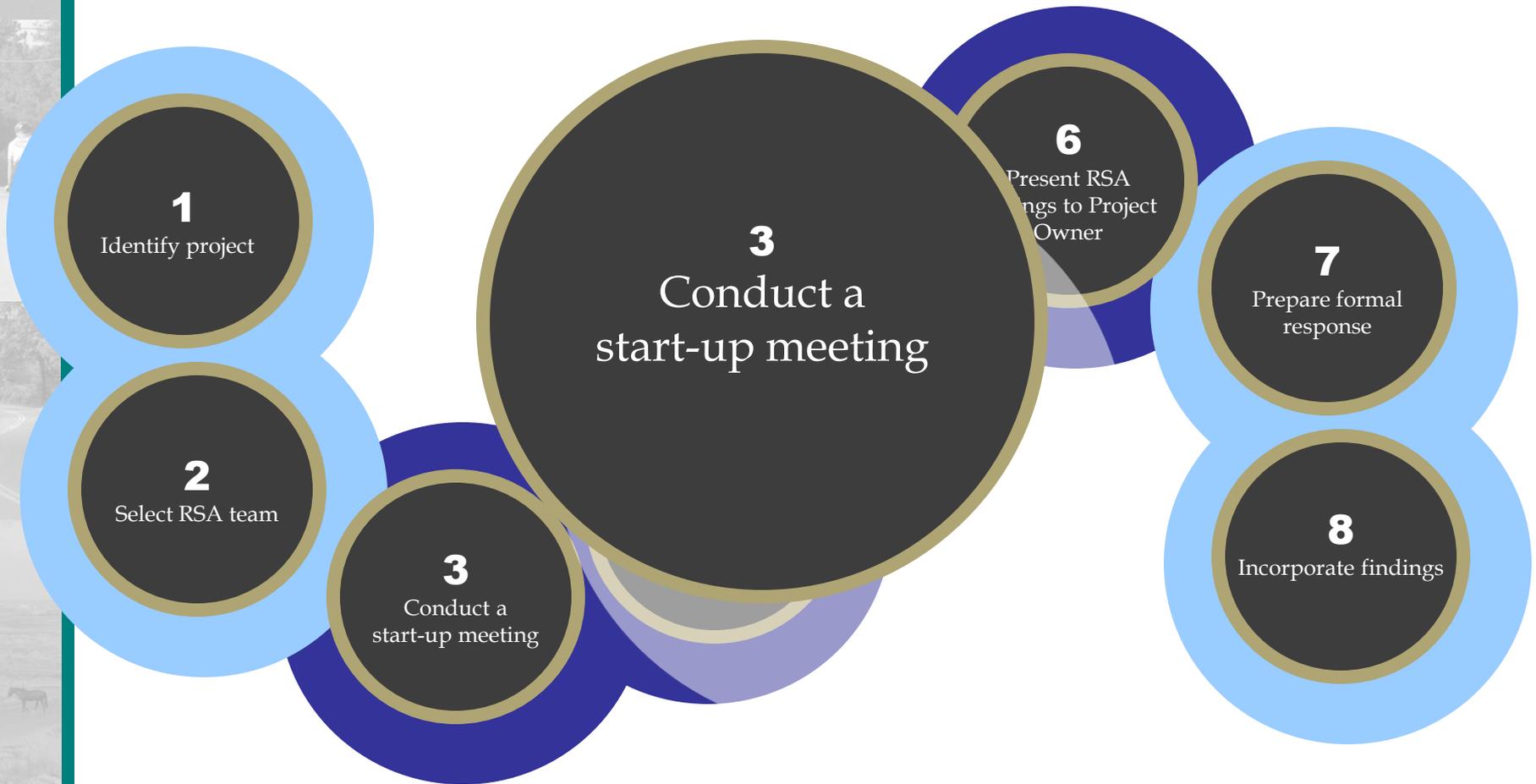
- Traffic operations
- Geometric design
- Road safety
- Human factors
- Ped/bike specialist
- Special users
- Enforcement
- Maintenance

# Responsibilities



RSA Team

Design Team / Project Owner



# Step 3: Conduct Start-up Meeting Agenda

- Introductions
- Project objectives
- Project design
- RSA process
- Schedule
- Exchange of information

## RSA Agenda

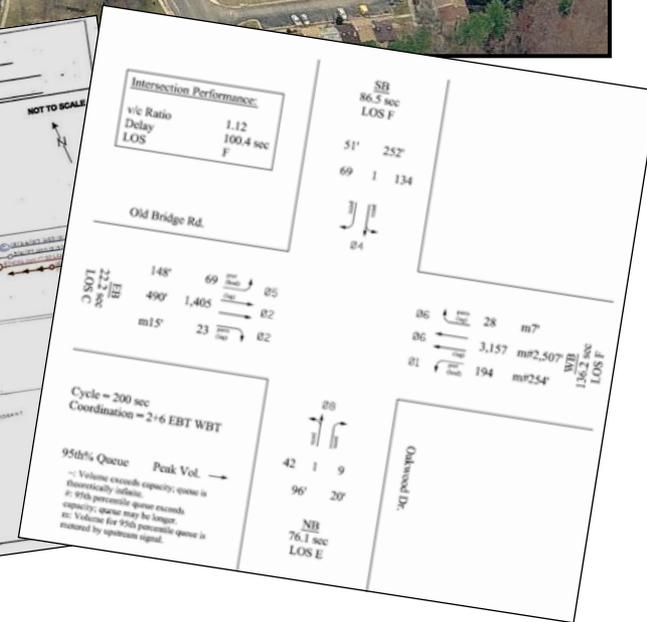
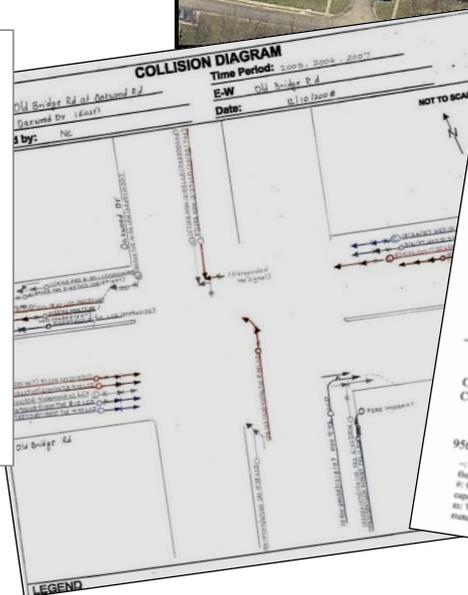
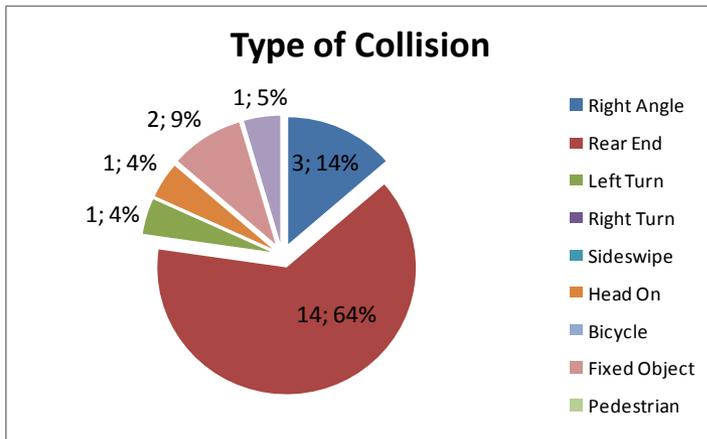
Day 1	Date
9.00 – 9.30 AM	Introduction to RSA process
9.30 – 10.00 AM	Project objectives/background
10.00 – 12.00 PM	Initial site visit by car
12.00 – 1.00 PM	Lunch
1.00 – 5.00 PM	Detailed site review
5.00 – 6.30 PM	Peak hour review
6.30 – 8.30 PM	Dinner
8.30 – 9.30 PM	Nighttime site review
Day 2	Date
7.30 – 9.30 AM	Continue detailed site review
10.00 – 12.00 PM	Individual assignments
12.00 – 1.00 PM	Lunch
1.00 – 3.00 PM	RSA team develops workshop summary/
3.30 – 4.30 PM	Preliminary findings meeting

- **General meeting** – all need to attend especially “roadway owners” i.e., persons responsible for development of plans and/or facility owner
- **RSA team activity** – all who are interested in participating in the site visits and developing suggestions (excluding roadway owners)
- **Optional RSA team activity** – FHWA anticipates doing this work on their own, but welcomes all who are interested in participating

# Step 3: Conduct Start-up Meeting

## Review Relevant Data

- Maps/drawings
- Future plans
- Crash data
- Traffic volume



# Responsibilities



RSA Team

Design Team / Project Owner

**1**

Identify project

**2**

Select RSA team

**3**

Conduct a start-up meeting

**4**

Perform field reviews

**6**

Present RSA findings to Project Owner

**7**

Prepare formal response

**8**

Incorporate findings

# 4. Field Review

## Observe:

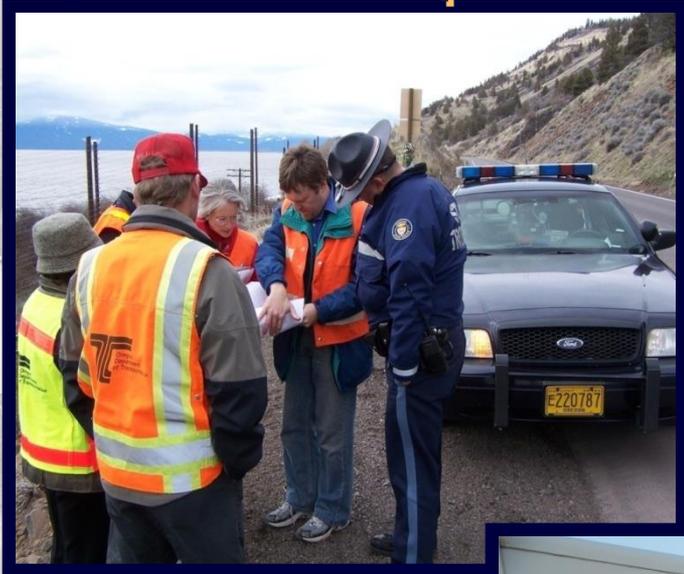
- Road user characteristics
- Surrounding land uses
- Link points to the adjacent transportation network
- Good safety design features
- Safety mitigation features already in place
- Peak and off-peak traffic periods
- Day and night conditions



# 4. Field Review

## Perform Field Review: Preparation for the Field Review

- Arrange transportation
- Designate a secretary and photographer
- Wear vests

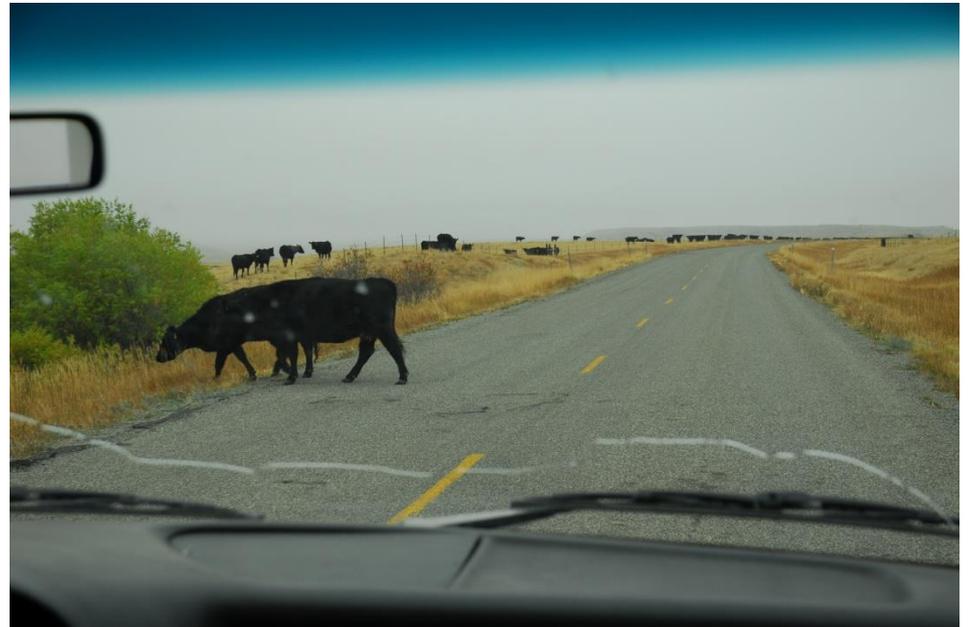


## 4. Field Review



Walk the audit site.

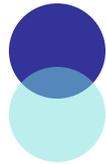
Drive the audit site.



# Field Review: What type of safety issues might I encounter?

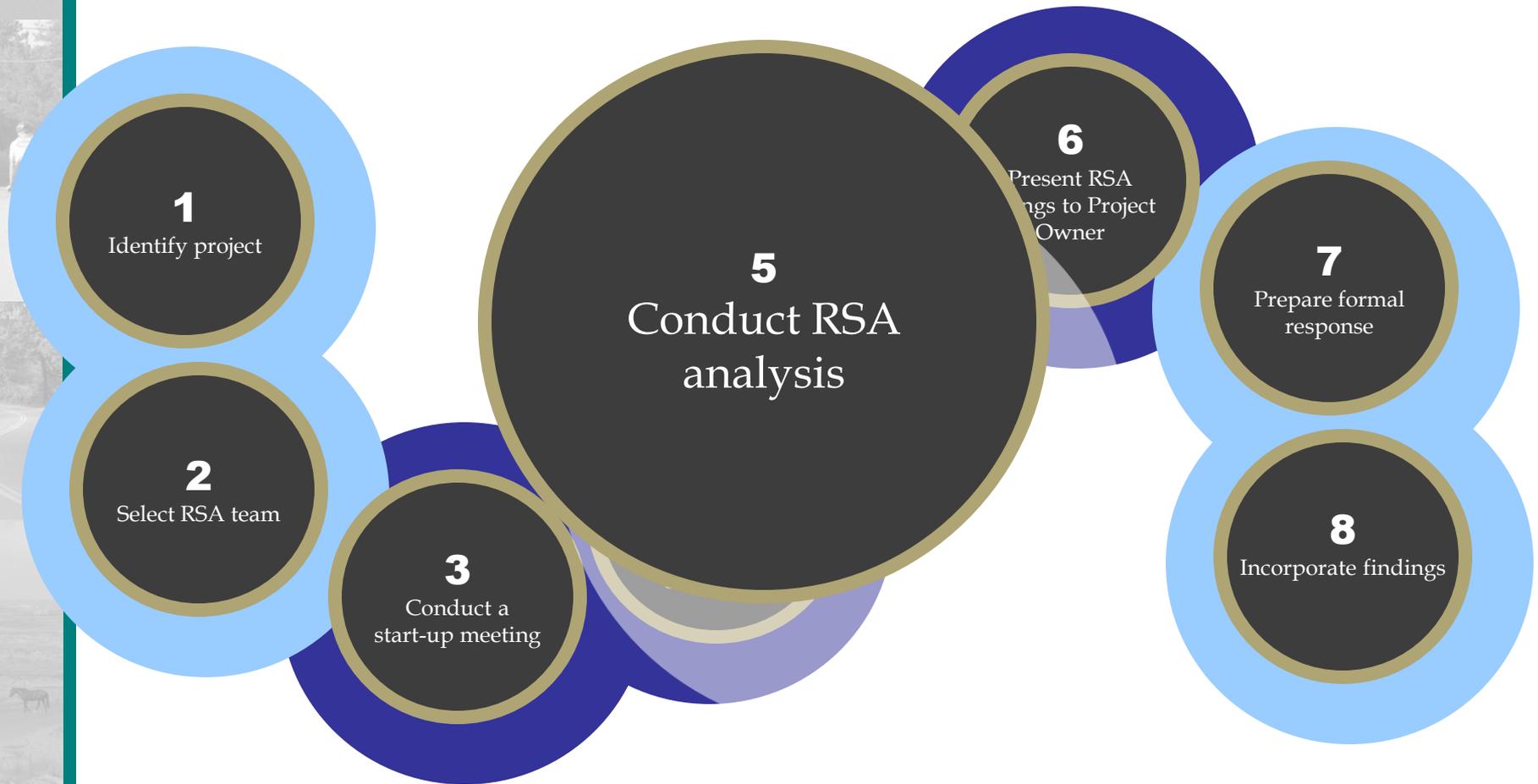


# Responsibilities



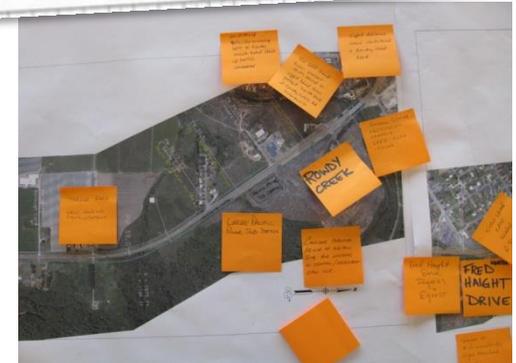
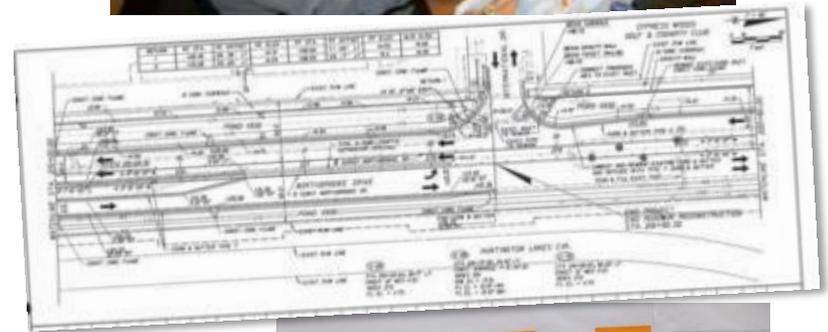
RSA Team

Design Team / Project Owner

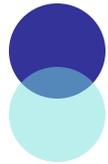


# 5. RSA Analysis

- Workshop setting
- Review background reports and design criteria
- Systematically review design drawings and/or other information
- **Identify, prioritize, and mitigate safety issues**



# Responsibilities



RSA Team

Design Team / Project Owner

**1**

Identify project

**2**

Select RSA team

**3**

Conduct a  
start-up meeting

**6**

Present preliminary RSA  
findings to Project  
Owner

**6**

Present RSA  
findings to Project  
Owner

**7**

Prepare formal  
response

**8**

Incorporate findings

# 6(a). Preliminary Findings Meeting

- RSA team, design team, owner
- Discuss preliminary findings and possible solutions
- Use results to write RSA report



## RSA Findings

**MD 500 (Queen's Chapel Road)  
Hamilton Rd to Buchanan St**

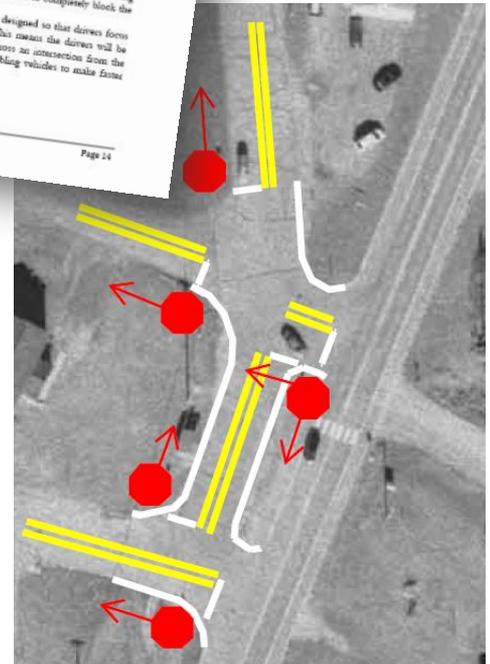
**Pedestrian  
Road Safety Audit**

Prince George's County, Maryland

November 28-29, 2007

# 6(b). RSA Report

- Documents the results of the RSA
- Identifies and prioritizes safety issues
- Includes suggestions for improvements



# 6(b). RSA Report

- Documents the results of the RSA
- Identifies and prioritizes safety issues
- May include suggestions for improvements

## Highway 13 and Blueberry Road

Road Safety Audit/Assessment  
Red Cliff, Wisconsin  
May 20 – 21, 2009



Dan Nabors and Frank Gross  
Vanasse Hangen Brustlin (VHB), Inc

# 6(b). RSA Report

## Issue 4: Signage and Pavement Markings

**Lack of guidance for/warning of pedestrians across intersections:** Some side street crossings are discontinuous with sidewalks along Route 70, as explained in Issue 1 (lack of continuity across side streets). At more complex intersections (such as those with right turn channelized islands) there may be additional safety concerns. A lack of guidance or misplaced crossings for pedestrians creates a potential safety issue because pedestrians may cross at inappropriate locations (such as where sight distance is limited) and drivers may not expect pedestrians at these locations. For example, at Haddonfield Road there is no direct path across a channelized right-turn lane, but pedestrians were observed crossing at multiple locations.

### Suggestions:

**Short-term-** Consider installing painted continental or zebra pattern crosswalks at cross streets along the corridor (see Issue 1).

**Intermediate-** Consider providing direct, continuous, and clearly delineated paths for pedestrians across complex intersections (e.g., intersections with right turn separator islands such as at Haddonfield Road). It may be necessary to install a sidewalk and curb ramps on the island before marking a crosswalk. Place advance yield lines and pedestrian warning signage to alert motorists of the presence of pedestrians.

**Long-term-** Consider alternatives to channelized right turns. Where channelized right turns are to be installed, consider a design with a steeper angle to reduce vehicle speeds and focus driver attention toward the crosswalk.



View of channelized right-turn lane on southbound approach at Haddonfield Road. The separator island creates a gap in the connection between sidewalks along either side of the intersection.



View of channelized right-turn lane and separator island on southbound approach at Haddonfield Road. The RSA team observed pedestrian activity in the area; however, there is no sidewalk or other crossing features in the separator island, resulting in pedestrians crossing at multiple locations.

← safety issue

← description

← suggestions

← examples



# Responsibilities



RSA Team

Design Team / Project Owner

**1**

Identify project

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Select RSA team

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Conduct a  
start-up meeting

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Prepare formal  
response

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findings to Project  
Owner

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response

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Incorporate findings

# Step 7: Prepare Formal Response

## Response Letter

- Prepared by the local road agency (with possible input from designer)
- For each audit issue, identifies what action will (or will not) be taken with a brief explanation
- Part of the project record



**MEMORANDUM**

**DATE:** January 4, 2006

**TO:** Roadway Safety Audit Team      **FROM:** Richard B. Nassi  
Transportation Administrator

**SUBJECT:** Response to Road Safety Audit Recommendations

Project: Road Safety Audit of six "HAWK" Pedestrian Crossing Sites, Tucson Arizona  
Contract DTFH61-03-D00105 Task Order BMISG05B022  
Description: Installation of six HAWK Pedestrian Crossings City-wide

**Issue 1: Use of the Alternating Flashing RED Signal Indication.** During on-site observations of the existing HAWK ( installations, most drivers were observed to remain stopped until the alternating flashing RED sequence has ended, even though they may legally pass through the crosswalk. Of those drivers who did proceed during the alternating flashing RED sequence, many following drivers continued slowly through the crosswalk without coming to a full STOP as required by law at a flashing RED beacon. Drivers who illegally enter the crosswalk during the flashing RED display may conflict with pedestrians legally in the crossing during the pedestrian clearance phase. This risk was rated B (low risk level).

The following suggestion(s) were discussed and action(s) were taken:

1. **Additional Signage:** Additional regulatory signaling was installed at selected HAWK crossing to determine their impact upon drivers as well as extensive educational program and enforcement. The black on white signs read "STOP—MAY PROCEED WITH CAUTION WHEN FLASHING". Observation of the signing over the last year, as well as the media campaign, has shown little change in the driver's behavior. However, enforcement has made a significant impact upon individual driver's behavior as it does with other traffic enforcement.
2. **Eliminate flashing interval:** The HAWK operation is very effective in gaining appropriate driver compliance at pedestrian crossings and significantly increases the percentage of drivers voluntarily stopping for pedestrians. The beacon signal displays a solid RED indication to traffic during the WALK interval and is then followed by an alternating flashing RED interval during the flashing DON'T WALK interval. The current alternating RED flashing sequence was adopted from the successful operations used in Europe, which uses a flashing AMBER at PELICAN crossings, and Los Angeles, which uses a flashing RED indication at midblock crossings. The advantages of the flashing RED indication a) allows the reasonable and prudent driver to proceed when it is safe to do so, and b) better matches the crossing time needs of the individual pedestrian to actual delay thus maintaining high driver compliance. It is impossible to have a pre-determined crossing time match the time necessary for all individuals that may cross. The beacon signal operation needs to match the user expectancy in order to keep the compliance high. The key to the issue is that the operation of the STOP command should be generally only as long as the pedestrian needs to cross and reach the other curb and not become

# 7. Response Letter

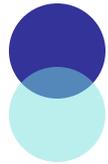
The RSA suggests realignment at a skewed intersection.

**Inadequate response:** “We will not realign the intersection at Jefferson Road. We do not feel that it is needed.”



**Adequate response:** “While we agree with the need to realign the skewed intersection, the realignment cannot be achieved within the existing right-of-way. Realignment will require the purchase of property at a cost of about \$200,000, representing about 7 percent of the total annual transportation budget. The acquisition of the required property may be considered in future budgets.”

# Responsibilities



RSA Team

Design Team / Project Owner

**1**

Identify project

**2**

Select RSA team

**3**

Conduct a start-up meeting

**8**

Incorporate findings into the project

**6**

Present RSA findings to Project Owner

**7**

Prepare formal response

**8**

Incorporate findings into the project

# 8. Incorporate Findings

- Incorporate findings based on ranking and feasibility
- Some improvements can be implemented relatively quickly
- Implementation may depend on policy, staffing, and/or funding.





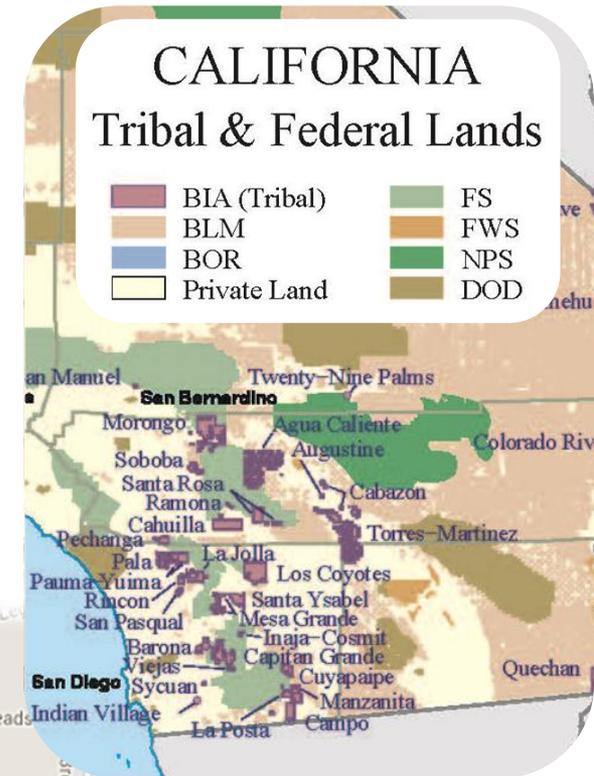
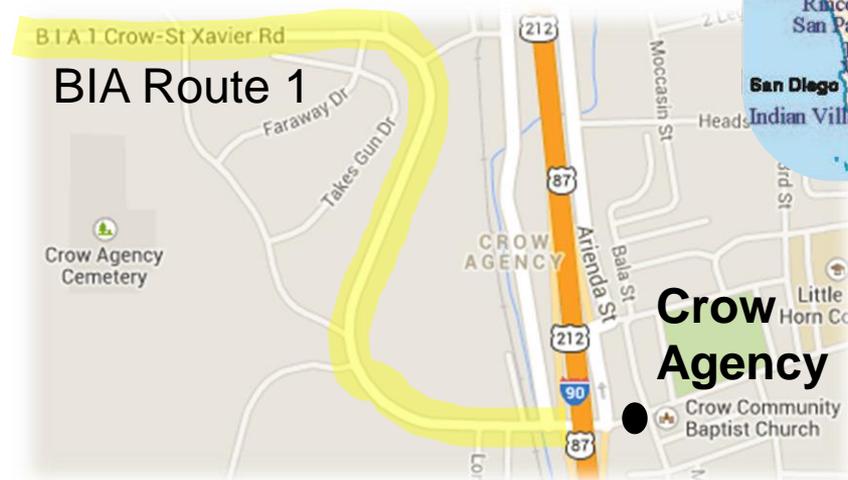
# RSAs on Tribal and Federal Lands

# Potential Challenges to Conducting RSAs on Federal and Tribal Lands

## Potential Challenge:

### Jurisdictional authority

- State or local agencies may own facilities on Federal and Tribal lands.
- Sometimes a checkerboard of land ownership



# Potential Challenges to Conducting RSAs on Federal and Tribal Lands

## Potential Challenge:

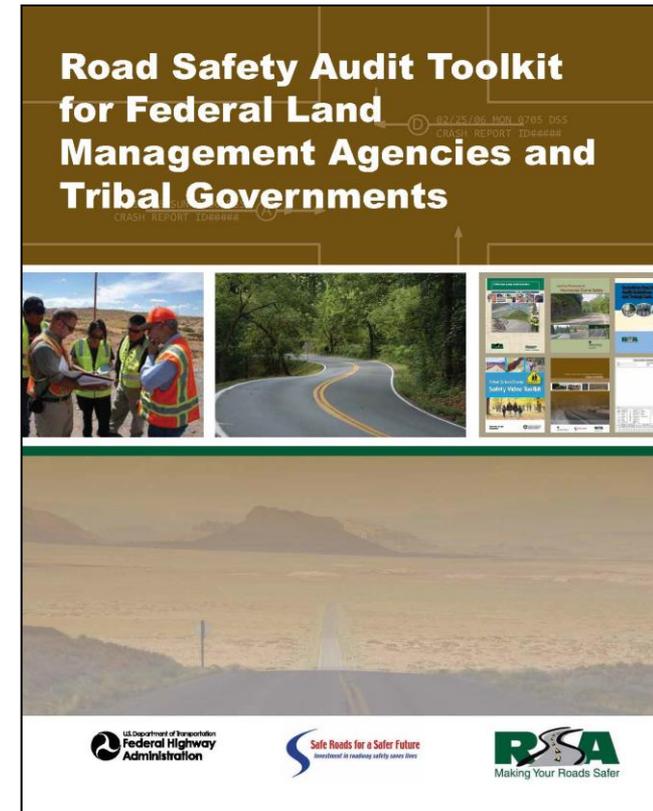
Unique geometric and roadside conditions with significant historical, cultural, and environmental constraints.



# RSA Toolkit for Federal and Tribal Lands

## Toolkit Key topic areas:

- How to conduct an RSA
- Common safety issues
- Potential improvements
- Establishing an RSA program
- Incorporating RSAs into the planning process



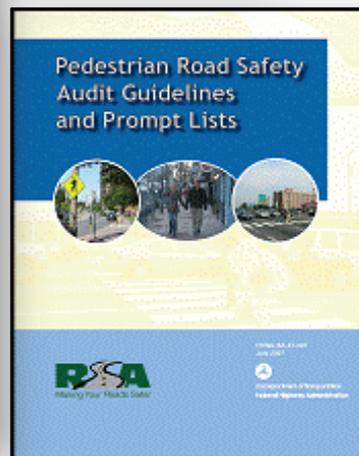
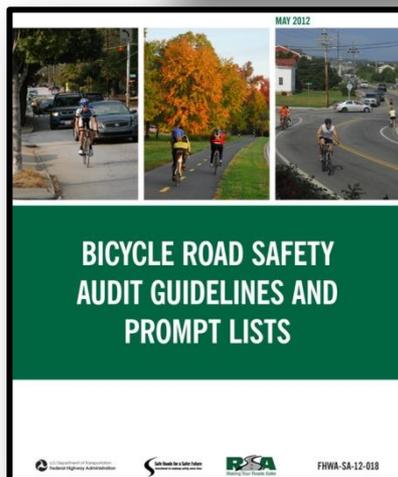
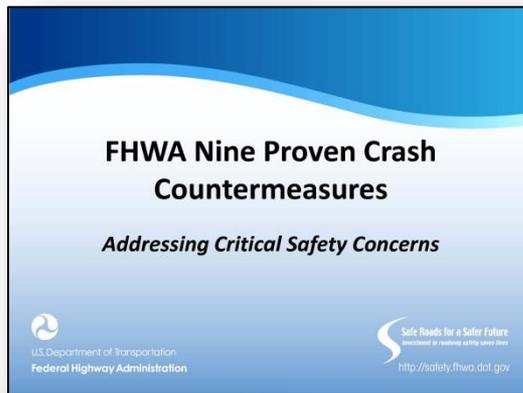




# **FHWA Pilot Tribal and Federal Lands Road Safety Audit Program**

# FHWA RSA Pilot Program

Road Safety Audits (RSAs) have proven to be an effective tool for improving safety on and along roadways.



- One of FHWA's nine "proven safety countermeasures."
- Expanded to include guidance on bicycle and pedestrians.

# FHWA RSA Pilot Program

- RSAs now common among State and local agencies.

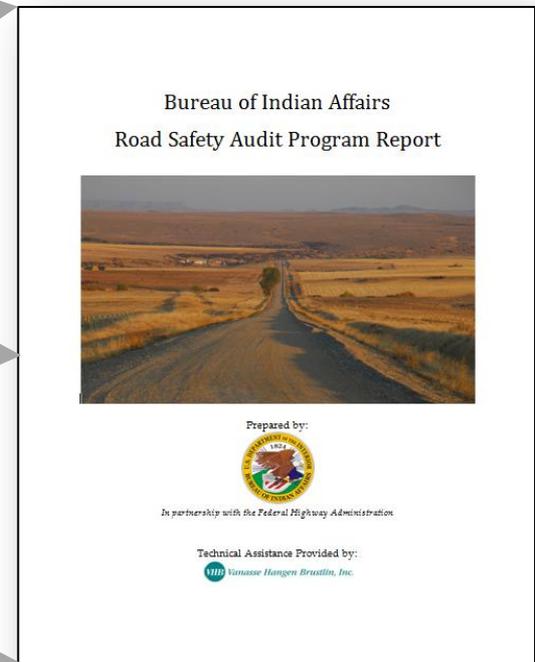


- Federal Land Management Agencies (FLMAs) and Tribal governments are beginning to witness the benefits of conducting RSAs.

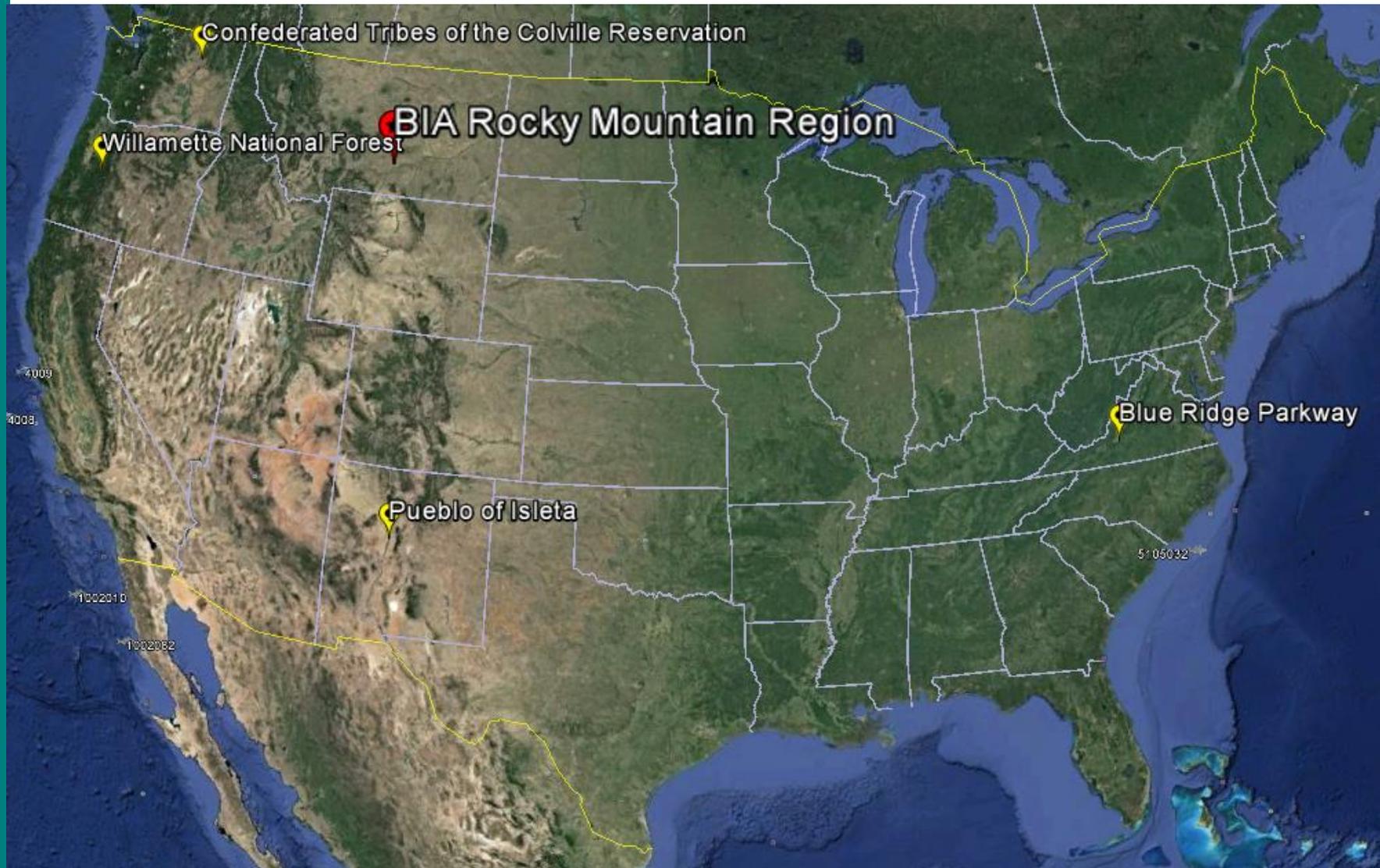
# FHWA RSA Pilot Program

**Pilot Vision:** Selected Tribes and FLMAs would serve as examples, illustrating:

1. Benefits of RSAs
2. How to implement a successful RSA program.



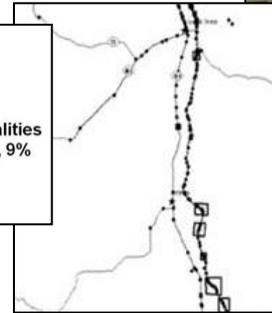
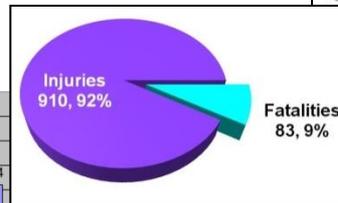
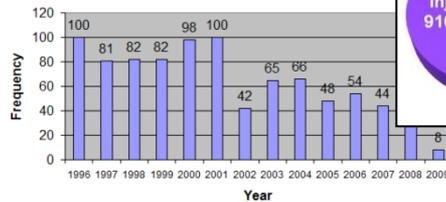
# FHWA RSA Pilot Program



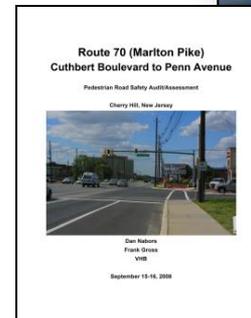
# FHWA RSA Pilot Program

## Pilot Program Overview

1. Kick-off meeting to assess safety needs and familiarity with the RSA process.



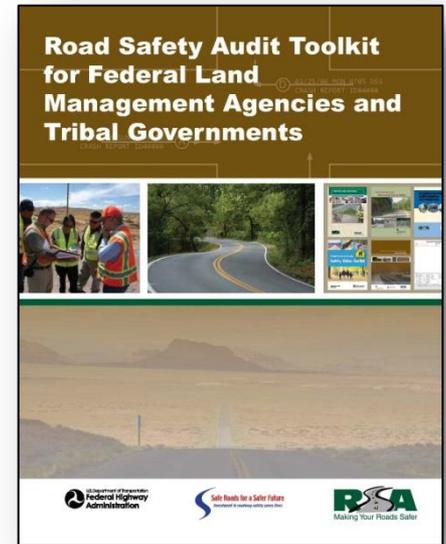
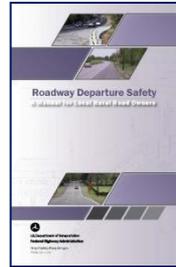
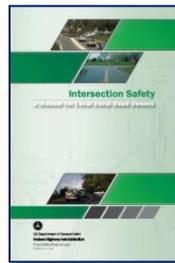
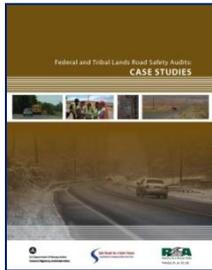
2. Training session and RSA.



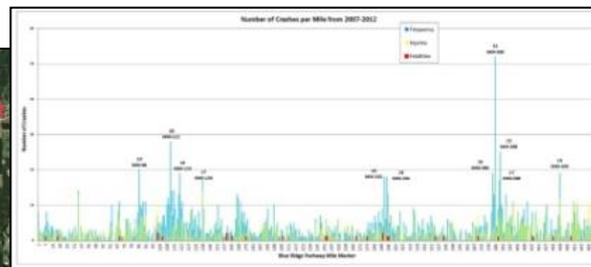
# FHWA RSA Pilot Program

## Pilot Program Overview

3. Technical assistance and resources to conduct RSAs.



4. Assistance in developing RSA program policies and establishing goals and performance measures.





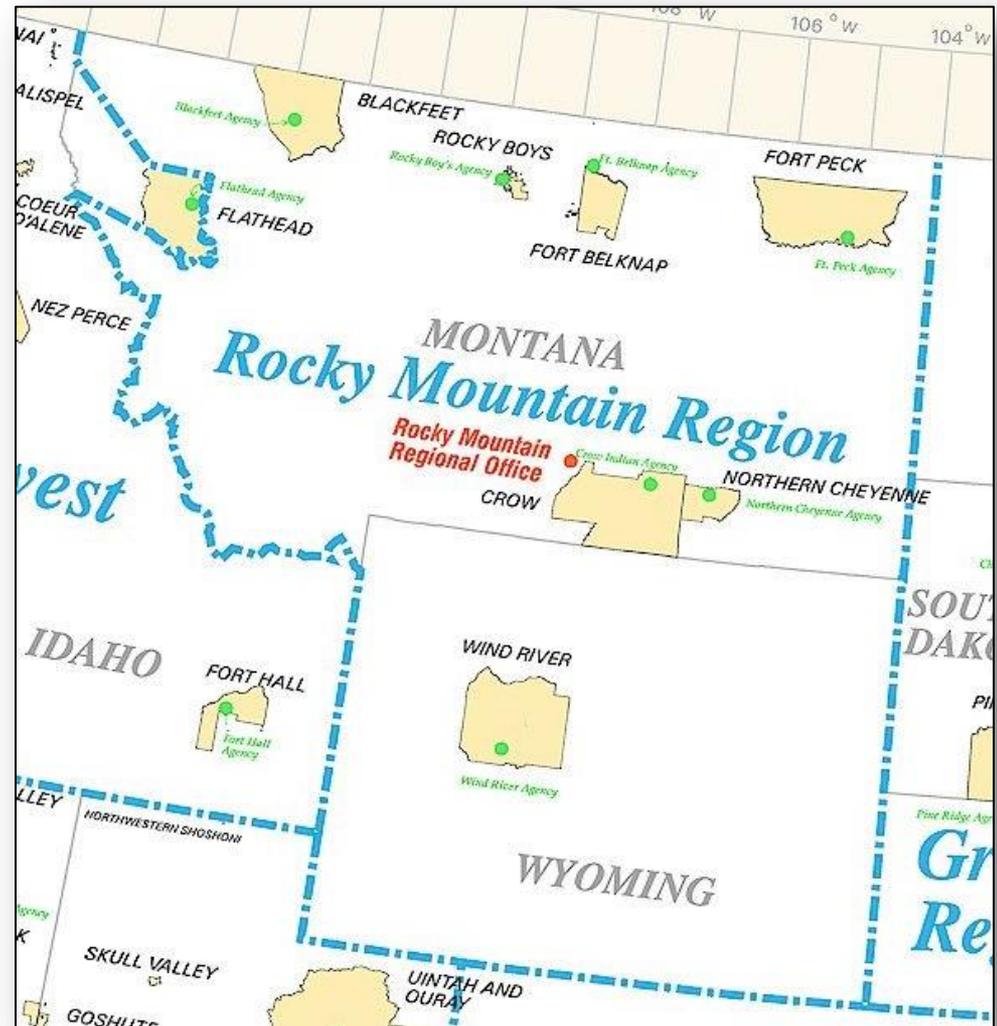
# BIA Rocky Mountain Region RSA Pilot Program



# BIA Rocky Mountain Region RSA Pilot

## Agencies Served:

- Blackfeet
- Crow
- Fort Belknap
- Fort Peck
- Northern Cheyenne
- Wind River

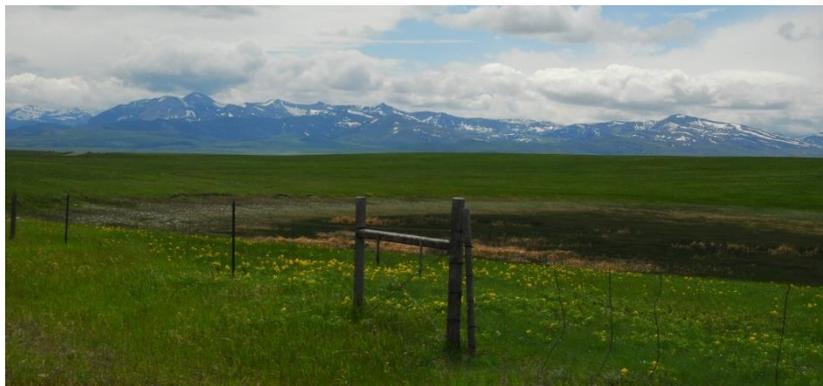


# BIA Rocky Mountain Region RSA Pilot

- **Kick-off Meeting and Training/RSA #1:**
  - October 10-12, 2012 in Billings, Montana
  - RSA on Crow Reservation



- **Training/RSA #2:**
  - June 13-14, 2013 on Blackfeet Reservation



# BIA Rocky Mountain Region RSA Pilot

## Establishing RSA Program Goals

Initial goals for BIA Rocky Mountain Region:

1. Holding an RSA at each of the tribes in the region.
2. Attaining crash data for all tribes in the region.

# BIA Rocky Mountain Region RSA Pilot

## Supporting Goal #1:

The BIA held RSAs at the remaining tribes in the region:

- Fort Belknap: *May 20-21, 2013*
- Fort Peck: *June 19-20, 2013*
- Northern Cheyenne: *May 14-15, 2013*
- Rocky Boy: *May 22-23, 2013*
- Wind River: *July 10-11, 2013*



# BIA Rocky Mountain Region RSA Pilot

## Supporting Goal #2:



- Creation of form crash data request and response letters
- IHS crash data analysis:
  - Fort Belknap
  - Blackfeet
  - Crow

# BIA Rocky Mountain Region RSA Pilot

- **Next Steps:**

- Complete RSA Reports
- Work with Tribes to obtain crash data for use on future RSAs
- Reexamine RSA schedule and funding/grant deadlines



# Questions???

