CSET Projects for RITI Safety Data Management and Analysis

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CSET Background

> Center for Safety Equity in Transportation
> Lead University: University of Alaska – Fairbanks
> “If you have a right to get there, you have a right to get there safely.”
> Focus on Rural Isolated Tribal and Indigenous (RITI) communities
> Equitably-augmented safety solutions
CSET Background

University of Idaho
UNIVERSITY OF ALASKA FAIRBANKS
University of Hawai‘i
UNIVERSITY OF WASHINGTON
Project Purpose

> Two-fold: Outreach activities and safety database system
> The latter requires the former
> Form strong, lasting relationships with WA tribes

> Project titles

1. Promoting CSET Outreach Activities through Safety Data Management and Analysis in RITI Communities
2. Develop a Regional Multi-Source Database System for Safety Data Management and Analysis in RITI Communities in Washington State
3. Developing a Data-Driven Safety Assessment Framework for RITI Communities in Washington State
Project Purpose: Outreach

- Tribes not required to share data
- What data is collected and how it is stored/managed
- Seek to understand tribal needs and expectations from their perspective
- Collaborate with tribes to find successful solutions
Project Purpose: Database System

- Regional, multi-source database
- Identify incident hot-spots
- Data-driven safety decisions and management
- Support later funding opportunities
Between 2002 and 2011, 61% of traffic fatalities occurred on rural roads, even though many more miles are traveled on urban roads in Washington State.

Unlike on urban roads, there are few concentrations of serious crashes, and the locations of crashes are not consistent from year to year.

Comparison results pedestrian and traffic fatality rates between American Indians and non-American Indians in Washington from 2002 through 2011
Improving AIAN’s Safety by Addressing High Risk Factors

American Indian and Alaskan Natives have higher death rates involving high risk factors than other races. For example, the rate of AIAN unrestrained vehicle occupant deaths per 100,000 population are more than seven times higher than other races combined.

Insights Resulting from Project 1 Progress

- At the moment, no need for implementation of cutting-edge implementation (i.e., AI, sensor installation)
- Focus on a uniform data fusion application
- Focus on easy-to-use crash mapping, analysis, and visualization tools
- Raise the baseline of information available
- Data ownership and privacy is key issue – Working with Colville Confederated Tribes currently
- Much of the localized focus is on behavioral issues and programs
Project 2 Progress

- Collected multiple-year rural crash data, traffic sensor data, and weather conditions data from WSDOT, Alaska DOT, and Idaho DOT
- Designed the database and fused multi-source datasets for safety performance evaluation in RITI communities
Regional database system to analyze and visualize multi-source safety data in RITI communities
Project 3: Developing a Data-Driven Safety Assessment Framework for RITI Communities in Washington State

- **Two-phase project:**
  - **Phase I:** Build up an effective safety database platform to facilitate data partitioning and visualization for each RITI community in the first year;
  - **Phase II:** Develop a data-driven safety assessment framework based on the safety database platform to enable effective roadway safety management for RITI communities in Washington State in the second year.
Implementation

Structure of the Roadway Safety Management System for RITI Communities
Proposed Approach

Structure of the Safety Assessment Framework
Project 3 – Research Tasks

Phase I: July 1, 2018 - June 30, 2019

Task 1: Review the existing definition of “isolated communities”, and define the criteria of RITI communities based on the census data, infrastructure conditions, transportation connectivity, geometric information, and so on;

Task 2: Identify and characterize all the RITI communities in Washington State;

Task 3: Classify baseline data collected from Year 1 CSET project into different groups for each identified RITI community;

Task 4: Draft and finalize Phase I project report.
Project 3 – Research Tasks

Phase II: July 1, 2019- June 30, 2020

Task 1: Develop roadway safety performance indices for each RITI community;
Task 2: Develop new safety assessment methods if necessary regarding to specific RITI community data sources;
Task 3: Build safety assessment framework for RITI communities based on the developed roadway safety performance indices and safety assessment methods;
Task 4: Draft and finalize Phase II project report.
Thanks for your attention!

Center for Safety Equity in Transportation
If you have a right to get there, you have a right to get there safely.