Overview

• Virtual Tours Camera Kit
• Road Safety Audits Intro
• Virtual RSA demo
Virtual Tours Camera Kit

• FHWA ships the camera to the Tribe.
• Tribe records a project.
• Tribe ships the camera back.
• FHWA puts the video online so the team can visit the project in virtual tours.
Virtual Tours Camera Kit

- Camera has two lenses and captures spherical video.
- Watch the video in all directions as if standing at the camera location.
- Can mount on top of vehicle.
3 Ways to View
Virtual Tour Controls

- Change your view on a computer (or just move your phone/tablet)
- Adjust video quality and playback speed

Scan code for sample VR videos from Navajo Nation
Best viewed in the YouTube app

Questions?
Contact Adam Larsen
360-619-2601 Adam.Larsen@dot.gov

https://youtu.be/QR6A9evADN8?t=55
Playback Speed / Quality Settings

HD 1080s

5k
GPS/Telemetry data automatically captured

- Map camera route
  Google Earth/ArcMap Example

- Generate spreadsheet for asset log

- Create index for videos

- Correlate video with other data
  https://www.youtube.com/embed/MuBbg_x_X60
GPS/Telemetry data automatically captured

- Map camera route
  Google Earth/ArcMap Example

- Generate spreadsheet for asset log

- Create index for videos

- Correlate video with other data
  https://www.youtube.com/embed/MuBbg_x_XBO
VR Camera Kit Uses

• Timely technical assistance
• Virtual Road Safety Audits
• Project Close-outs
• Grant application virtual tour
• Video log
• usRAP Safety Risk Assessment
• Before/after project video
• More...
Benefits

• Visit projects in a timely manner (especially during travel restrictions.)
• Invite experts to review a road they otherwise may not visit.
• Video experience instead of just photos. Can extract photos.
• But... still not as good as being on site.
VR Camera Kit Deployments

Completed
• Navajo Nation
• Organized Village of Kasaan
• Yakama Nation
• Seldovia

In Progress
• Chickasaw Nation
• Rosebud Sioux Tribe
“The video turned out awesome! I am super impressed with the quality, even with the potholes it turned out great!”

Sara K Yockey
Transportation Director
Organized Village of Kasaan
“Navajo DOT will be working on purchasing a GoPro Max to continue to share the virtual road videos.

Thank you again for the opportunity to use this device for the projects we had worked so hard on.”

Evans Bennallie
Computer Operations
Navajo Nation DOT
“Thank you for letting us discover a whole new way to document our roadway and irrigation issues. I believe it will make a huge difference.”

Hollyanna Littlebull
Yakama Nation
Road Safety Audits (RSA)

Tribal RSA Training - National Center For Rural Road Safety (ruralsafetycenter.org)

https://ruralsafetycenter.org/resources/tribal-rsa-training/
Transportation Safety Plan

- Road Safety Audits
- Systemic Safety Studies
- Other Safety Data Analysis
RSA Definition

A **formal safety performance examination** of an **existing or future road** or intersection by an **independent, multi-disciplinary RSA team.**
Formal RSA Process

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

RSA Team
Design Team / Project Owner

Design Team / Project Owner
Serious Crash Site
Haxton Way & Slater Road

Long Term Recommendation

• Roundabouts reduce:
  • crash severity
  • frequency
  • maintenance costs
• Potential gateway to Reservation
• Eliminates last signal in county
High Risk, No Crash History
Unnecessary Risks

Muckleshoot, WA

La Jolla, CA
Concerns about RSAs

Time

Cost

Liability
Road Safety: Crash Factors

**Human Factors (95%)**

- Road Factors (28%)
- Vehicle Factors (8%)

- 4% (Overlap)
- 24%
- 67%
Road Safety: GORE

- Geometry
- Operations
- Road Users
- Environment
Road Safety: Geometry

- Curve
- Gradient
- Cross section
- Clearance
- Sight distance
- Clear zone
Road Safety: Operations

- Congestion
- Signal operation
- Speed management
- Queuing
- Turning movements
Road Safety: Road Users/Human Factors

- Motorists
- Bicyclists
- Pedestrians
- Other users
Road Safety: Environment

- Weather
- Lighting
- Road conditions
Road Safety: Geometry

Minto, AK
Road Safety: Geometry
Road Safety: Operations
Road Safety: Operations

Organized Village of Saxman, AK
Road Safety:
Road Users / Human Factors
Road Safety: Motorists
Road Safety: Environment

Weather

Lighting Conditions
Can we conduct a virtual road safety audit?

Geometry
Operations
Road Users
Environment

GS040155 - YouTube
Virtual Road Safety Audits

Pros
- Travel costs
- Availability of expert team
- Easy to re-visit the site
- Slow playback
- RSA Team risk reduced
- Correlation with other data, maps
- Less distraction for road users
- Experience variety of conditions

Cons
- Difficult to perceive some issues
- Inability to take accurate measurements
- Different experience of user behavior
- Different team dynamics
- Credibility with owner/operator

It's nice to try something innovative and awkward to keep things real. – Matt Bird
VR Camera Kit Instructional Video:
https://youtu.be/Oj8E3L_7kXY

Navajo Nation Roads Virtual Tours:
https://youtube.com/playlist?list=PLVStkITp8obP8hdMhQDi6lXsiTdnA5Y8

Organized Village of Kasaan Virtual Tour:
https://www.youtube.com/embed/aT7N0JsPOi8

Road Safety Audits videos:
https://ruralsafetycenter.org/resources/tribal-rsa-training/

Questions? Want to use the camera kit?
Adam Larsen
360-619-2601, Adam.Larsen@dot.gov