

USDOT Safety Data Initiative

Comprehensive Roadway Safety Data Visualization and Evaluation Platform

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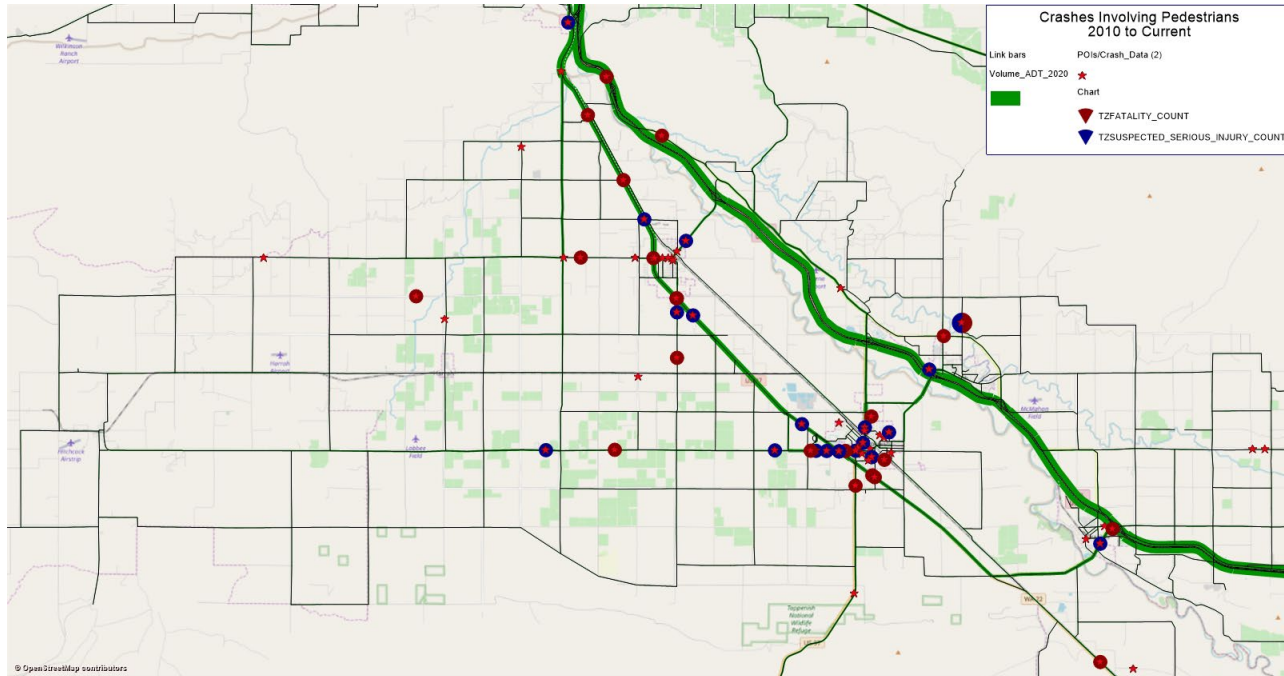


April 2022



Prevailing Safety Issues of Yakama Nation

A large portion of these collisions occur on the Yakama Nation reservation and ceded territory



Prevailing Safety Issues of Yakama Nation

Weather a major safety concern

- Low visibility due to extreme fog
- Poor road surface conditions due to fog and snow



Prevailing Safety Issues of Yakama Nation

Lack of adequate pedestrian crossings in Toppenish



Prevailing Safety Issues of Yakama Nation

Lack of Pedestrian Vehicle separation on major roadways



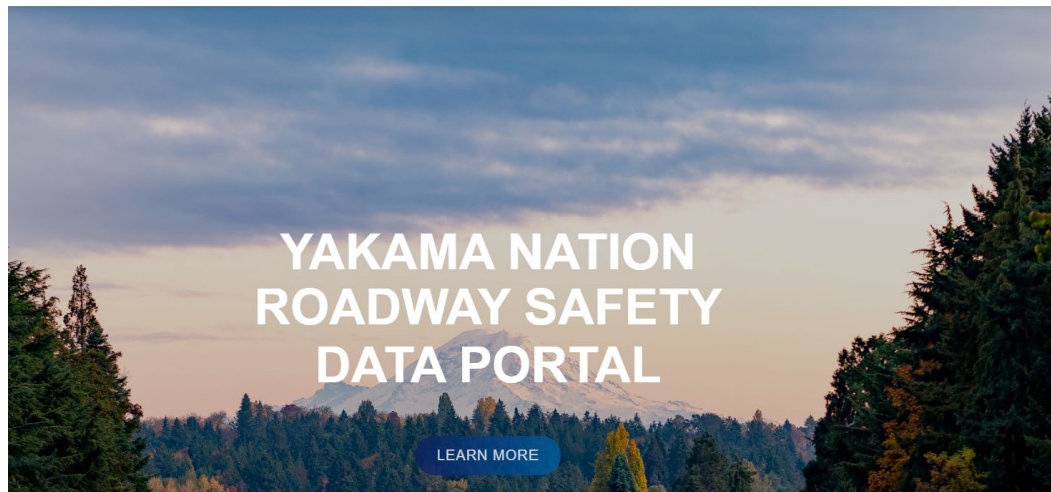
Prevailing Safety Issues of Yakama Nation

Inadequate signage to warn vehicles of pedestrians



Safety Data Tool

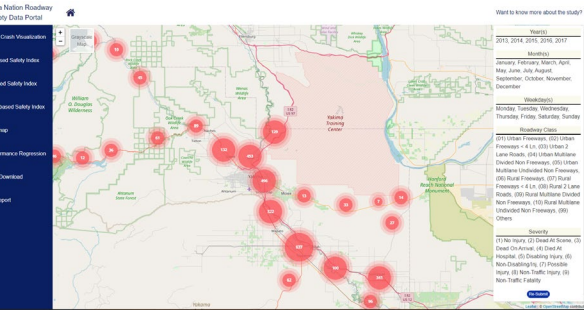
- Data Sources:
 - Collision Data
 - Roadway Geometry Data
- Modeling Techniques:
 - Machine Learning: Random Forest and Decision Tree
 - Segment Based Regression Modeling



<p>Point-based Crash Visualization</p>	<p>Segment-based Safety Index</p>	<p>Zipcode-based Safety Index</p>	<p>Intersection-based Safety Index</p>
<p>Visualize crash data on the map by the crashes locations</p>	<p>Visualize crash data on the map by roadway segments</p>	<p>Visualize crash data on the map by different zipcode</p>	<p>Visualize crash data on the map by different intersections</p>
<p>Crash Heatmap</p>	<p>Safety Performance</p>	<p>Crash Data Download</p>	<p>Summary Report</p>
<p>Visualize crash frequencies and severities with heatmap</p>	<p>Estimate traffic network safety and visualize the position of history incident events</p>	<p>Customized crash data download with user-specific settings</p>	<p>Reporting functions with customized tables and figures</p>

Safety Data Tool - Visualization

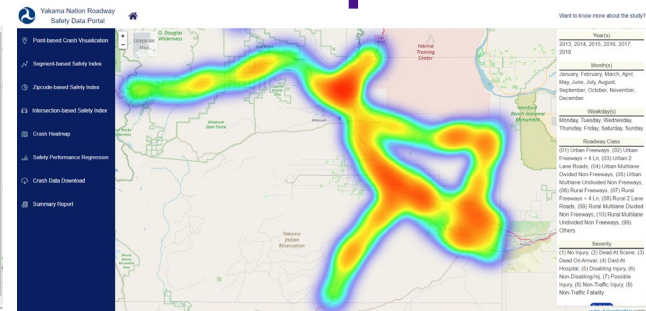
Point-Based



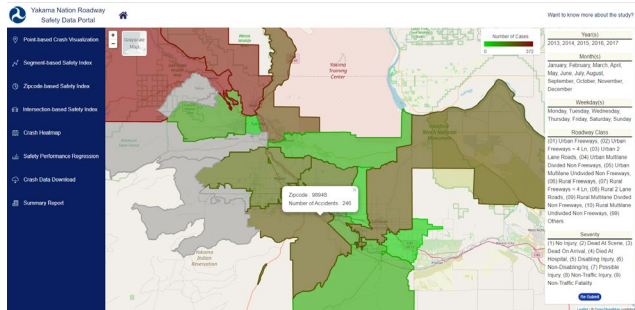
Segment-Based



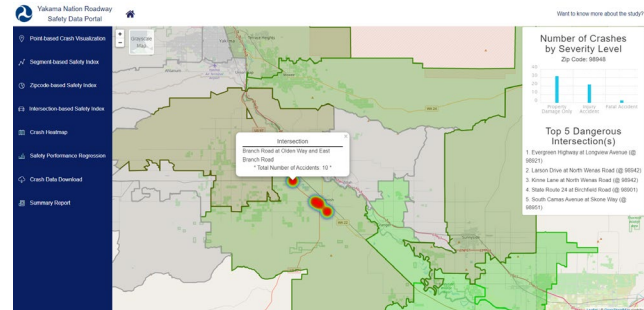
Heatmap-Based



Area-Based



Intersection-Based



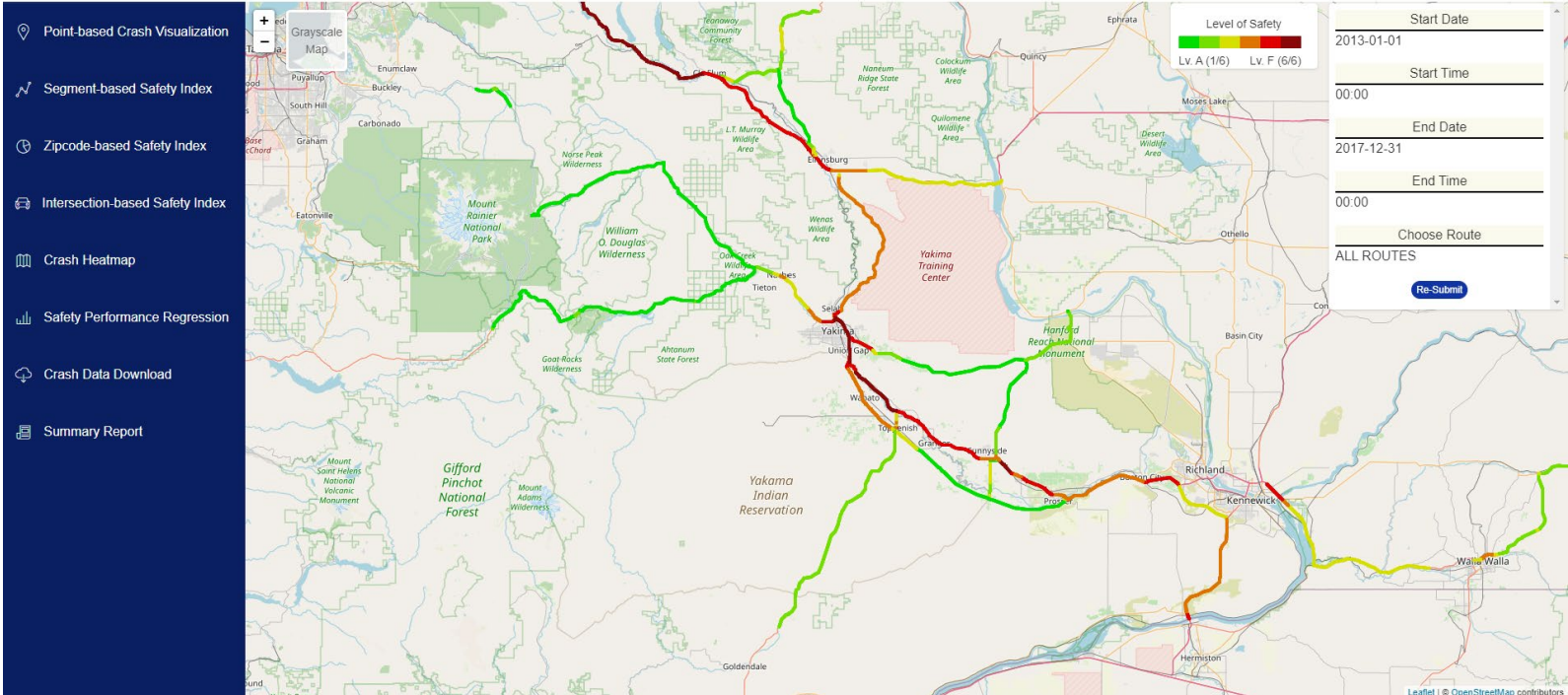
Safety Data Tool

Safety Performance Regression

Yakama Nation Roadway
Safety Data Portal



Want to know more about the study?



Safety Data Tool

Crash Data Download

The screenshot displays the 'Yakama Nation Roadway Safety Data Portal' interface. A central modal window titled 'Crash Data Download' is open, allowing users to filter crash data. The modal includes the following sections:

- Select Year(s):** A dropdown menu with options for 2013, 2014, 2015, 2016, and 2017.
- Select Month(s):** A dropdown menu with options for all twelve months of the year.
- Select Weekday(s):** A dropdown menu with options for all seven days of the week.
- Select Roadway Class:** A dropdown menu with ten options: (01) Urban Freeways, (02) Urban Freeways < 4 Ln, (03) Urban 2 Lane Roads, (04) Urban Multilane Divided Non Freeways, (05) Urban Multilane Undivided Non Freeways, (06) Rural Freeways, (07) Rural Freeways < 4 Ln, (08) Rural 2 Lane Roads, (09) Rural Multilane Divided Non Freeways, (10) Rural Multilane Undivided Non Freeways, and (99) Others.
- Select Severity:** A dropdown menu with nine options: (1) No Injury, (2) Dead At Scene, (3) Dead On Arrival, (4) Died At Hospital, (5) Disabling Injury, (6) Non-Disabling/Inj, (7) Possible Injury, (8) Non-Traffic Injury, and (9) Non-Traffic Fatality.

The background shows a map of the Hanford Reach National Monument area with various geographical features and road networks. The portal's navigation menu on the left includes options like 'Point-based Crash Visualization', 'Segment-based Safety Index', 'Zipcode-based Safety Index', 'Intersection-based Safety Index', 'Crash Heatmap', 'Safety Performance Regression', 'Crash Data Download', and 'Summary Report'. The top right corner has a link: 'Want to know more about the study?'. At the bottom left, a file named 'Crash_Data.xlsx' is shown, and at the bottom right, there is a 'Show all' button.



Safety Data Tool

Crash Data Download

Yakama Nation Roadway Safety Data Portal

Want to know more about the study?

Year(s)
2013, 2014, 2015, 2016, 2017
[Re-Submit](#)

Summary Report

Crash Severity

2013-2017 Yakima County Crash Severity Distribution

Severity	Percentage
Property Damage Only	72%
Injury	27%
Fatal	1%

Year Trend

2013-2017 Yakima County Crash Counts By Severity And Year

Year	Property Damage Only	Injury	Fatal
2013	~300	~100	~10
2014	~350	~100	~10
2015	~400	~100	~10
2016	~450	~100	~10
2017	~500	~100	~10

Month Aggregate

2013-2017 Yakima County Crash Counts By Severity And Month

Month	Property Damage Only	Injury	Fatal
Jan	~250	~50	~5
Feb	~220	~40	~5
Mar	~150	~30	~5
Apr	~120	~20	~5
Mai	~150	~40	~5
Jun	~200	~60	~5
Jul	~180	~50	~5
Aug	~180	~50	~5
Sep	~180	~50	~5
Oct	~200	~50	~5
Nov	~200	~50	~5
Dec	~220	~50	~5

Leaflet | © OpenStreetMap contributors





Thanks!

Questions?



Feel free to reach out with any other questions you may have!

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