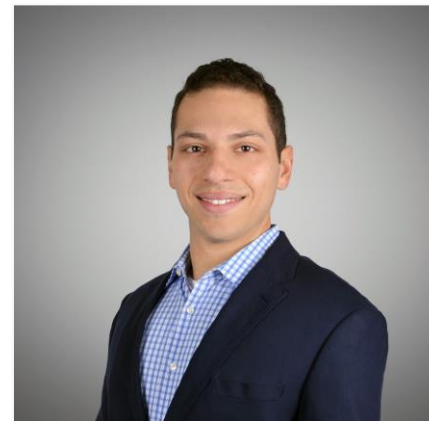

Analyzing Rural Road Safety: A Geographic Analysis

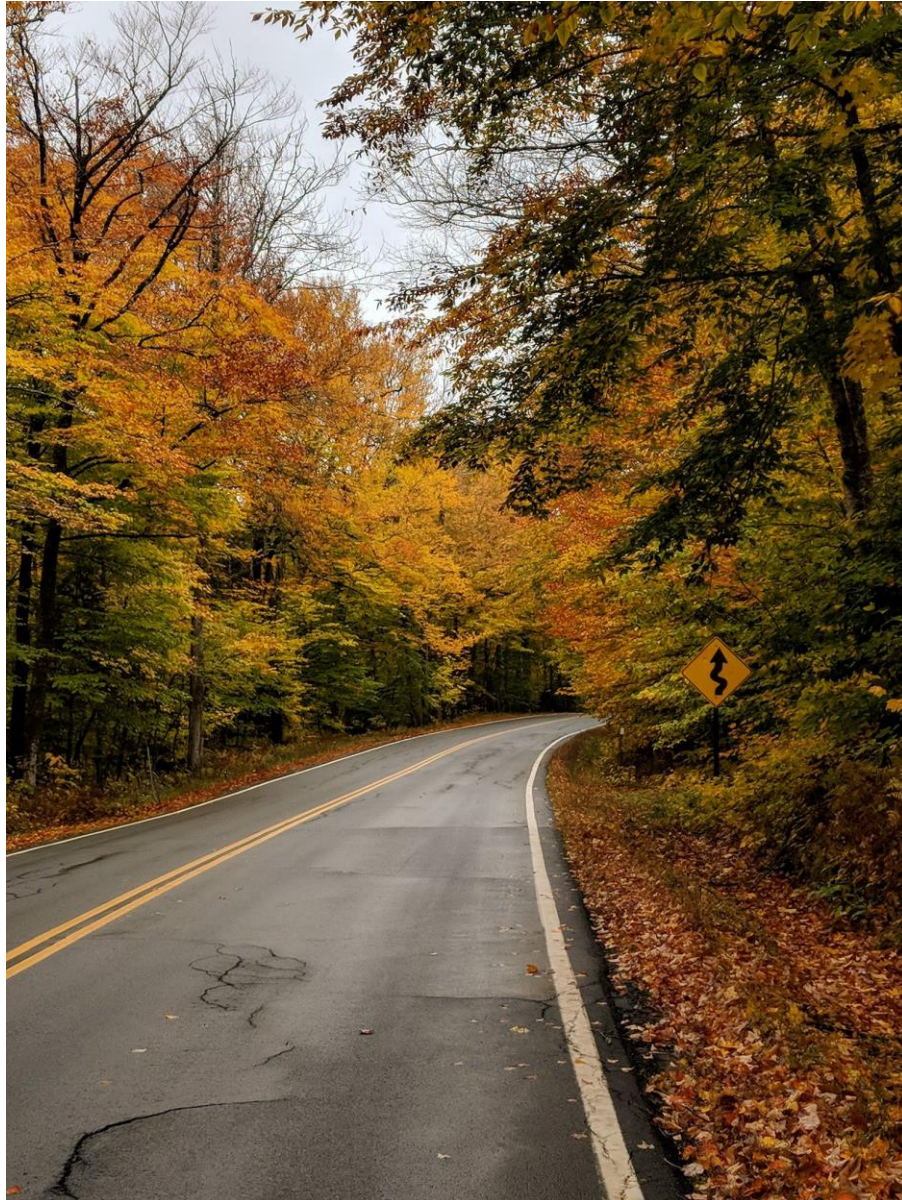


Jenna Goldberg
EBP



Russell Pildes
EBP

BTSCRP 15: Highway Safety Behavioral Strategies for Rural Areas



VS



Agenda



**CLASSIFYING RURAL
AREAS**



**CLASSIFYING RURAL
ROADS**



**SAFETY ANALYSIS
FINDINGS**

Rural Area Classifications

County Classification System

Metropolitan

Micropolitan

Fringe

Rural Towns

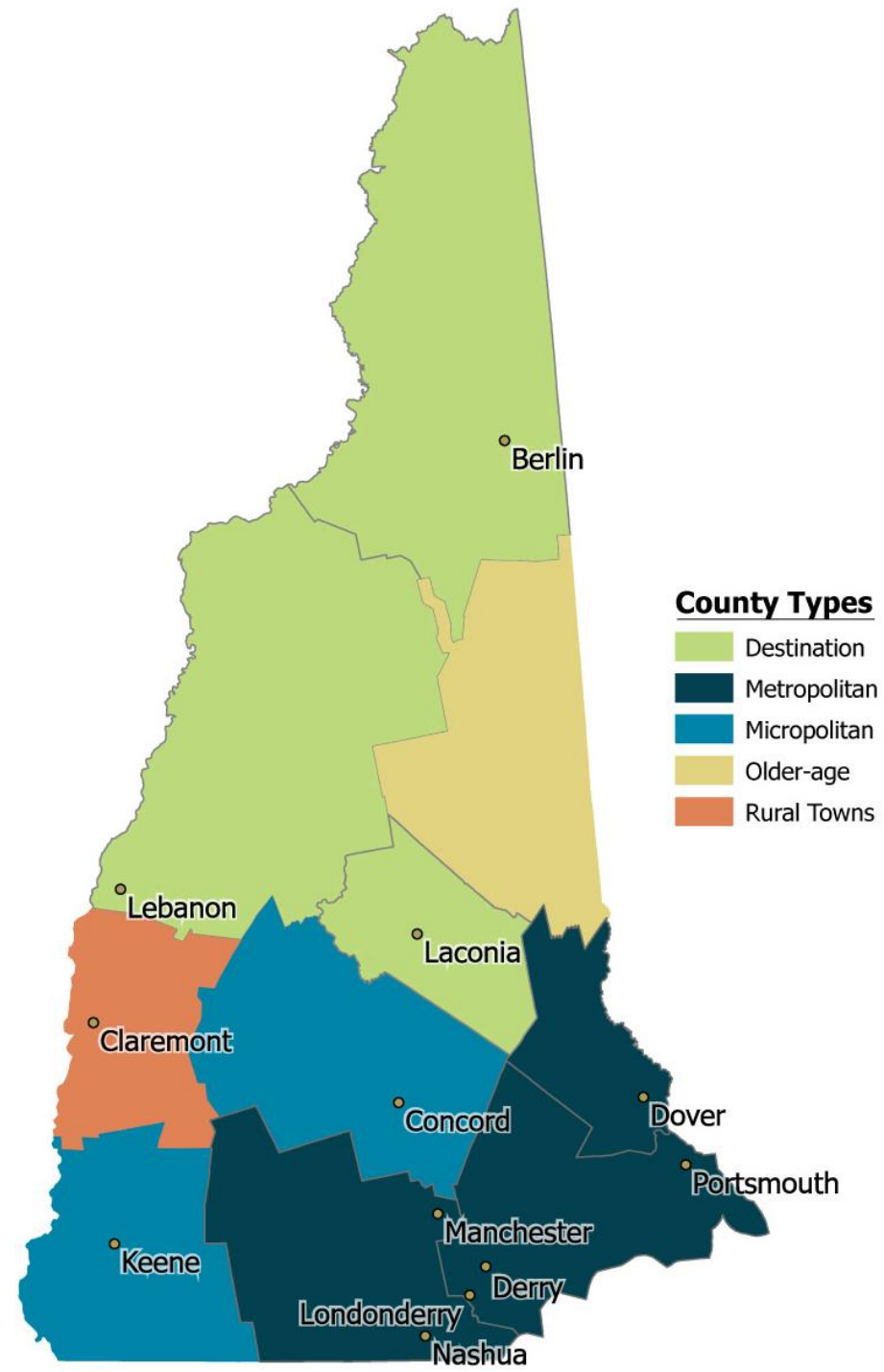
Remote

Agriculture & Extraction

Older Age

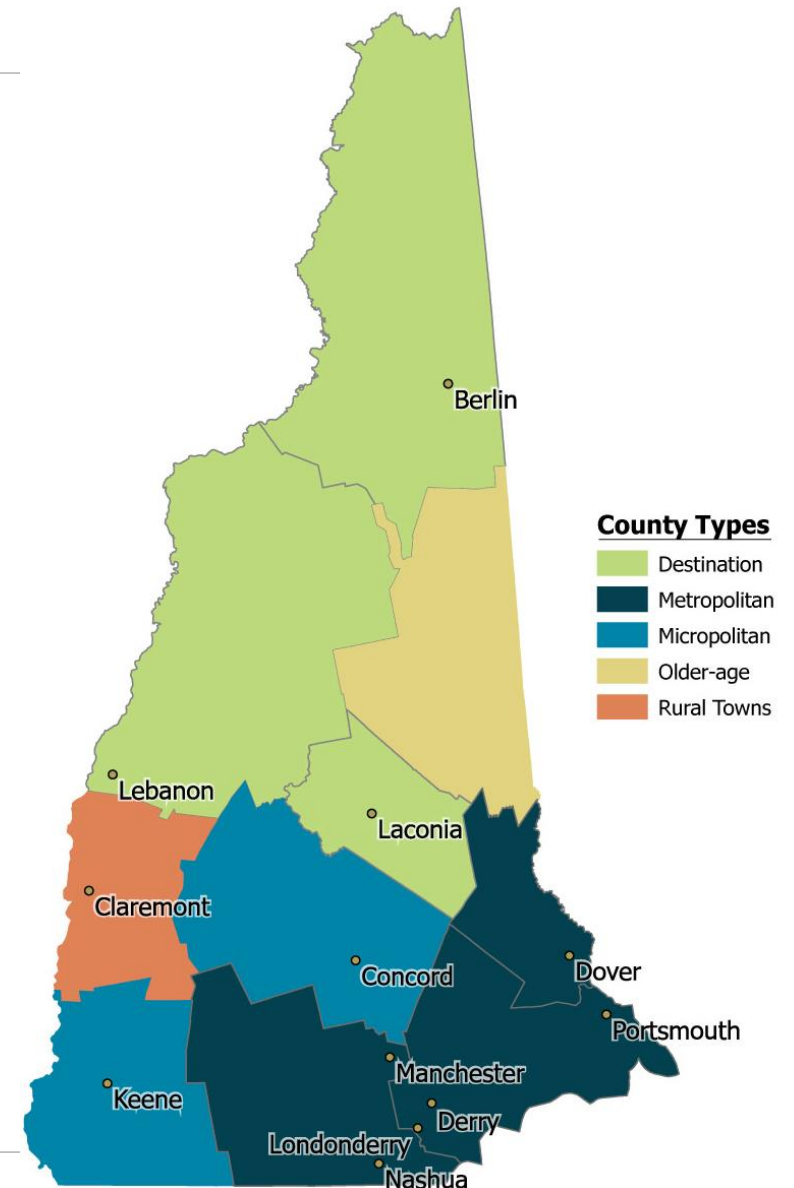
Destination

Tribal

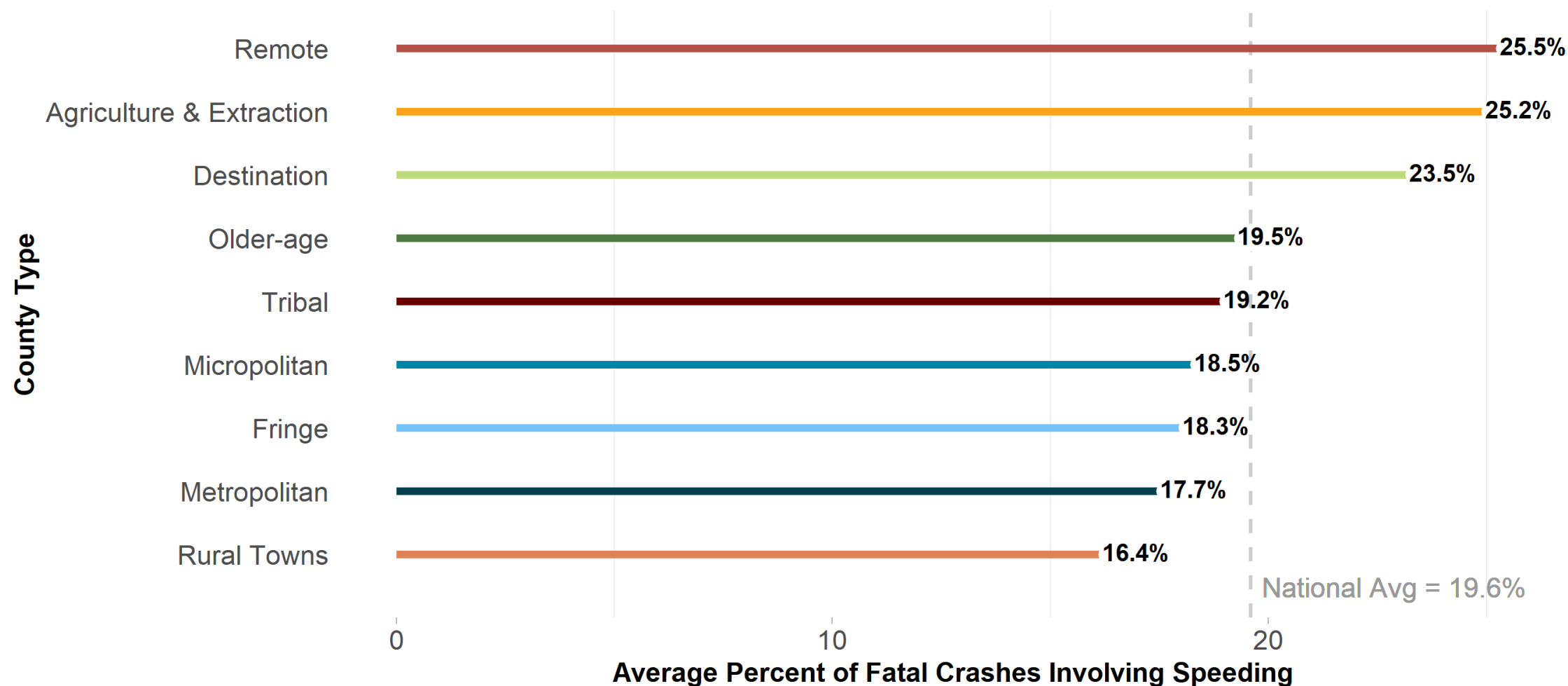


Definition Trade-offs

- Counties are large and diverse areas
 - ⑩ Not all Metropolitan/Micropolitan counties are entirely 'urban' (Merrimack County)
- Some counties may fit criteria for multiple categories
 - Seasonality of recreational activities
- National county level data availability is excellent



Percentage of Fatal Accidents that Are Speeding Related



Rural Road Classifications

Design-based Systems: Functional Classification

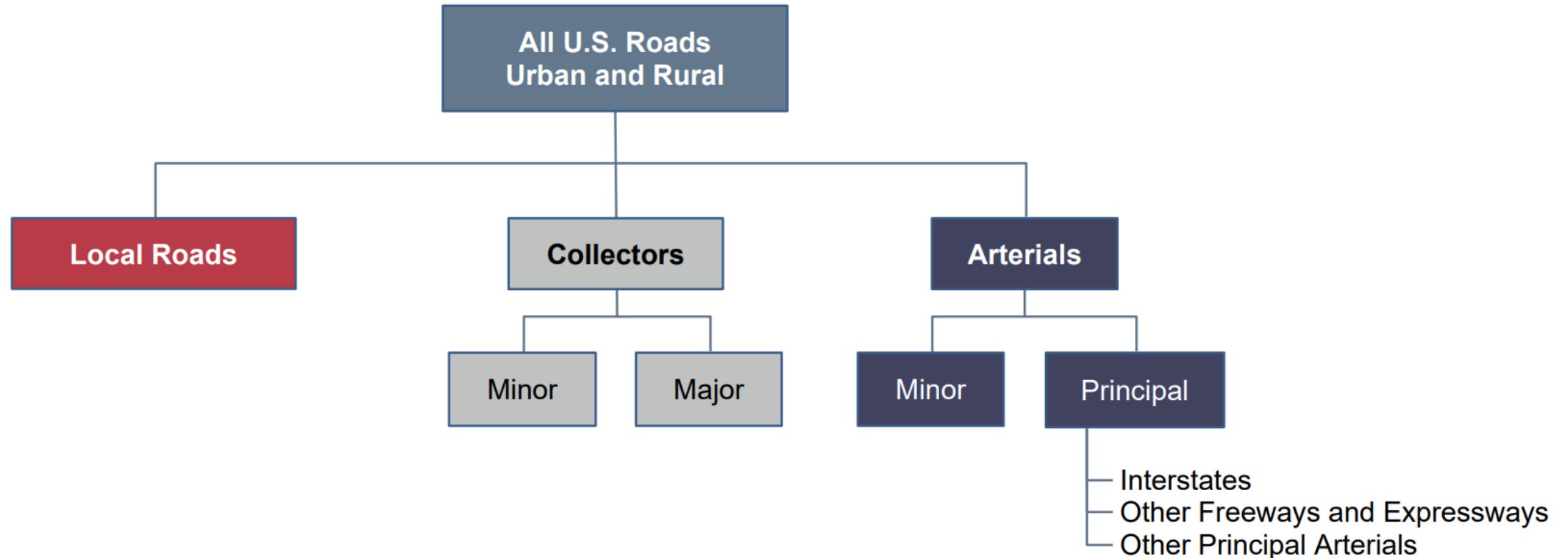
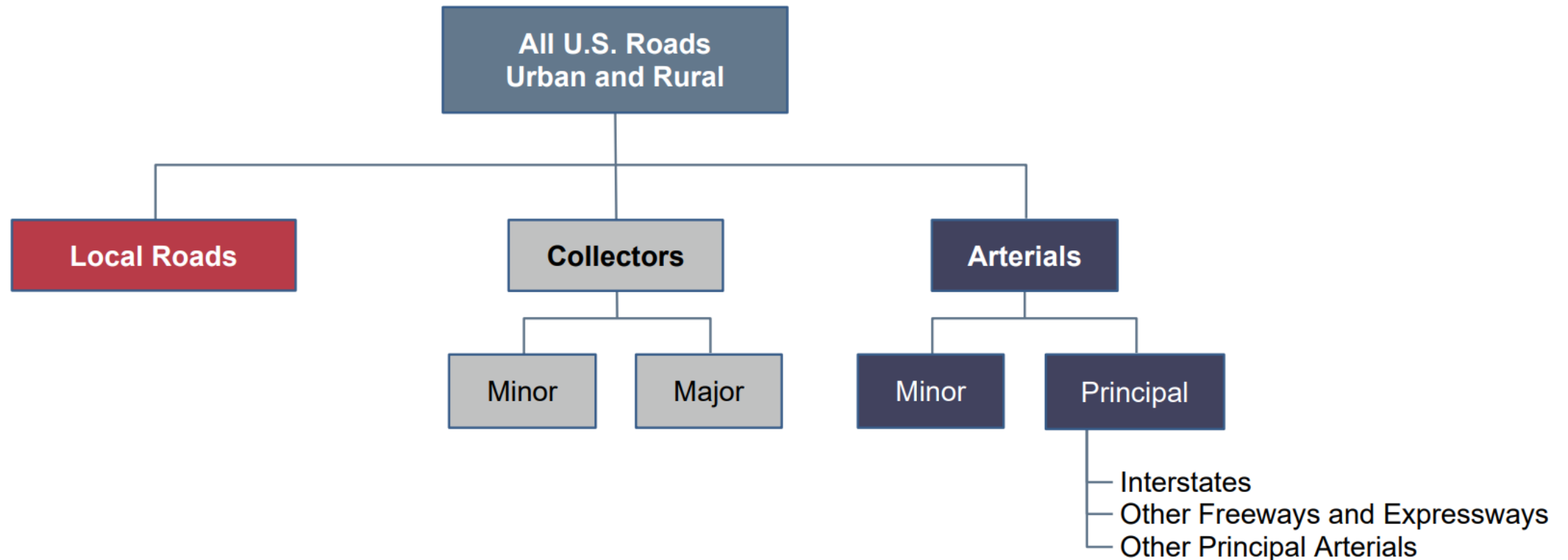


Image: USDOT

Design-based Systems: Functional Classification



Key Point: Segment purpose -> classification -> design

Image: USDOT





Safety-based Road Classifications

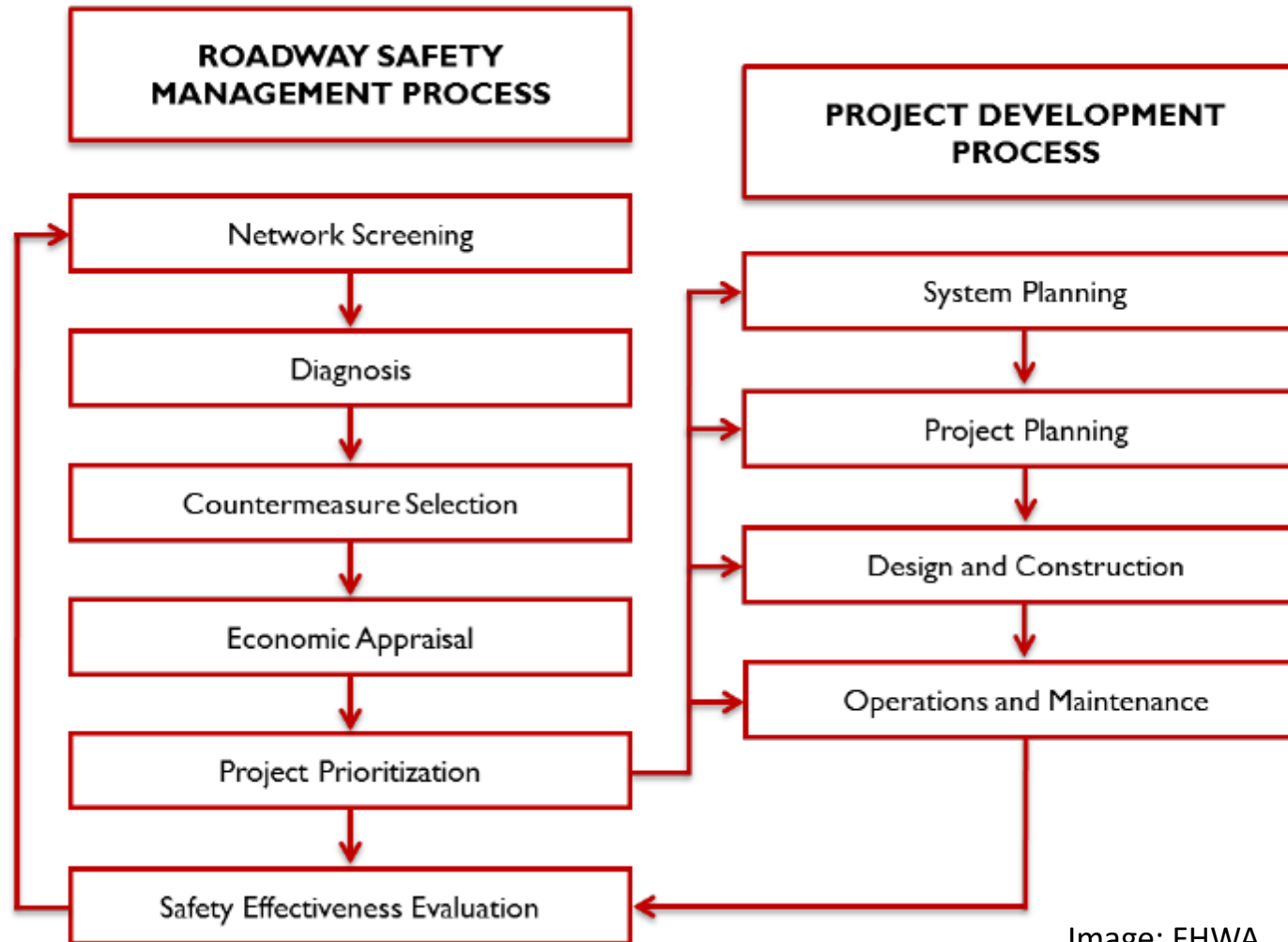


Image: FHWA

Safety-based Road Classifications

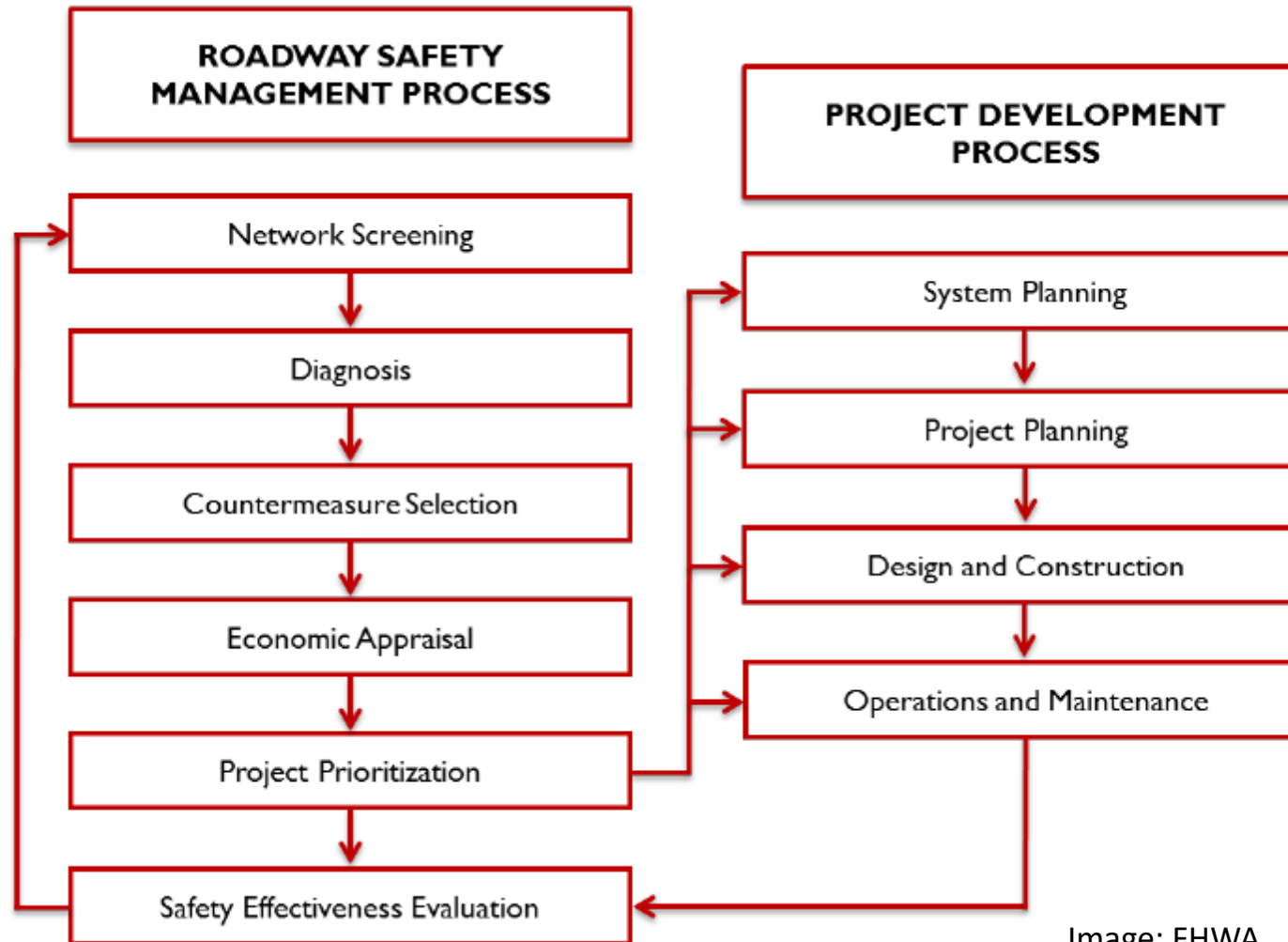


Image: FHWA

Key Points:

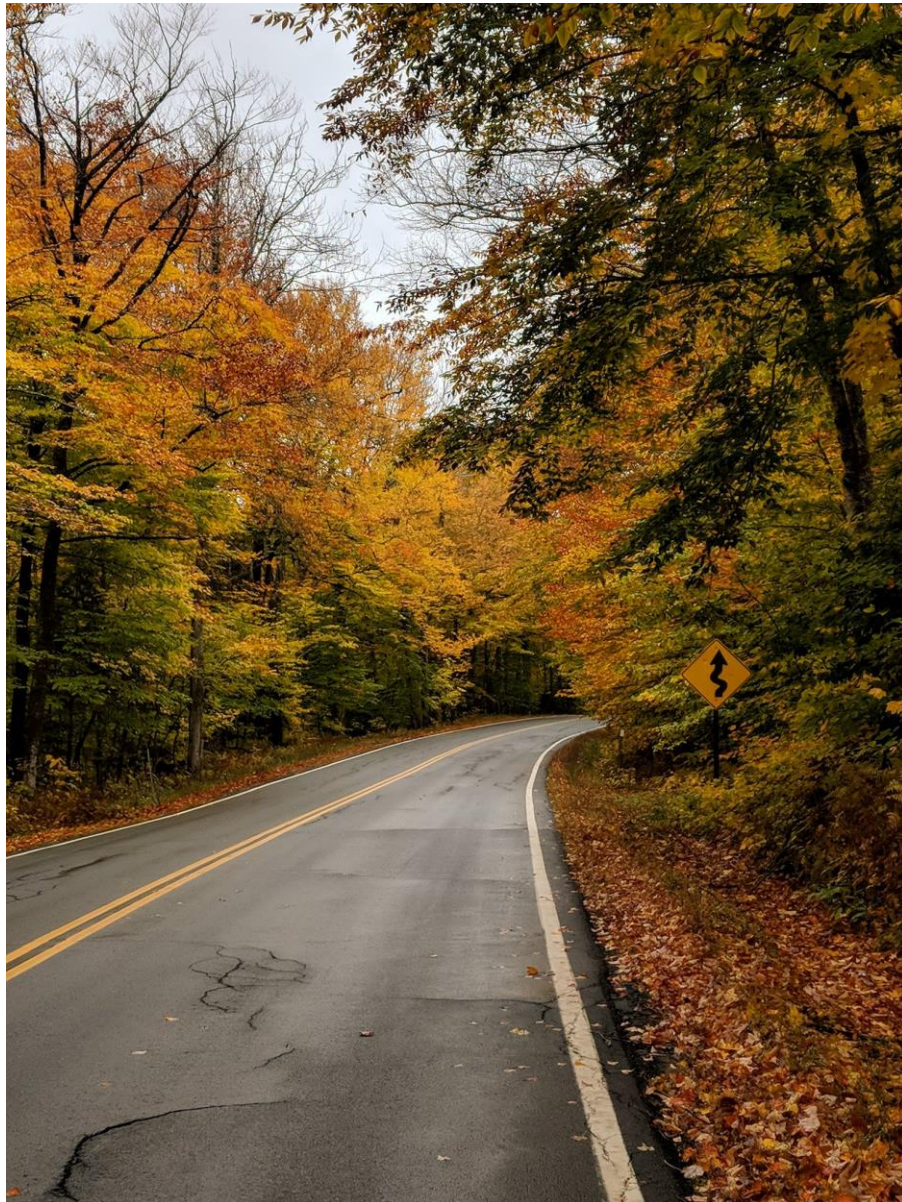
- Downstream of functional classification.
- Incident-focused
- Physical characteristics largely assumed fixed/exogenous to the analysis.

Conundrum

Functional Classification vs. Safety Analysis

Intersections	Segments
Illumination	Median Width and Type
Turning Lanes	Shoulder Type and Width
Signalization and Phasing	Shoulder Rumble Strips
Approach Speed	Roadside Hazards, Clear Zone, and Sideslope
Channelization	Posted and Operating Speed
Traffic Control	Horizontal and Vertical Alignment
	Density of Accesses, Driveways, And Median Openings

Source: FHWA



VS



Modeling Crash Incidence

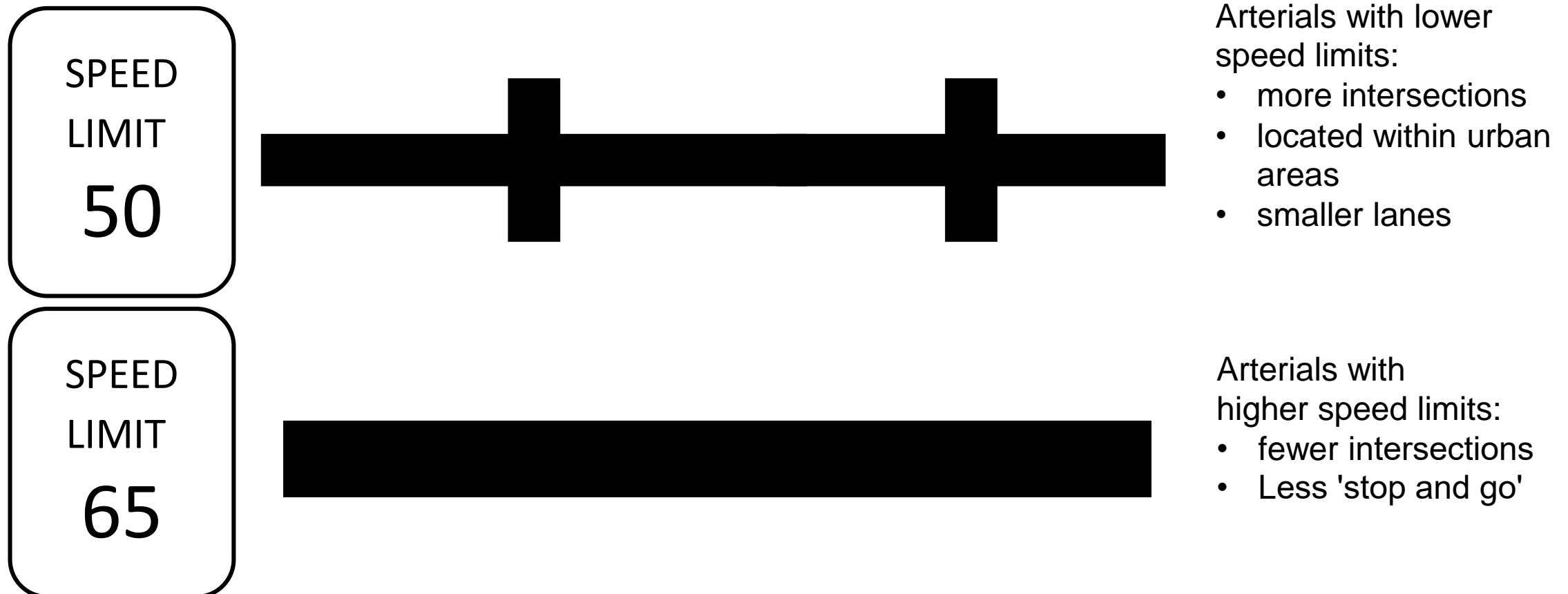
Question: How do physical factors impact the crash incidence rate in different county types for different types of roads?

To evaluate this, we developed a model for predicting the volume of crashes on different road types in non-metropolitan counties.

Data: Highway Safety Information System (HSIS)
Washington State, 2016-2018

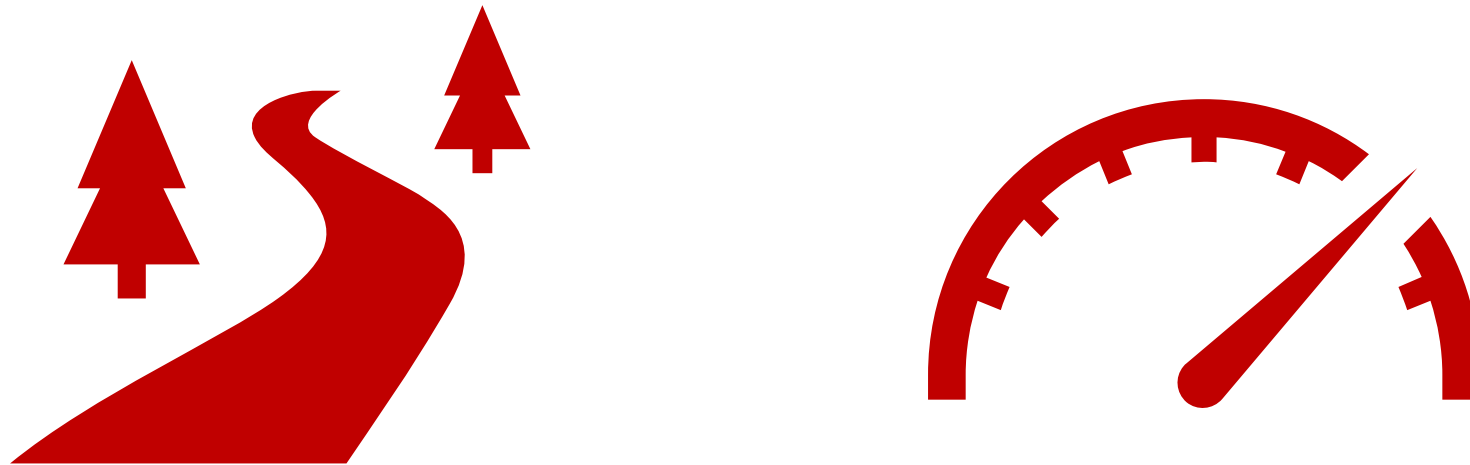
Role of Speed Limit in Crash Incidence

On non-interstate arterials: Speed limit was found to be negatively correlated with crash frequency. Why is that?



Role of Speed in Crash Incidence – Contd.

In remote areas, crashes are more likely to occur on high-speed roads.



Crashes that occur at high speeds are more likely to result in serious injuries or fatalities.

Behavioral Factors

- Driver inexperience or fatigue
- Distractions or substance related impairments
- Seatbelt usage
- Speed limit compliance



Conclusions

Contact Us



Jenna Goldberg

jenna.goldberg@ebp-us.com



Russell Pildes

russell.pildes@ebp-us.com

Appendix - Area Type Definitions

