



Systemic Safety: How to Implement Rural-Specific Solutions Under Rural Constraints

2nd National Summit on Rural Road Safety

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 U.S. Department of Transportation
Federal Highway Administration

 **Safe Roads for a Safer Future**
Investment in roadway safety saves lives
<http://safety.fhwa.dot.gov>

Agenda

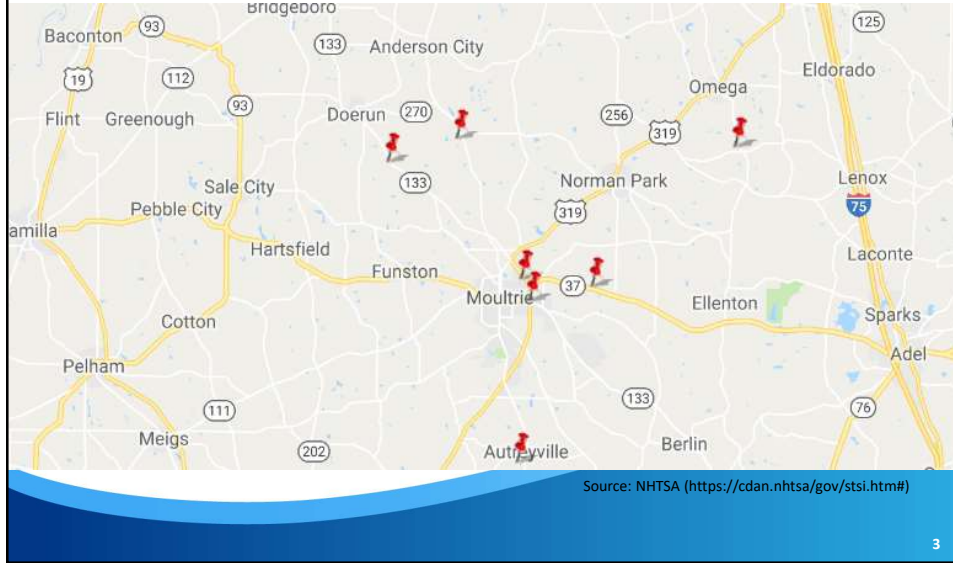
- Overview of the Systemic Approach
- Key Approaches
- Strategies and Tools
- Discussion Throughout!!!



<https://www.mkd.mk/makedonija/poradi>

Example: Fatal Crash Locations

2015



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Example: Major Fatal Crash Types in Washington by FHWA Focus Area

Crash Type	2012		2013		2014		2015	
	#	%	#	%	#	%	#	%
Roadway Departure	243	60%	247	62%	252	59%	290	56%
Pedestrian/Bicycle	87	22%	60	15%	84	20%	100	19%
Intersection	98	24%	110	27%	131	31%	160	31%
TOTAL	403		401		429		516	

Source: FHWA - <https://rspcb.safety.fhwa.dot.gov/Dashboard/Default.aspx>

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Fatal crash locations are **random**



Source: Pexels

Fatal crash types are **predictable**



Source: Pixabay

Reasons for a Systemic Approach

Minnesota

- Rural paved secondary
 - 22,000 miles
 - 13,000 intersections
 - 19,000 curves
 - 0 locations > 1.0 severe crash/year

Note: 60% of Minnesota's severe crashes (fatal + serious injury) occurred on local system (with half on county owned roads)



Cleveland, Minnesota
<https://commons.wikimedia.org/wiki/File:2009-0805-MN-DoddRoad.jpg>

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Doctors have been doing this for a long time...

- Think about how doctors provide care to their patients...
- Inquire about your
 - Family health history
 - Personal health history
 - Diet/behavior
- Use this information to assess your risk to develop certain diseases
- Proactively work to minimize risk before major issues develop later in life



Systemic Approach in Medicine



https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/ddsa_resources/ddsa_systemic_analysis.pdf

Systemic Safety: Definition

The term "systemic safety improvement" means an improvement that is **widely implemented** based on **high-risk roadway features** that are correlated with **particular crash types, rather than crash frequency.**

-- 23 USC 148 (a)(12) Systemic safety improvement



Terminology

- **Hot-spot approach** (aka high crash location):
 - deploying site-specific improvements at locations with the highest frequency of crashes
- **Systematic Approach** (aka systemwide):
 - deploy countermeasures at all locations
- **Systemic approach**:
 - deploy low-cost countermeasures at locations with the greatest risk

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Question:

- *Which approach is crash-based?*
 - a) Hot Spot
 - b) Systematic
 - c) Systemic

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A systemic illustration...

- You could select High-Friction Surface Treatment locations on fatal crash data alone... but considering other roadway characteristics would likely lead to a better risk-based solution.



Photo Source: CH2M HILL

- Curve Radius
- Traffic Volume
- Wet-Weather Crashes
- Friction Data

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Washington's Systemic Approach to develop Local Road Safety Plans

	Local Road Safety Plan Step	Plan Element
1	Analyze summary data to identify focus/priorities	List of crash priorities based on data
2	Analyze individual fatal/serious crashes to identify risk factors	Description of risk factors & selection process
3	Select most common risk factors	
4	Analyze roadway network for presence of risk factors	Prioritized list of roadway locations
5	Create prioritized list of roadway locations	
6	Identify countermeasures to address prioritized locations	Description of countermeasures & selection process
7	Develop a prioritized list of projects	Prioritized list of projects

Systemic Approach

- Crashes alone do not establish prioritization
- Sometimes prioritization is obvious from data (*inferred prioritization*)

Curve ID	Road Name	Scoring	5-year Crash Rate	Fatal or Serious Crash
182	Hawks Prairie Road NE	6.5	1.2	Yes
194	Boston Harbor Road NE	6.0	1.1	No
143	Delphi Road NW	6.0	0.9	No
203	Johnson Point Road NE	5.5	0.4	No
202	South Bay Road NE	5.5	0.2	No
136	Waddell Creek Road SW	5.5	10.3	Yes

<https://safety.fhwa.dot.gov/systemic/fhwasa13019/sspst.pdf>

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Systemic Approach

- Complementary approach to site-specific
 - Proactively identify safety improvements
 - Does not replace reactionary approach
- Primary approach for rural and local roads
 - Can be applicable to urban roads



Source: FHWA - https://safety.fhwa.dot.gov/roadway_dept/countermeasures/horcurves/fhwasa15084/



Source: FHWA - https://safety.fhwa.dot.gov/intersection/other_topics/corridor/cam_tech/sa15005.pdf

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Benefits of Systemic Safety Planning

- Proactive program to address severe crashes
 - Seemingly occur at “random” locations
- Greater knowledge of severe crashes
 - Contributing factors and location characteristics
 - Improve planning, design, and maintenance practices
 - Risk management for tort liability
- Magnitude of crash reductions
 - Case by case (more later)

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Key Approaches

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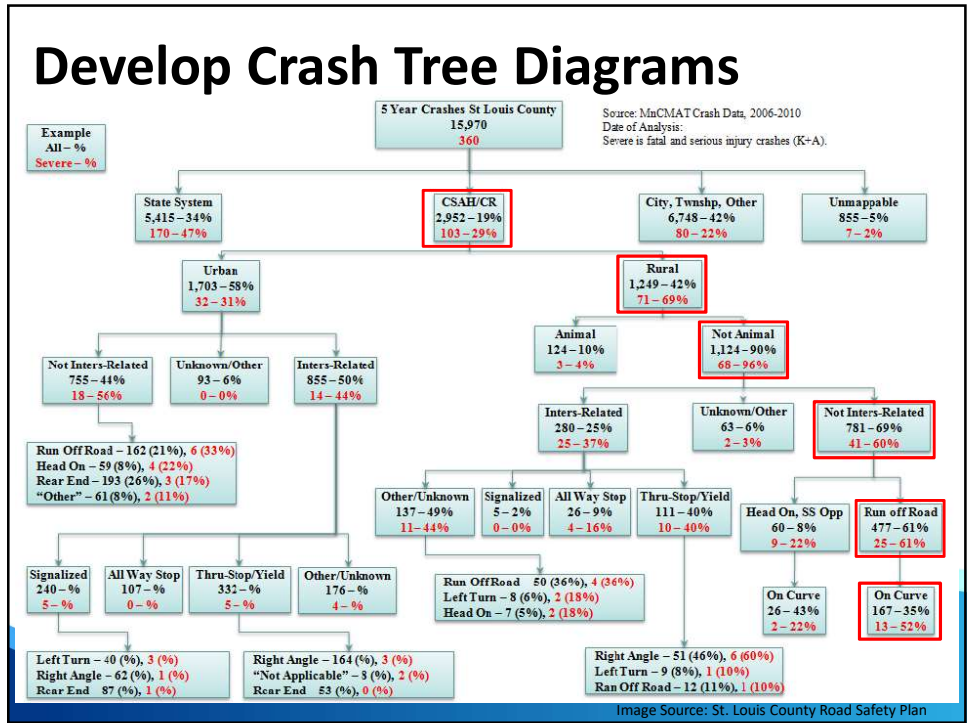
Summarize your data by crash type

Fatal and Severe Injury Crashes (2007-2011) Percent by Jurisdiction		
Emphasis Area	Statewide 114,592 mi	
Total Fatal/Serious Injury	100%	63,443
Pedestrian	19%	11,786
Bicycle	5%	3,390
Heavy Vehicle	5%	3,123
Road Departure	26%	16,668
Intersection	41%	25,791
Head-on and Sideswipe	5%	3,071

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Develop crash type comparisons

2013-2017 County X Data	Fatal/Serious Injury Crashes Only																	
	All Roads		All Co		West Co		County X											
	2013-2017	%	2013-2017	%	2013-2017	%	2013-2017	%	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Overall Numbers																		
Total # of Collisions	11,313		2,674		1,921		50		10	9	9	11	11	12	15	7	12	16
# of Fatal Collisions	2,402	21.2%	654	24.5%	419	21.8%	12	24.0%	3	4	3	0	2	2	3	2	1	2
# of Serious Injury Collisions	8,911	78.8%	2,020	75.5%	1,502	78.2%	38	76.0%	7	5	6	11	9	10	12	5	11	14
# of Alcohol-Related Collisions	2,482	21.9%	706	26.4%	476	24.8%	17	34.0%	5	3	3	2	4	5	2	4	2	7
Total # of Fatalities	2,587		702		441		13		3	5	3	0	2	2	5	2	1	2
Total # of Injuries	15,651		3,552		2,583		71		11	13	13	22	12	16	20	9	17	18
By Collision Type																		
Hit Fixed Object	3,192	28.2%	1,164	43.5%	825	42.9%	23	46.0%	5	5	3	6	4	9	9	4	5	13
Angle (T)	1,311	11.6%	282	10.5%	197	10.3%	8	16.0%	1	2	1	1	3	0	0	0	1	0
Overturn	849	7.5%	273	10.2%	144	7.5%	4	8.0%	1	0	1	1	1	0	0	1	0	1
Head On	590	5.2%	160	6.0%	123	6.4%	4	8.0%	2	1	0	0	1	2	1	0	0	0
Hit Cyclist	628	5.6%	87	3.3%	73	3.8%	4	8.0%	0	1	2	1	0	0	0	0	0	0
Angle (Left Turn)	686	6.1%	124	4.6%	102	5.3%	2	4.0%	0	0	0	0	2	0	2	0	1	1
Wildlife	102	0.9%	47	1.8%	26	1.4%	1	2.0%	0	0	0	1	0	0	0	0	2	1

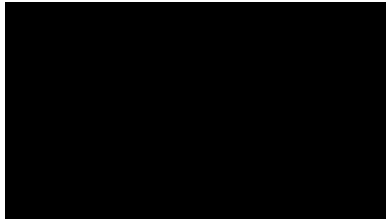


Crash Tree Combinations

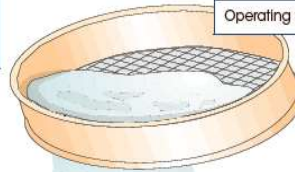
<p>Primary</p> <ul style="list-style-type: none"> • State / local • Rural / urban • Segment / intersection • Segment type <ul style="list-style-type: none"> – Freeway, multilane, two-lane, one-way • Intersection control <ul style="list-style-type: none"> – Signalized – Unsignalized – Uncontrolled 	<p>Secondary</p> <ul style="list-style-type: none"> • Tangent / curve • High-speed / low-speed • Street lighting • District or regions • Traffic volume • Lane width • Shoulder type/width • Alignment • Land use
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Identify Risk Factors

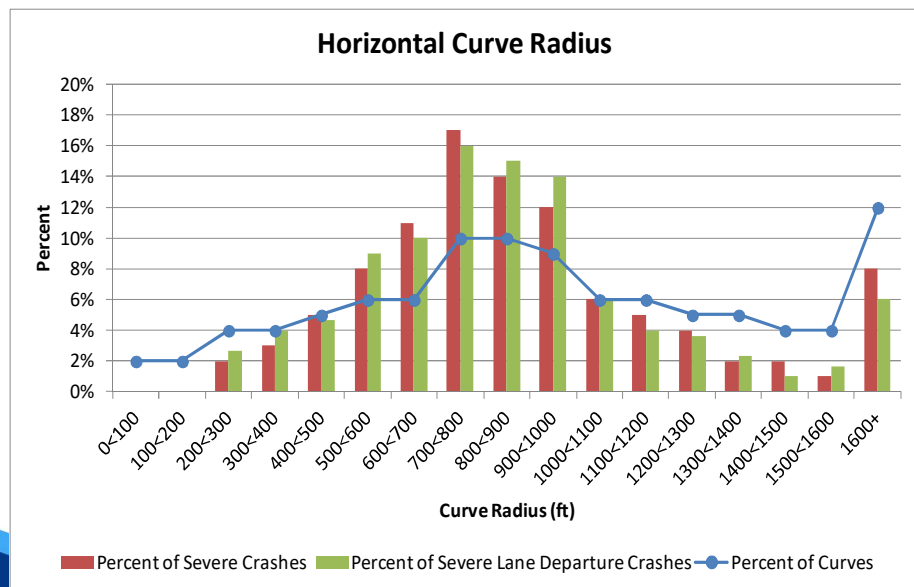


Road Features	Traffic Volume	Other Features
Shoulder Width/Type	Average Daily Traffic (ADT)	Presence of Commercial Development
Horizontal Curvature		Proximity to Rail Crossing
Access Density		Distance from Previous Stop
Roadside Rating		Operating Speed
Intersection Skew		



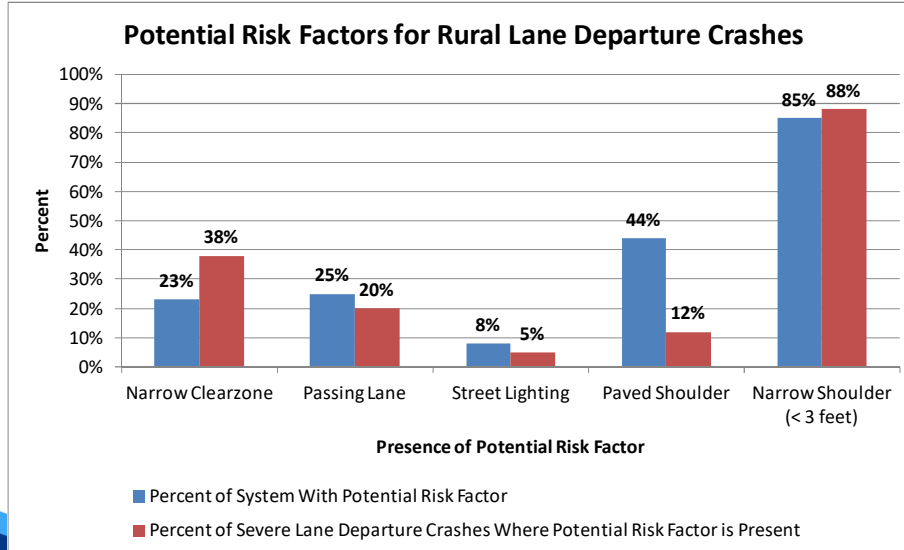
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Descriptive Statistics Analysis



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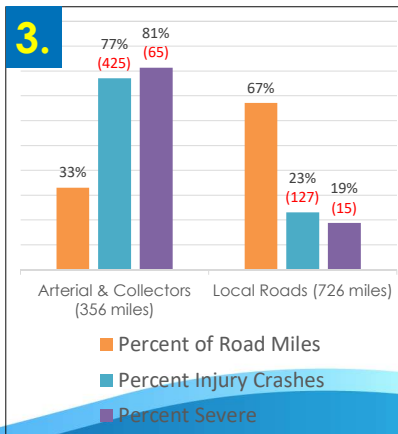
Descriptive Statistics Analysis



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Crash Information – Focus your efforts

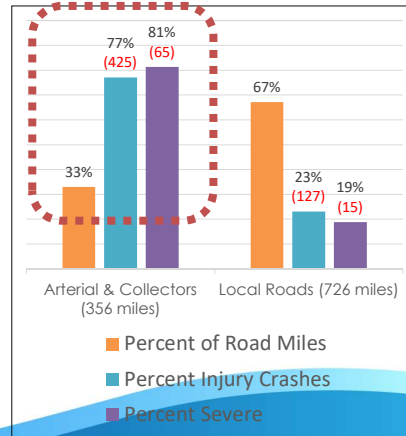
1. Began with:
5000 total crashes
Over 1000 centerline miles
2. Focusing on curves:
Over 1500 crashes
Over 1000 centerline miles



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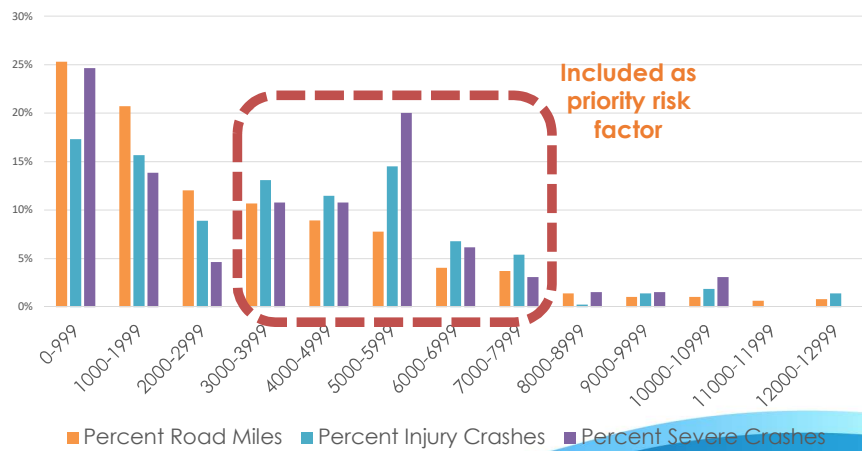
Crash Information – Focus your efforts

Focus area reduced to about 350 centerline miles



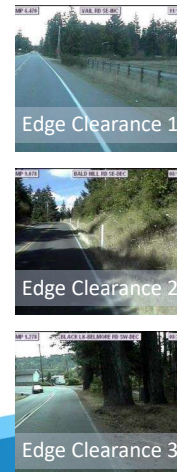
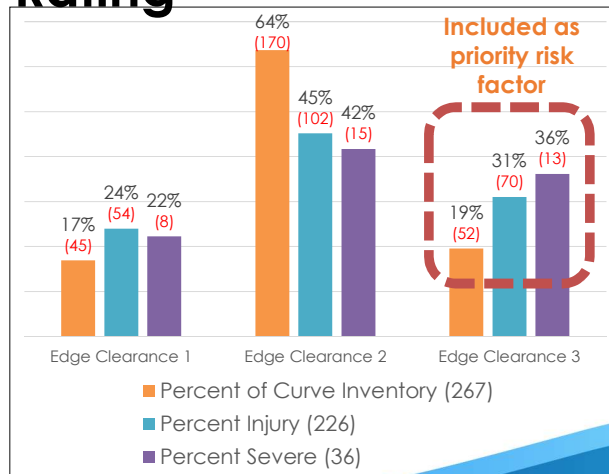
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Data Analysis – Traffic Volume



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Data Analysis – Roadside Rating



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Risk Factor Collection Ideas

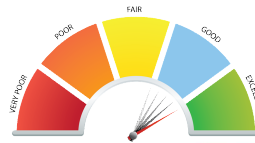
- Use aerial imagery, video logs
- Sign inventory, other mgmt systems
- Collect during slow times – maintenance crews, interns, sign folks, plow operators,...
- Use qualitative values when quantitative hasn't been collected

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Qualitative Approach to Risk

- Use qualitative ratings when needed:
 - Good, Fair, Not-So-Good (curve radius, roadside, etc.)
 - High, Medium, Low (traffic volumes, crash frequency, etc.)
- It is important to include the risk factors that are key to your roadway network

“There’s a lack of quantitative data, but there’s a wealth of qualitative data.”



Linda, National Park Service

Prioritization – Example for Minnesota

Curve Count	ID	Corridor	Segment	Crashes										Radius (ft)	Length Curve (ft)	ADT	Intersection on Curve	Chevrons	Visual Trap	Rank	Proximity	Chevron Candidate	
				Total	Severe	K	A	B	C	PDO	K	A											
1	001A	1.01	CSAH 1	1									92	125	50								
2	001B	1.01	CSAH 1										527	422	50						*		
3	001C	1.01	CSAH 1										823	493	50						*		
4	001D	1.01	CSAH 1										379	359	50								
5	001E	1.01	CSAH 1										969	456	50						*		
6	001F	1.01	CSAH 1										270	431	50								
7	001G	1.01	CSAH 1										314	324	50								
8	001H	1.01	CSAH 1										545	239	50						*		
9	001I	1.01	CSAH 1										459	225	50								
10	001J	1.01	CSAH 1										369	274	50								
11	001K	1.01	CSAH 1	1									318	390	50								
12	001L	1.01	CSAH 1										267	399	50		Yes						Installed
13	001M	1.01	CSAH 1										1,475	345	50						*		
14	001N	1.01	CSAH 1										763	576	130	Yes					***		
15	001O	1.01	CSAH 1										859	353	210	Yes					***		
16	002A	2.02	CSAH 2	1									583	752	930						***	Yes	Yes
17	002B	2.02	CSAH 2										584	635	930	Yes					***		Yes
18	002C	2.02	CSAH 2										799	665	930	Yes					***		Yes
19	002D	2.02	CSAH 2										963	626	930						***	Yes	Yes
20	002E	2.02	CSAH 2										1,234	584	930						***	Yes	Yes
21	002F	2.02	CSAH 2										1,188	719	930						***	Yes	Yes
22	002G	2.02	CSAH 2	1	1	1							938	556	930						***		Yes
23	002H	2.02	CSAH 2										1,199	402	930						***	Yes	Yes
...
502	2492H	249.01	CR 249										432	301	275	Yes						Yes	Yes
503	2492I	249.01	CR 249										814	344	275								Chevron in Place
504	2492J	249.01	CR 249										800	685	275						*	Yes	%Yes

- Complete census of 504 curves
- 32 High Priority Curves (6%)

Stars	#	%	#	%
*****	0	0%	0	0%
****	7	1%	2	0%
***	25	5%	4	1%
**	108	21%	1	0%
*	250	50%	2	0%
-	114	23%	5	1%
	504	100%	14	3%

Helpful Hints

- Crash trees can include all severe crashes or just severe crashes for one focus crash type
 - Narrow crash types to target countermeasures
 - Narrow facility types to identify candidate sites
- Examine total and severe crash categories
 - May reveal different patterns
- Experience suggests 100+ crashes for identifying patterns
 - Increase sample size by:
 - Increasing number of years
 - Increasing geographic area (region instead of county)
 - Include minor injuries
 - Note: For smaller or rural jurisdictions, less crash data can be utilized for analysis.

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LRSP - Brown County, WI

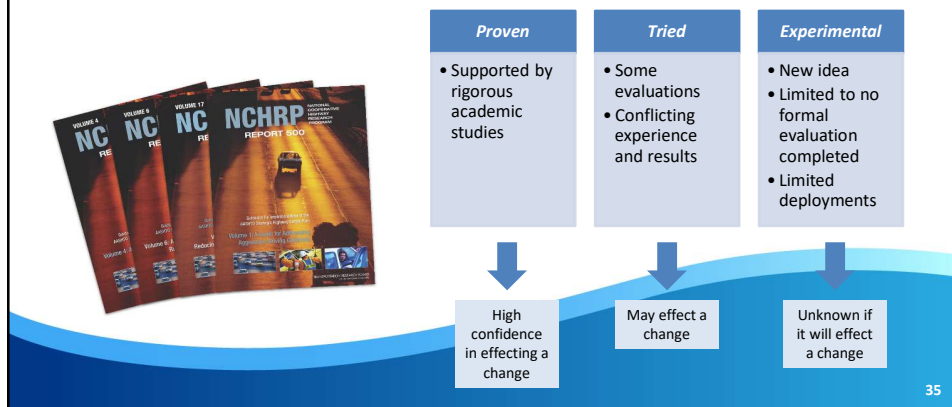


<https://www.wbay.com/content/news/Brown-County-focuses-on-road-safety-in-newly-proposed-budget-495196441.html>

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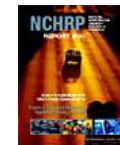
Effectiveness of Safety Strategies

- Decisions to implement a strategy should always consider effectiveness
- National Cooperative Highway Research Program (NCHRP) produces reports documenting effectiveness of various traffic safety strategies



NCHRP 500 Series Topics:

- 1) Aggressive Driving
- 2) Unlicensed Drivers
- 3) Trees
- 4) Head-On
- 5) Unsignalized Intersections
- 6) Run-Off-Road
- 7) Horizontal Curves
- 8) Utility Poles
- 9) Older Drivers
- 10) Pedestrians
- 11) Seatbelt Use
- 12) Signalized Intersections
- 13) Heavy Trucks
- 14) Drowsy/Distracted
- 15) Enhancing EMS
- 16) Alcohol
- 17) Work Zone
- 18) Bicycles
- 19) Young Drivers
- 20) Freeway Head-Ons
- 21) Safety Data & Analysis
- 22) Motorcycles
- 23) Speeding



<http://www.trb.org/Main/Blurbs/152868.aspx>

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Effectiveness of Safety Strategies

Proven

- Graduated Drivers Licensing
- Safety Belt Enforcement Campaigns
- DWI Checkpoints
- Street Lights at Rural Intersections
- Access Management
- Roadside Safety Initiatives

Enforcement

- Pave/Widen Shoulders
- Roundabouts
- Exclusive Left Turn Signal Phasing
- Shoulder Rumble Strips
- Improved Roadway Alignment
- Cable Median Barrier

Engineering

- Removing Unwarranted Traffic Signals
- Removing Trees in Hazardous Locations
- Pedestrian Crosswalks, Sidewalks, and Refuge Islands
- Left Turn Lanes on Urban Arterial

Tried

- Rumble Strips (on the approach to intersections)
- Neighborhood Traffic Control (Traffic Calming)
- Overhead Red/Yellow Flashers
- Increased Levels of Intersection Traffic Control
- Indirect Left Turn Treatments
- Restricting Turning Maneuvers
- Pedestrian Signals
- Improve Traffic Control Devices on Minor Intersection Approaches

Engineering

Experimental

- Turn and Bypass Lanes at Rural Intersections
- Dynamic Warning Devices at Horizontal Curves
- Static/Dynamic Gap Assistance Devices
- Delineating Trees in Hazardous Locations
- Marked Pedestrian Crosswalks at Unsignalized Intersections

Engineering

FHWA, Noteworthy Practices: Addressing Safety on Locally Owned and Maintained Roads, A Domestic Scan, August 2010.

Image Source: Minnesota Traffic Safety Fundamentals Handbook

FHWA's Proven Safety Countermeasures

Roadside Design Improvement at Curves

Reduced Left-Turn Conflict Intersections

Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections

Leading Pedestrian Interval

Local Road Safety Plan

USLIMITS2

Enhanced Delineation and Friction for Horizontal Curves

Longitudinal Rumble Strips and Stripes on Two-Lane Roads

Median Barrier

Safety Edges

Backplates with Retroreflective Borders

Corridor Access Management

Dedicated Left- and Right-Turn Lanes at Intersections

Roundabouts

Yellow Change Intervals

Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Pedestrian Hybrid Beacon

Road Diet

Walkways

Road Safety Audit

<https://safety.fhwa.dot.gov/provencountermeasures/>

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Enhanced Delineation and Friction for Horizontal Curves

Enhanced Delineation

- Pavement Markings
- Post-mounted delineators
- Brighter/larger signs
- Dynamic curve warning signs

Increased Pavement Friction

- Sharp Curves
- Wet Conditions
- Polished Surfaces
- Excessive Speeds



Chevron signs installed along a curve.
Source: Thinkstock



CHEVRON SIGNS

25%

Reduction in nighttime crashes

16%

Reduction in non-intersection fatal and injury crashes

Source: CMF Clearinghouse, CMF IDs 2438 and 2439

HIGH FRICTION SURFACE TREATMENTS

52%

Reduction in wet road crashes

24%

Reduction in curve crashes

https://safety.fhwa.dot.gov/provencountermeasures/enhanced_delineation/

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Systemic Application of Multiple Low-Cost Countermeasures at Stop Controlled Intersections

- (1) analyze systemwide data to identify a problem
- (2) look for similar risk factors present in severe crashes
- (3) deploy on a large scale low-cost countermeasures that address the risk factors contributing to crashes



Example of countermeasures on the stop approach.
Source: South Carolina DOT

SAFETY BENEFITS:

10%

Reduction in injury and fatal crashes

15%

Reduction in nighttime crashes

https://safety.fhwa.dot.gov/provencountermeasures/syst_stop_control/

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Benefits of Systemic Safety Planning

South Carolina Example

- Systemic intersection improvement program
 - Signing
 - Pavement Marking
 - Signal Enhancements
- Signalized
 - Benefit Cost Ratio – 4.1
- Stop-Controlled
 - Benefit-Cost Ratio – 12.4



https://safety.fhwa.dot.gov/provencountermeasures/syst_stop_control/

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Longitudinal Rumble Strips and Stripes



Example of an edge line rumble stripe.

Source: Missouri DOT

Rumble strips and stripes are designed to address these crashes caused by distracted, drowsy, or otherwise inattentive drivers who drift from their lane.



Shoulder rumble strips and center line rumble stripes are installed on this roadway.

Source: FHWA



SAFETY BENEFITS:

CENTER LINE RUMBLE STRIPS

44-64%

Head-on, opposite-direction, and sideswipe fatal and injury crashes

SHOULDER RUMBLE STRIPS

13-51%

Single vehicle, run-off-road fatal and injury crashes



https://safety.fhwa.dot.gov/provencountermeasures/long_rumble_strip/

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Leading Pedestrian Interval

- Increased visibility of crossing pedestrians
- Reduced conflicts between pedestrians and vehicles
- Increased likelihood of motor yielding to pedestrians
- Enhanced safety for pedestrians who may be slower to start in the intersection



LPIs are beneficial at intersections with high left-turning volumes.
Source: pedbikeimages.org / Burden



Leading Pedestrian Intervals

SAFETY BENEFIT:

60%
Reduction in pedestrian-vehicle crashes at intersections

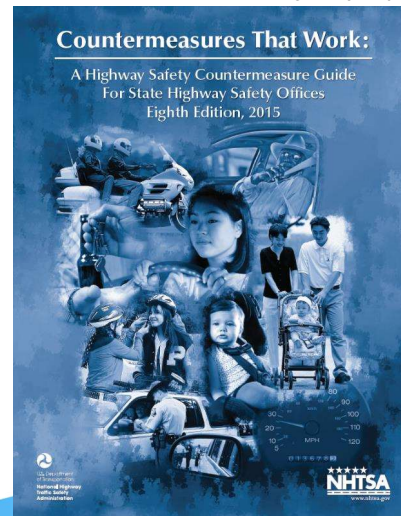
https://safety.fhwa.dot.gov/provencountermeasures/lead_ped_int/

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NHTSA's Countermeasures that work

1. Impaired Driving
2. Seatbelts
3. Speed Limits
4. Distracted Driving
5. Motorcycles
6. Young Drivers
7. License Renewal
8. Education Campaigns
9. Bicycle Helmets

DOT HS 812 202



<https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812202-countermeasures-that-work-8th.pdf>

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Publicized Sobriety Checkpoints

Effectiveness: ★★★★★	Cost: \$\$\$	Use: Medium	Time: Short
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- Authorized in 38 States + DC
- Documented Crash Reduction
 - All Crashes: 10-15%
 - Alcohol-related crashes: 17%
 - Alcohol-related fatal crashes: 9%



Page 1-21,
<https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812202-countermeasureshatwork8th.pdf>

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Short-Term High-Visibility Belt Law Enforcement

Effectiveness: ★★★★★	Cost: \$\$\$	Use: Medium [†]	Time: Medium
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[†] Used in many jurisdictions but often only once or twice each year

- Documented Belt Use Increase
 - 16% increase
- Increased use in conjunction with public education/outreach and paid/donated media

Page 2-17,
<https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812202-countermeasureshatwork8th.pdf>

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Nighttime Enforcement

Effectiveness: ★ ★ ★ ★	Cost: \$\$\$	Use: Low	Time: Medium
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- Belt Use 18% lower at nighttime
- 64% of nighttime fatalities are unbelted (vs. 47% of daytime fatalities)
- DWI and Speed-related fatalities also higher at night

Page 2-20,
<https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812202-countermeasures-that-work-8th.pdf>

Site-Specific vs. Systemic (Total crashes)

Budget = \$3M

- Site-specific
 - 3 roundabouts @
 - 40% reduction/int
 - 10-20 crashes/ye
 - Benefit = reduce
- Systemic
 - 500 intersections
 - 5% reduction/int
 - 3 crashes/year be
 - Benefit = reduce

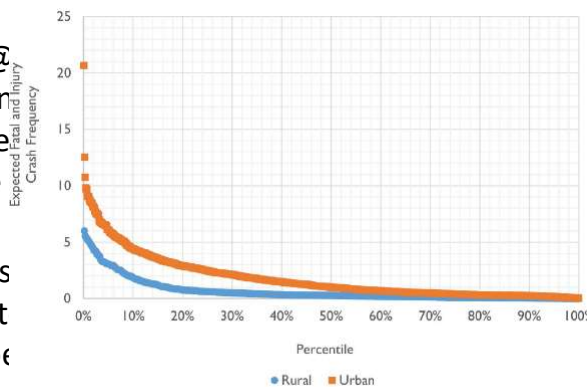
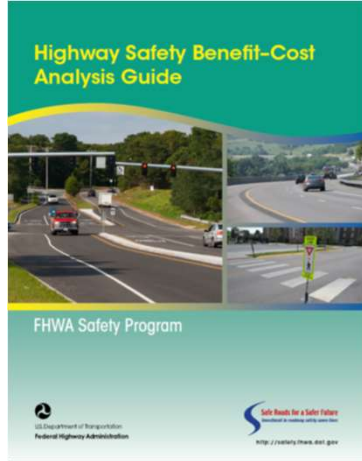
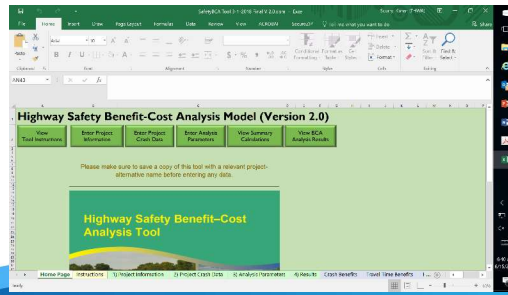


Figure 3. Graph. Statewide distribution of intersection safety performance.

Highway Safety BCA Guide and Tool

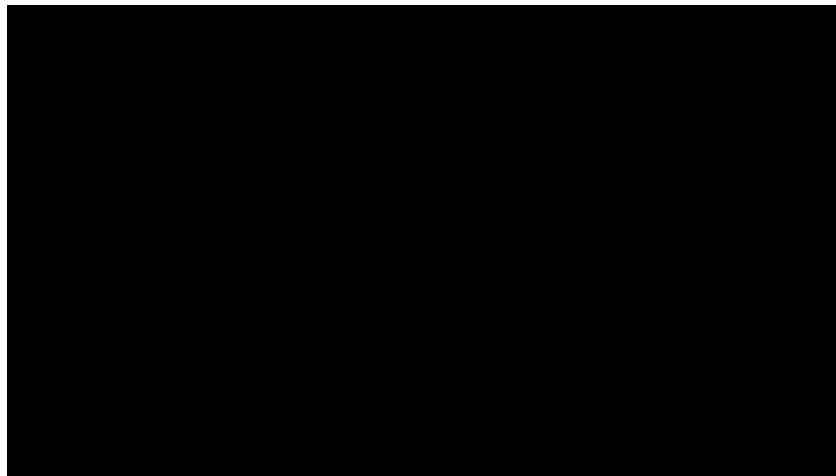


- Guide
- Spreadsheet Tool and Reference Guide
- E-learning Module (*coming soon*)



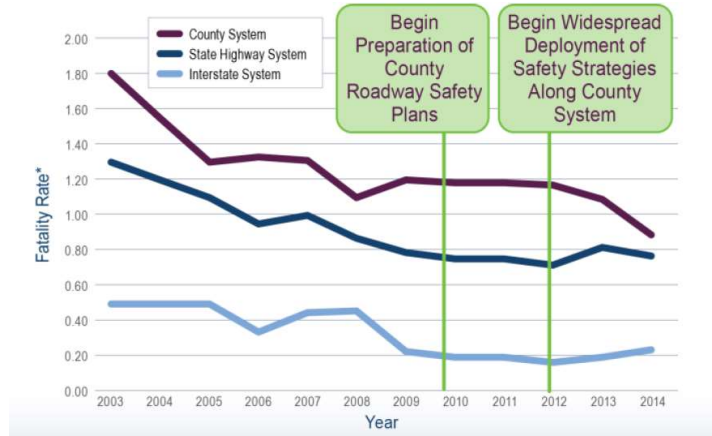
<https://safety.fhwa.dot.gov/hsip/planning.cfm>

Minnesota's Systemic Approach to Safety on All Roads



<https://youtu.be/jVds3AWWqbk>

Results of Minnesota's Systemic Approach



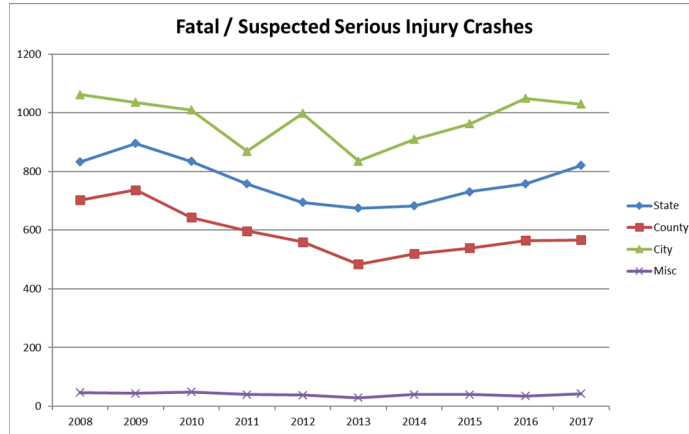
Source: Mark Vizecky, MnDOT

LRSP Data

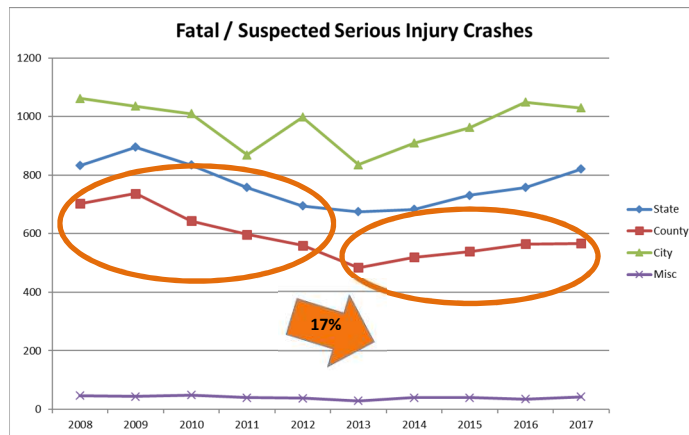


2013-2017 County X Data	Fatal/Serious Injury Crashes Only																		
	All Roads		All Co		West Co		County X												
	2013-2017	%	2013-2017	%	2013-2017	%	2013-2017	%	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	
Overall Numbers																			
Total # of Collisions	11,313		2,674		1,921		50		10	9	9	11	11	12	15	7	12	16	
# of Fatal Collisions	2,402	21.2%	654	24.5%	419	21.8%	12	24.0%	3	4	3	0	2	2	3	2	1	2	
# of Serious Injury Collisions	8,911	78.8%	2,020	75.5%	1,502	78.2%	38	76.0%	7	5	6	11	9	10	12	5	11	14	
# of Alcohol-Related Collisions	2,482	21.9%	706	26.4%	476	24.8%	17	34.0%	5	3	3	2	4	5	2	4	2	7	
Total # of Fatalities	2,587		702		441		13		3	5	3	0	2	2	5	2	1	2	
Total # of Injuries	15,651		3,552		2,583		71		11	13	13	22	12	16	20	9	17	18	
By Collision Type																			
Hit Fixed Object	3,192	28.2%	1,164	43.5%	825	42.9%	23	46.0%	5	5	3	6	4	9	9	4	5	13	
Angle (T)	1,311	11.6%	282	10.5%	197	10.3%	8	16.0%	1	2	1	1	3	0	0	0	1	0	
Overturn	849	7.5%	273	10.2%	144	7.5%	4	8.0%	1	0	1	1	1	0	0	1	0	1	
Head On	590	5.2%	160	6.0%	123	6.4%	4	8.0%	2	1	0	0	1	2	1	0	0	0	
Hit Cyclist	628	5.6%	87	3.3%	73	3.8%	4	8.0%	0	1	2	1	0	0	0	0	0	0	
Angle (Left Turn)	686	6.1%	124	4.6%	102	5.3%	2	4.0%	0	0	0	0	2	0	2	0	1	1	
Wildlife	102	0.9%	47	1.8%	26	1.4%	1	2.0%	0	0	0	0	1	0	0	0	0	2	

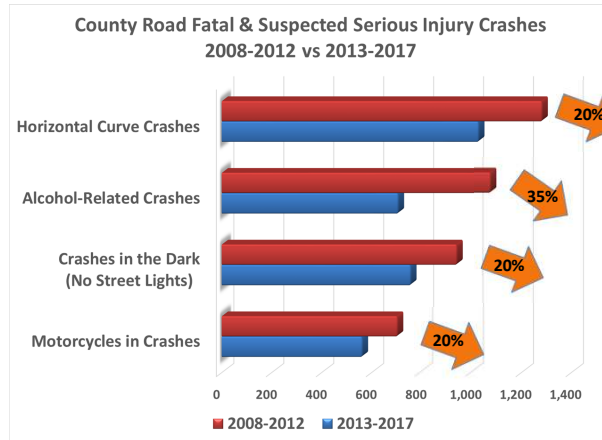
Safety Program Results



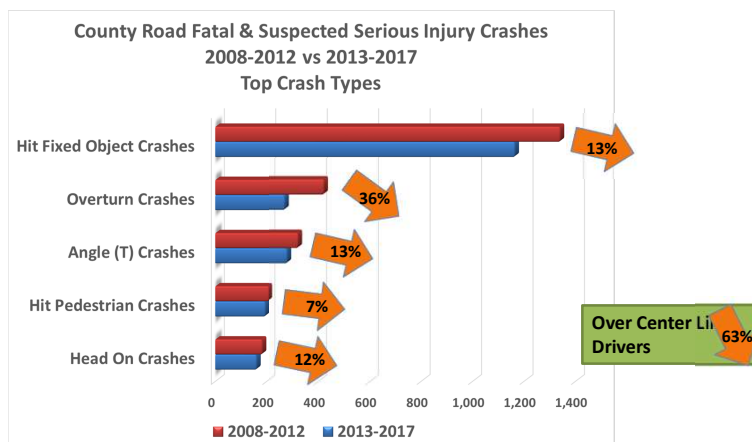
Safety Program Results

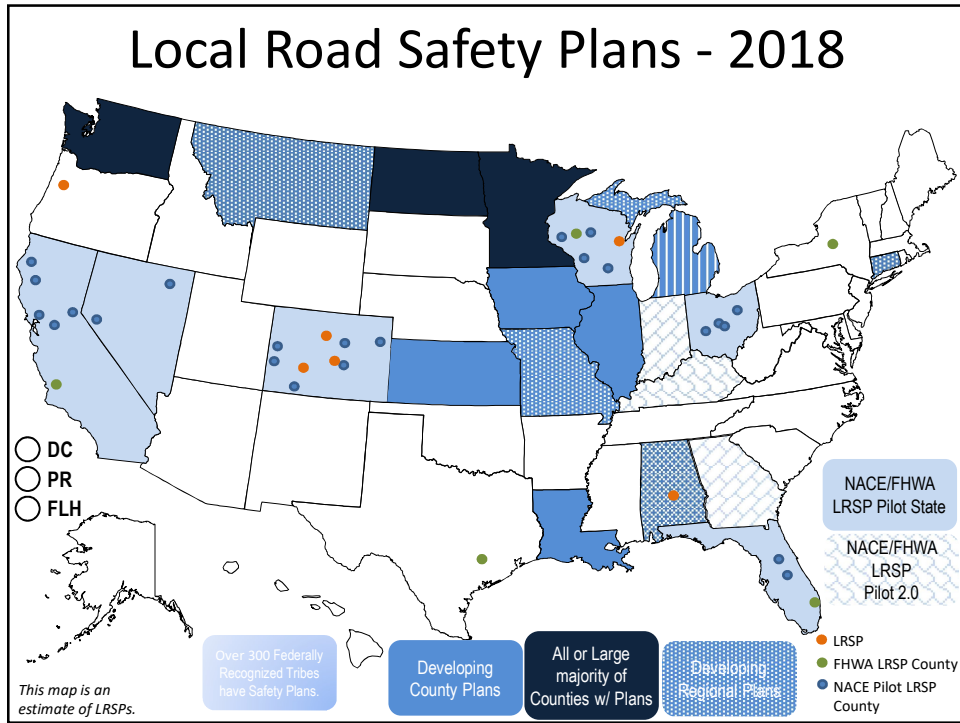


County Results



County Results – Crash Types





NACE “Do-It-Yourself” LRSP Pilot




National
LTAP & TTAP
Association




- Six states, 25 Counties
- Blended Delivery



Webinars



Support Team



Direct Assistance



In-Person Workshop

NACE “Do-It-Yourself” LRSP Pilot - Round 2



- Three states, Up to 16 Counties
- Blended Delivery



Webinars



Support Team



Direct Assistance



In-Person Workshop

NACE “Do-It-Yourself” LRSP Pilot - Round 3



- ____ states, Up to ____ Counties
- Blended Delivery



Webinars



Support Team



Direct Assistance



In-Person Workshop

Example Plans

- Tribal Transportation Safety – Example plans

<http://www.tribalsafety.org/Resources/Safety-Planning/Safety-Plan-Examples>

- Washington State Local Road Safety Plan Webpage

<http://www.wsdot.wa.gov/NR/rdonlyres/1C6A0C29-2E7C-40B6-BA8B-68B8F89C6342/0/LocalRoadSafetyPlans.pdf>

- North Dakota Local Road Safety Plan webpage

<https://www.dot.nd.gov/divisions/safety/trafficsafety.htm#safetyprogram>

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LRSP Resources

- FHWA LRSP Video (New)

<https://www.youtube.com/watch?v=Wzdm798MoI8>

- FHWA LRSP Infographic

https://www.fhwa.dot.gov/innovation/everydaycounts/edc4/ddsar_resources/lrsp.pdf

- FHWA Systemic Safety infographic

https://www.fhwa.dot.gov/innovation/everydaycounts/edc4/ddsar_resources/ddsasystemicanalysis.pdf

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Execute!

“A goal without a plan is just a wish”

- Antione de Saint-Exupery



“A good plan, *violently executed now*, is better than a perfect plan next week.”

- General George Patton



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“Do what you can,
with what you have,
where you are.”

- Theodore Roosevelt



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For more information...

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https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/ddsa.cfm