



Innovative Initiatives that Promote a Culture of Highway Safety

Module 5: Systemic Safety Project Selection Tool & Local Road Safety Checklist

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CIAPR - Mayagüez Chapter



Good Afternoon!

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Systemic Safety Project Selection Tool

Agenda

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I. Introduction

- i. The importance of road safety
- ii. Statistics of fatal crashes
- iii. Safety Related Legislation

II. Objectives

III. Definitions: Systemic vs. Systematic

IV. A synopsis of the systemic safety project selection tool

V. Relations of systemic tool to the Puerto Rico Strategic Highway Safety Plan (SHSP)

Agenda (cont.)

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- VI.** Practical examples applying the systemic safety project selection tool process
 - i.** Urban Settings
 - ii.** Rural Settings
- VII.** Local Road Safety Checklist
- VIII.** How Puerto Rico LTAP/T2 can assist Transportation Officials, PRHTA and local transportation in implementing the systemic safety project selection tool in Puerto Rico

List of Acronyms

CMF	<i>Crash Modification Factors Clearinghouse</i>
DOT	<i>Department of Transportation</i>
FHWA	<i>Federal Highway Administration</i>
HSIP	<i>Highway Safety Improvement Program</i>
LTTAP	<i>Local and Tribal Technical Assistance Program</i>
MAP21	<i>Moving Ahead for Progress in the 21st Century</i>
NHTSA	<i>National Highway Traffic Safety Administration</i>
PRHTA	<i>Puerto Rico Highway Transportation Administration</i>
SHSP	<i>Strategic Highway Safety Program</i>
USDOT	<i>United States Department of Transportation</i>

The Importance of Road Safety

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- A low-density of crashes represents a challenge to address safety issues and to implement improvement projects, mostly in rural areas.
- The use of roadway characteristics associated with a particular crash type makes possible the prediction of high-risk locations that are most likely to experience a fatal crash.

The Importance of Road Safety (cont.)

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Fatal Crashes by Locations



Occurs at different locations across the road system.

Fatal Crashes by Crash Type



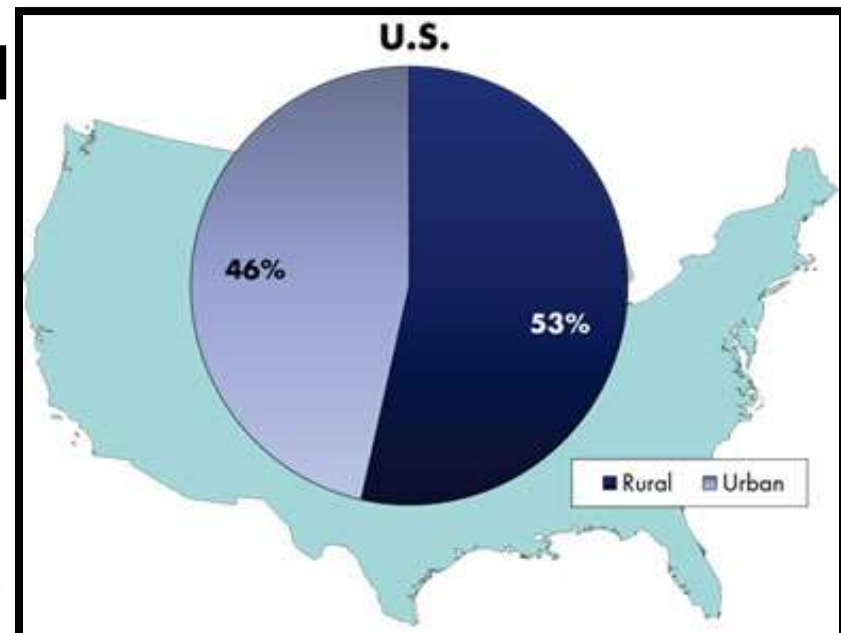
The same fatal crash type occurs from year to year.

Statistics of Fatal Crashes

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- ❑ Rural areas accounted for the 53% of fatal crashes, while urban areas accounted for a 46%.
- ❑ The crashes on rural and local roads are most likely to be spread over a thousand miles.

Crashes on urban areas tend to be densely clustered.

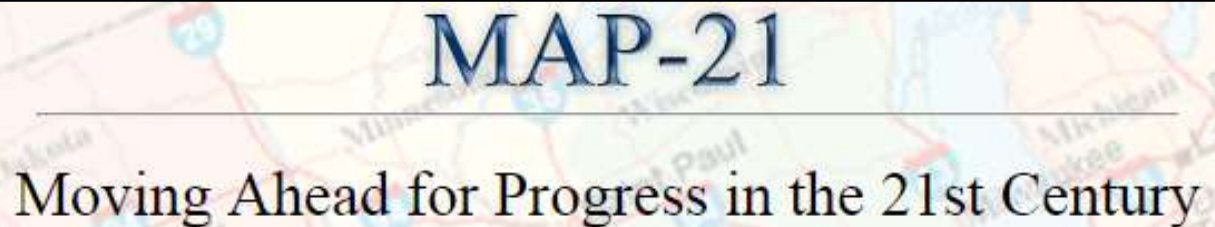


Source: NHTSA2012

Safety Related Legislation

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- ❑ MAP-21 emphasizes reducing fatal and serious injury crashes on all public roads and highly recommends the use of a systemic safety project as part of the states HSIP.
- ❑ Therefore, the state should develop a Highway Safety Improvement Program (HSIP) to improve road safety due to both crash history and crash potential sites.



Objectives

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- ❑ To train engineers and surveyors on the new tools associated with the relation of highway safety improvement projects based on a systemic approach
- ❑ To provide practical examples applying systemic tool process in urban and rural settings
- ❑ To describe local road safety checklist
- ❑ To describe how Puerto Rico LTAP/T2 can assist in the implementation of the Systemic Tool as part of the Puerto Rico Strategic Highway Safety Plan

Systemic Safety Project Selection Tool

FHWA-SA-13-019

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Systemic Safety Project Selection Tool



U.S. Department of Transportation
Federal Highway Administration



The Core of this Seminar

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Systemic Safety Project Selection Tool

Element 1
Systemic Safety
Planning Process

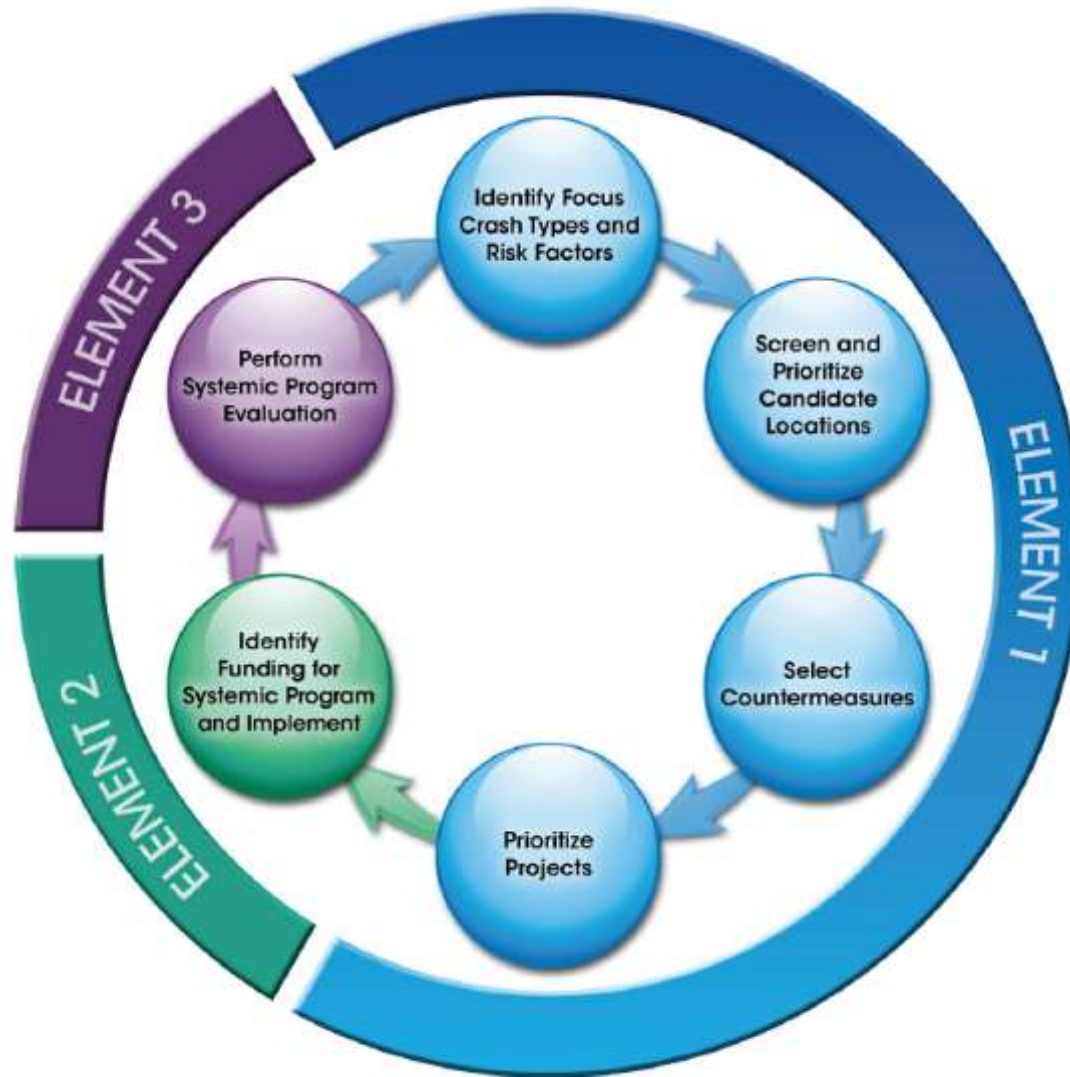
Element 2
A Framework for
Balancing Systemic and
Traditional Safety
Investments

Element 3
Evaluation of a
Systemic Safety
Program

- Step 1: Identify Focus Crash Types
 - Task 1.1, 1.2, 1.3
- Step 2: Screen and Prioritize Candidate Locations
 - Task 2.1, 2.2, 2.3
- Step 3: Select Countermeasures
 - Task 3.1, 3.2, 3.3
- Step 4: Prioritize Projects
 - Task 4.1, 4.2, 4.3

Systemic Safety Project Selection Tool Process

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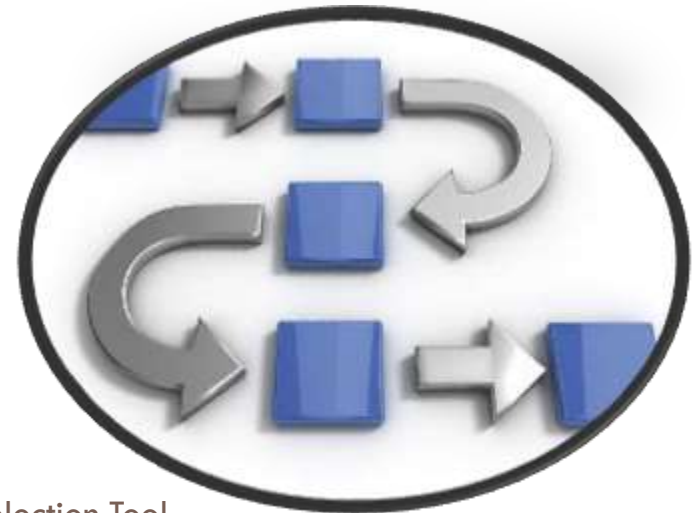


Definitions

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- Systemic
 - ▣ The joint action is more effective than the action of the separated elements.

- Systematic
 - ▣ Through a methodic procedure or according to a strict plan.



What is a Systemic Approach?

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- Is a complementary technique that supplements an analysis approach, prioritize and indicates which location needs a safety improvement the most.
- The collected data of crashes alone is not sufficient to establish an implementation prioritization of countermeasures, it needs to be correlated with specific severe crash types.



Systemic Safety Project Selection Tool

Systemic Safety Project Selection Tool

(Systemic Tool)

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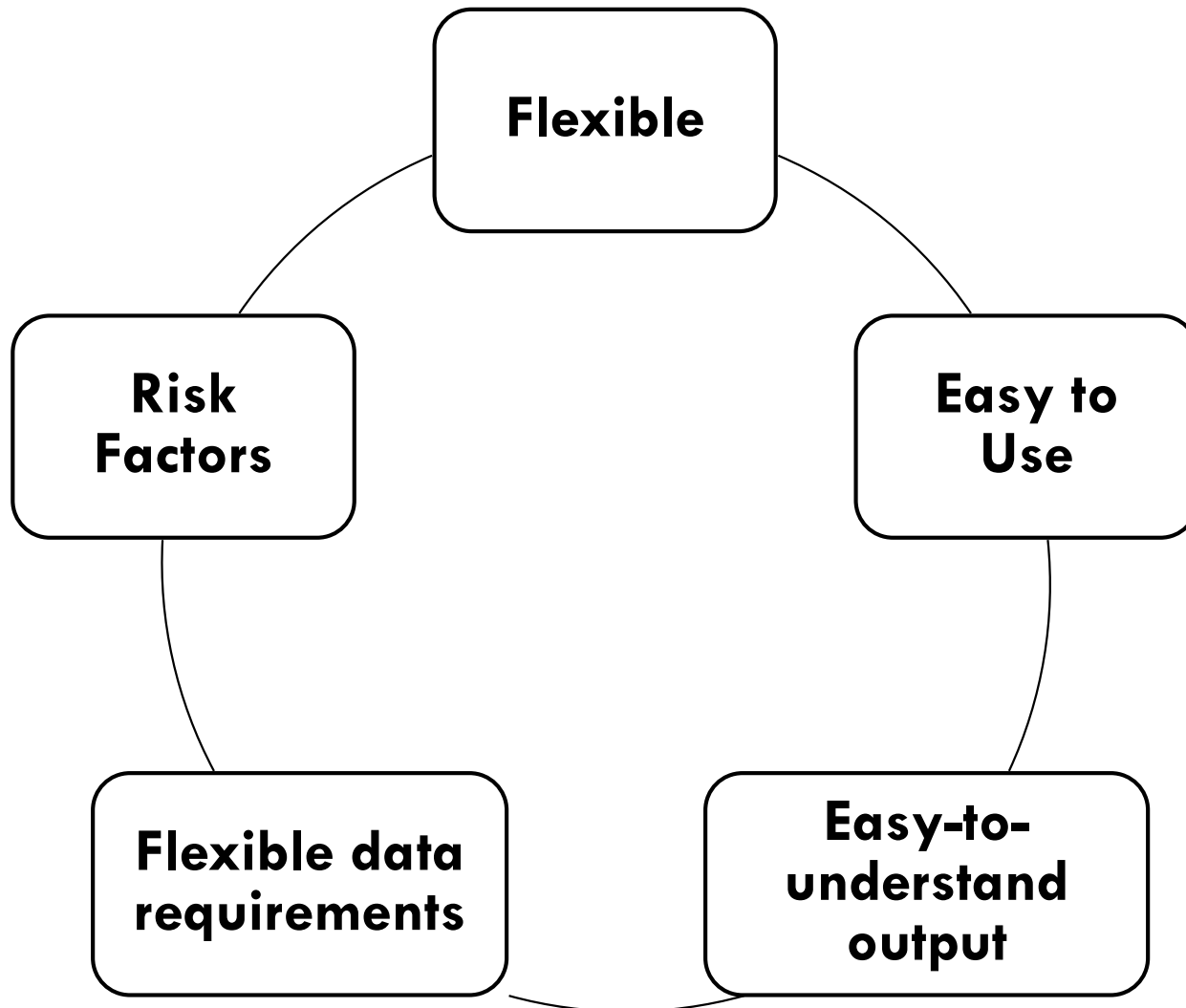
For identifying roadway safety problems and developing highway safety improvement projects.



Purpose: Integrate the Systemic Tool into existing safety management practices and safety analysis tools.

Systemic Tool Characteristics

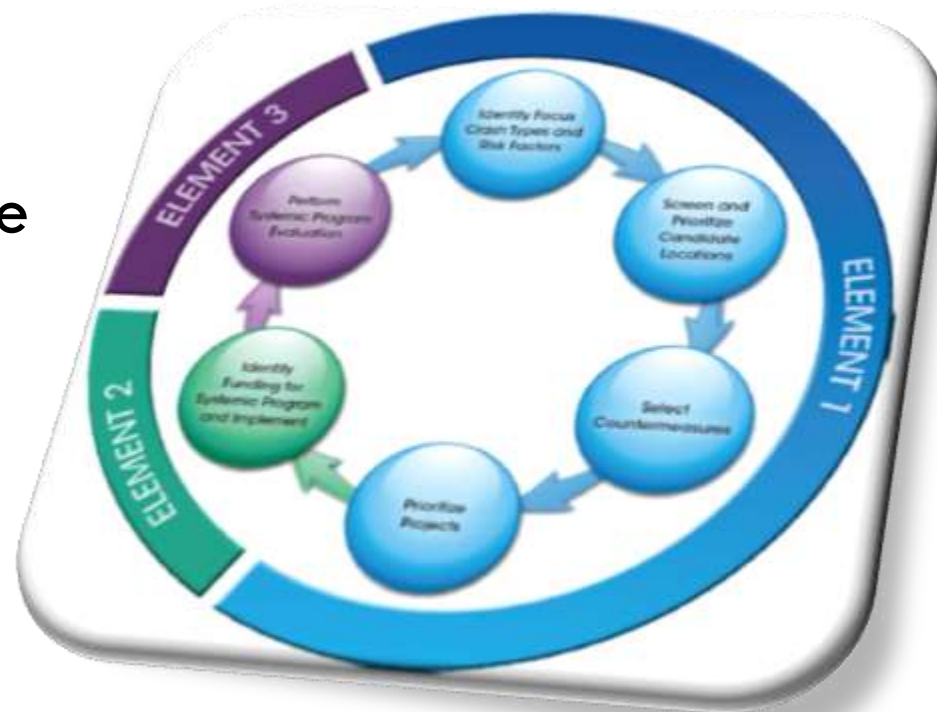
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Systemic Tool Elements

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1. Guides agencies while conducting a systemic safety planning.
2. Sets funding goals for the implementation of systemic safety improvement project.
3. Evaluates the effectiveness of the systemic safety programs.



Source: FHWA

Element 1: Systemic Safety Planning Process

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Step 1: Identify
Focus Crash Types
and Risk Factors

- Task 1.1: Select Focus Crash Types
- Task 1.2: Select Focus Facilities
- Task 1.3: Identify and Evaluate Risk Factors

Step 2: Screen and
Prioritize Candidate
Locations

Step 3: Select
Countermeasures

Step 4: Prioritize
Projects

Step 1: Identify Focus Crash Types and Risk Factors

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- Review systemwide crash data and identify potential risk factors for further analysis.
- Crash data elements:
 - ▣ System Type
 - ▣ Crash Type
 - ▣ Crash Location Type
 - ▣ Location Characteristics



Task 1.1: Select Focus Crash Types

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- Conduct and analysis of severe and fatal crash types to select those representing the greatest opportunities for reduction.
- Use SHSP as reference to identify critical areas involving these types of crashes.

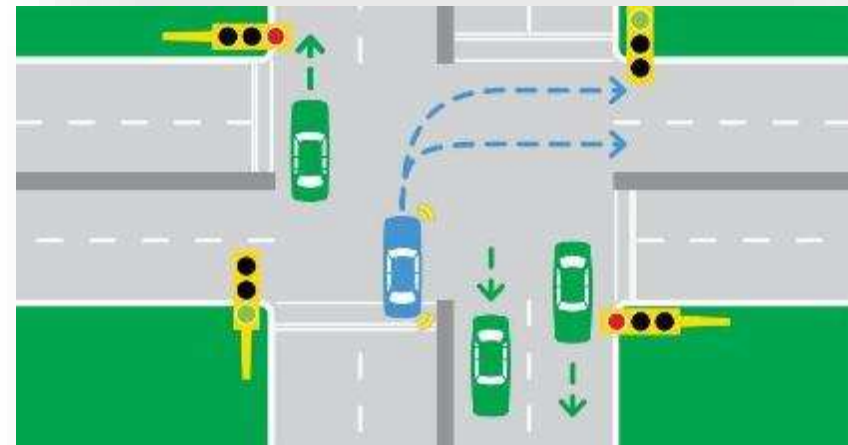


Source: FHWA

Task 1.2: Select Focus Facilities

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- Where are the crashes are occurring.
- Combinations:
 - ▣ Segment vs. Intersection
 - ▣ Segment Type
 - ▣ Intersection Control Type
 - ▣ High-speed vs. Low-speed
 - ▣ District or region
 - ▣ Presence of street lighting



Task 1.3: Identify and Evaluate Risk Factors

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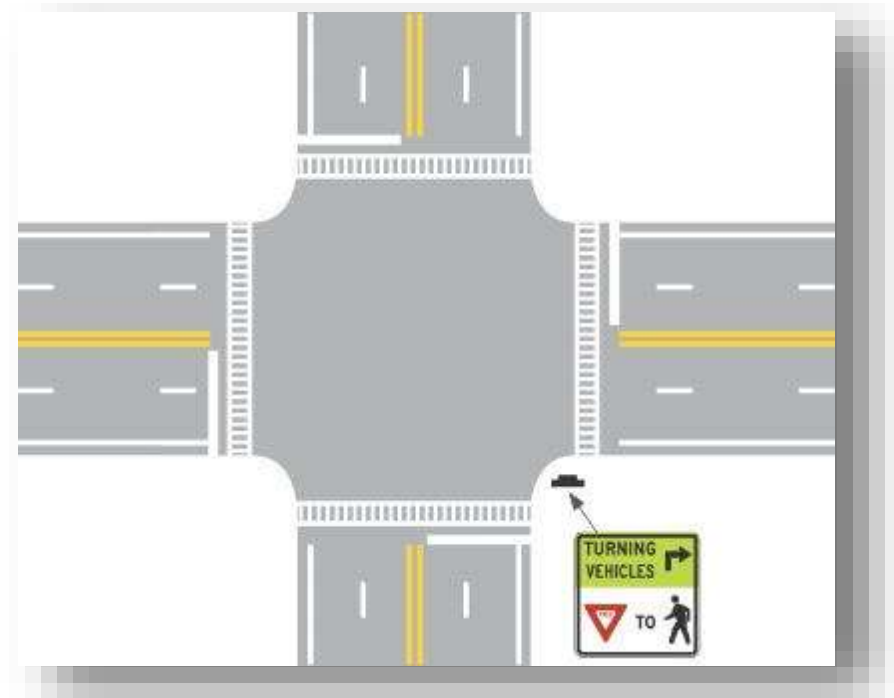
- Document and evaluate the characteristics and risk factors where the crashes occurred.
- There are three main potential risk factors that has to be taken into consideration before selecting specific characteristics, but it is important to select those that indicate greater potential for severe focus crashes to occur.



Some Potential Risk Factors

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- Roadway Intersection Features
 - ▣ Number of Lanes
 - ▣ Intersection traffic control device
- Traffic Volume
 - ▣ ADT volume
- Other Features
 - ▣ Speed limit



Element 1: Systemic Safety Planning Process

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Step 1: Identify
Focus Crash Types
and Risk Factors

Step 2: Screen and
Prioritize Candidate
Locations

Step 3: Select
Countermeasures

Step 4: Prioritize
Projects

- Task 2.1: Identify Network Elements to Analyze
- Task 2.2: Conduct Risk Assessment
- Task 2.3: Prioritize Focus Facility Elements

Step 2: Screen and Prioritize Candidate Locations

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- The objective is to develop a prioritized list of potential locations on the roadway system.
- Not all locations are equally at risk!



Data Needs

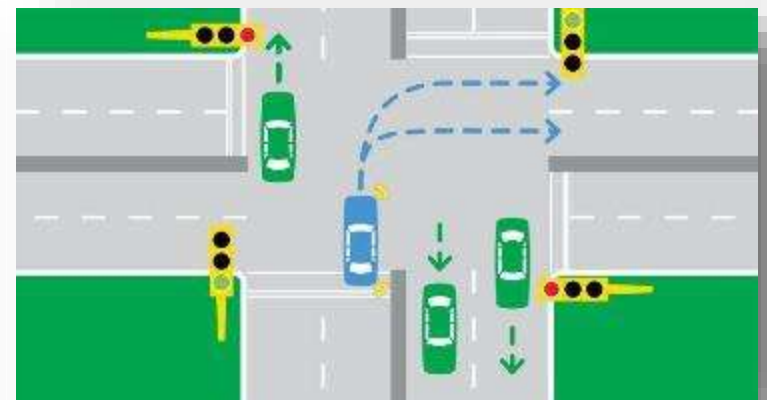
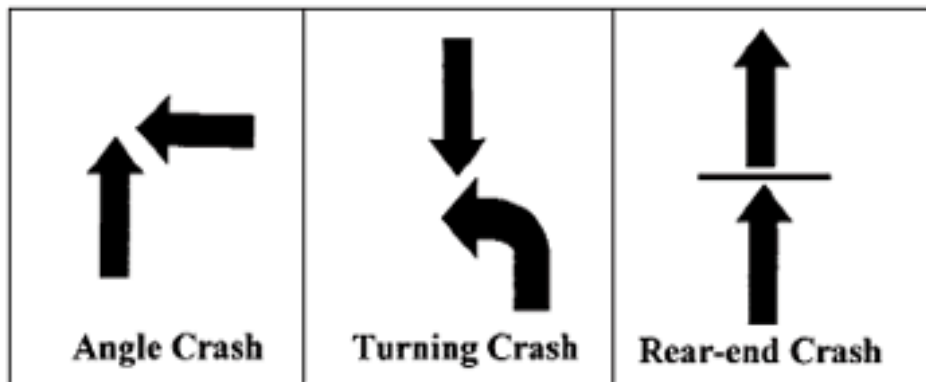
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□ Site-specific crash information

1. Severity
2. Type
3. Relevant contributing factors

□ Basic features of the road system

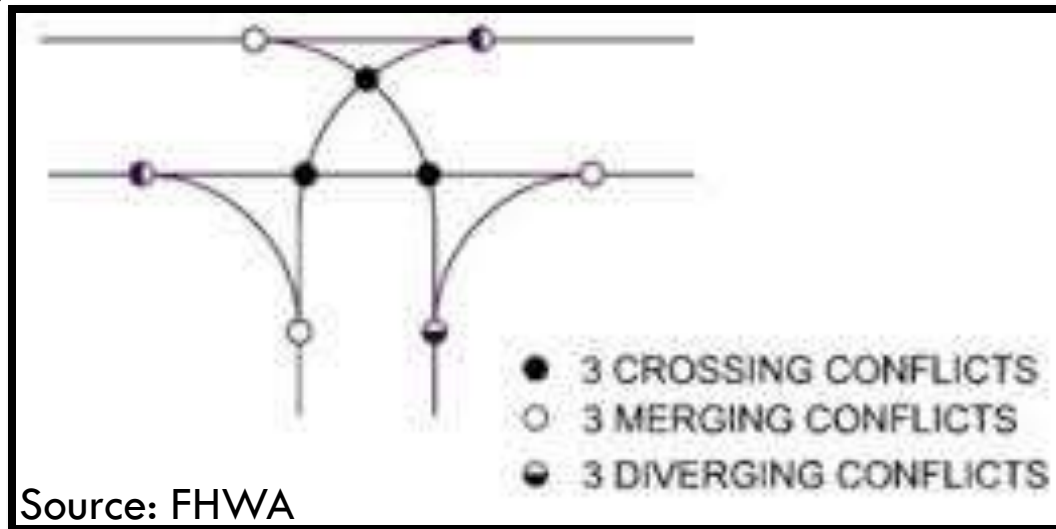
1. Geometric elements
 2. Traffic elements
- ❖ As selected in Step 1, Task 1.2



Task 2.1: Identify Network Elements to Analyze

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- Identifies elements from the focus facility types, which are the locations where the focus crash types tend to occur.
- Segment elements should have uniform traffic and design characteristics with respect to the selected risk factors.



Task 2.2: Conduct Risk Assessment

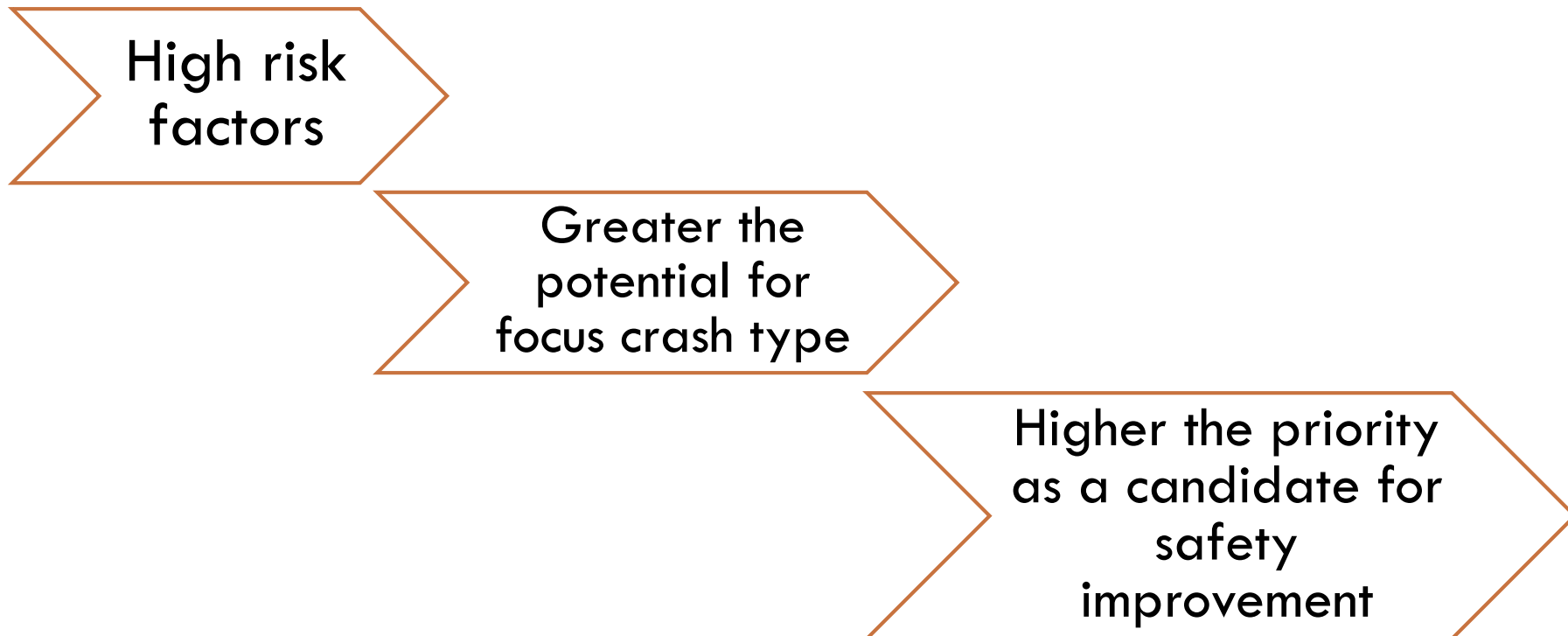
29

- Agencies evaluate the risk of the systems and locations selected for analysis.
- The purpose is to identify and document roadway and traffic characteristics in accordance to the selected risk factors.
- Consider if the selected risk factors are feasible for a systemwide analysis.

Task 2.3: Prioritize Focus Facility Elements

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- This task is to generate the list of the prioritized segments, horizontal curves and intersections based on the selected risk factors.



Element 1: Systemic Safety Planning Process

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Step 1: Identify
Focus Crash Types
and Risk Factors

Step 2: Screen and
Prioritize Candidate
Locations

Step 3: Select
Countermeasures

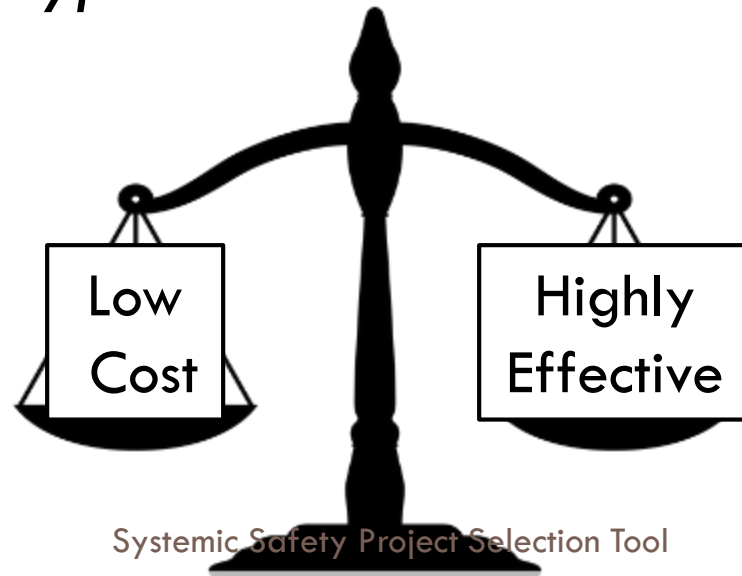
Step 4: Prioritize
Projects

- Task 3.1: Assemble
Comprehensive List of
Countermeasures
- Task 3.2: Evaluate/Screen
Countermeasures
- Task 3.3: Select Countermeasure
for Deployment

Step 3: Select Countermeasures

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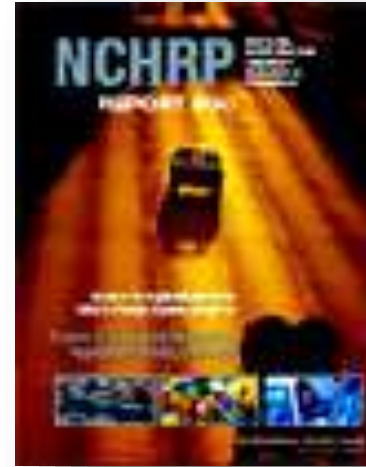
- Select a small number of low-cost, highly effective countermeasures to be considered for project development at the candidate locations.
- These are selected based on the first step *Identify Focus Crash Types and Risk Factors*.



Data Needs Sources

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- National Cooperative Highway Research Program (NCHRP) Report 500 series
- National Highway Traffic Safety Administration (NHTSA)



Documented Information

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- Indicates whether the countermeasure is proven or tried.
- Indicates the expected safety effectiveness of the countermeasure.
- Provides implementation costs and a final check of deployment feasibility.

Task 3.1: Assemble Comprehensive List of Countermeasures

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- Items on the list should be associated with each of the targeted crash types.
- A countermeasure could be as simple as replacing a missing or damaged traffic sign to meet the current retroreflectivity standards.



Task 3.2: Evaluate and Screen Countermeasure

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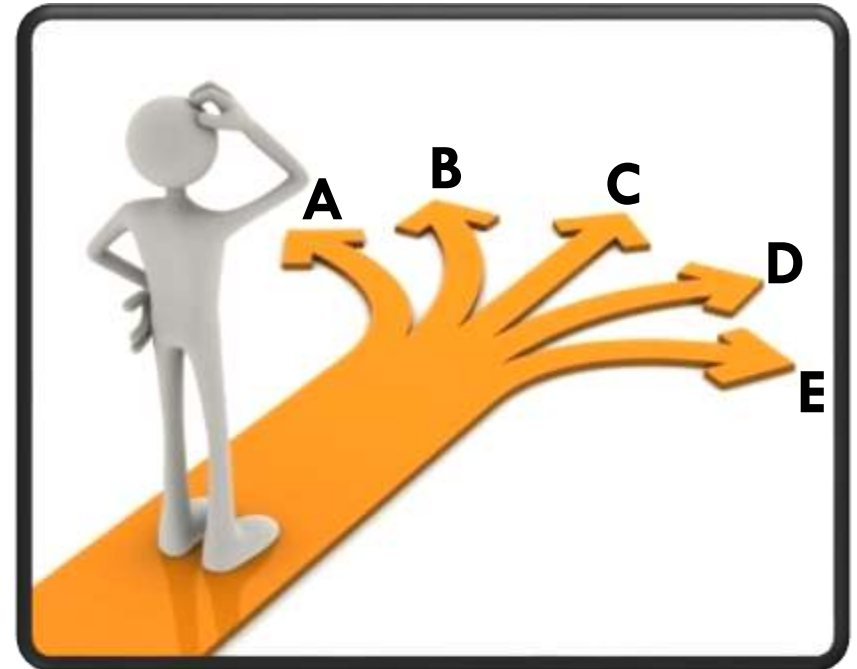
- Screen the initial list of countermeasures based on the documented effectiveness, implementation and maintenance costs, and consistency with the policies of the agency.
- HSM and CMF Clearinghouse provide the most current information about countermeasures effectiveness.



Task 3.3: Select Countermeasures for Deployment

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- Select the ideal countermeasure for each of the targeted crash type for a specific location in a road system.



Element 1: Systemic Safety Planning Process

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Step 1: Identify
Focus Crash Types
and Risk Factors

Step 2: Screen and
Prioritize Candidate
Locations

Step 3: Select
Countermeasures

Step 4: Prioritize
Projects

- Task 4.1: Create Decision Process for Countermeasure Selection
- Task 4.2: Develop Safety Projects
- Task 4.3: Prioritize Safety Project Implementation

Step 4: Prioritize Projects

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- Identify and develop a list of high-priority safety improvement projects for implementation.
- It considers the prioritized at-risk locations from Step 2 and applies the countermeasures from the list in Step 3.



Task 4.1: Create Decision Process for Countermeasure Selection

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- Include various criteria such as volume, environment, adjacent land use, or cross section that will be taken into consideration to assign a countermeasure.
- The Systemic Safety Planning Process does not just identify the appropriate countermeasure, it also considers multiple locations with similar crash and risk characteristics.

Task 4.2: Develop Safety Projects

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- Safety projects are developed by:
 - ▣ Providing a detailed site description
 - ▣ Identifying the specific countermeasure selected
 - ▣ Estimating implementation cost
 - ▣ Summarizing how the site scored with the risk factors

Task 4.3: Prioritize Safety Project Implementation

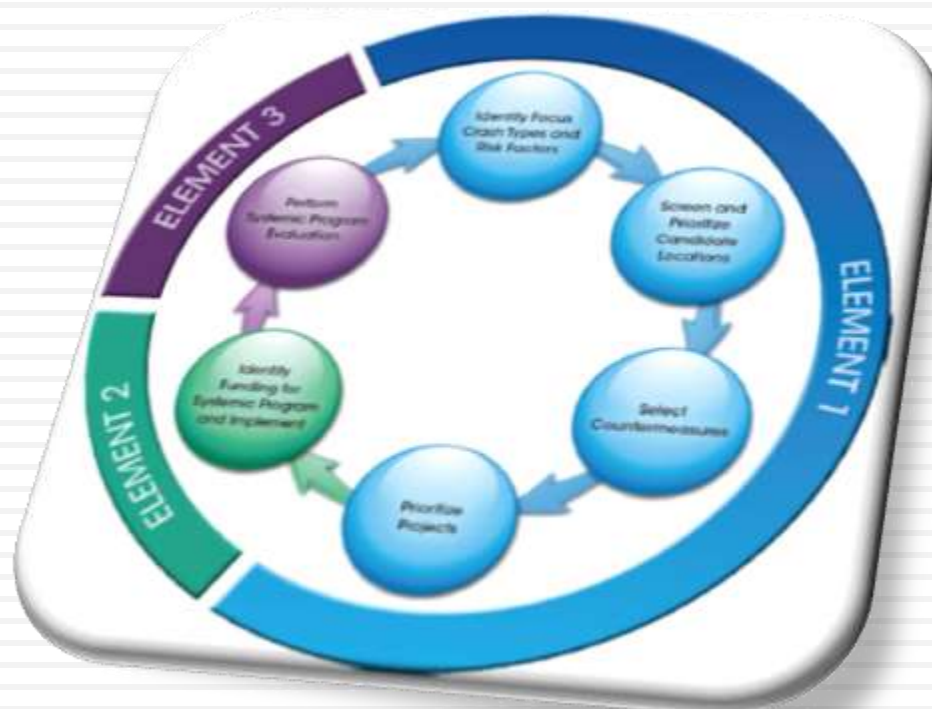
42

- Factors to consider for the prioritization of the safety project:
 - Funding
 - Other programmed projects
 - Time to develop project plans
 - Expected crash reduction
 - Amount of public outreach needed
 - Environmental and right-of-way constraints

Element 2:

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A Framework for Balancing Systemic and Traditional Safety Investments



Systemic Safety Project Selection Tool

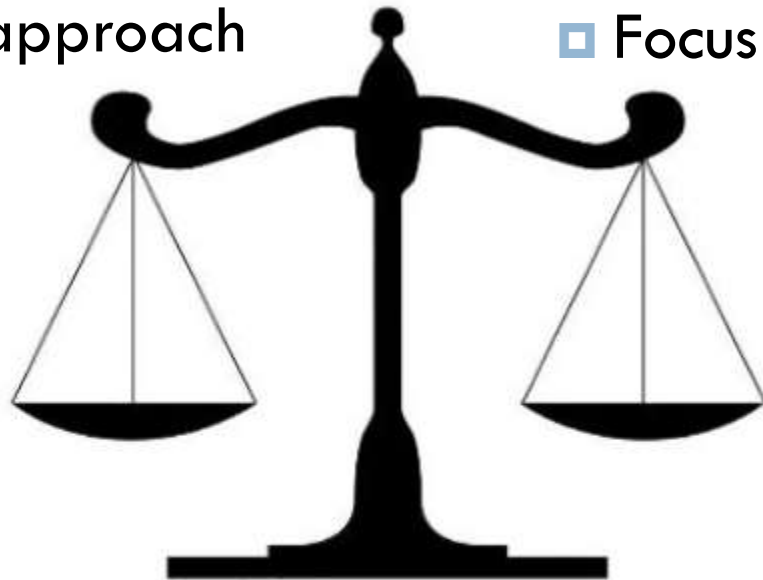
Element 2 Introduction

- To add a systemic component to a highway safety program, the state have to distribute their safety investments among projects identified in Element 1.
- This section provides a framework for determining a balance between:
 - ▣ Funding safety improvements at site specific locations
 - ▣ Funding a systemic improvement given a specific crash and roadway system characteristic.

Framework Balancing

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- The framework balances projects according to the:
 - ▣ Site analysis approach
 - ▣ Systemic approach
- The balancing vary depending on the:
 - ▣ Region of the state
 - ▣ Components (local/rural)
 - ▣ Focus Crash Types



Systemic Safety Project Selection Tool

Funding Determination Framework

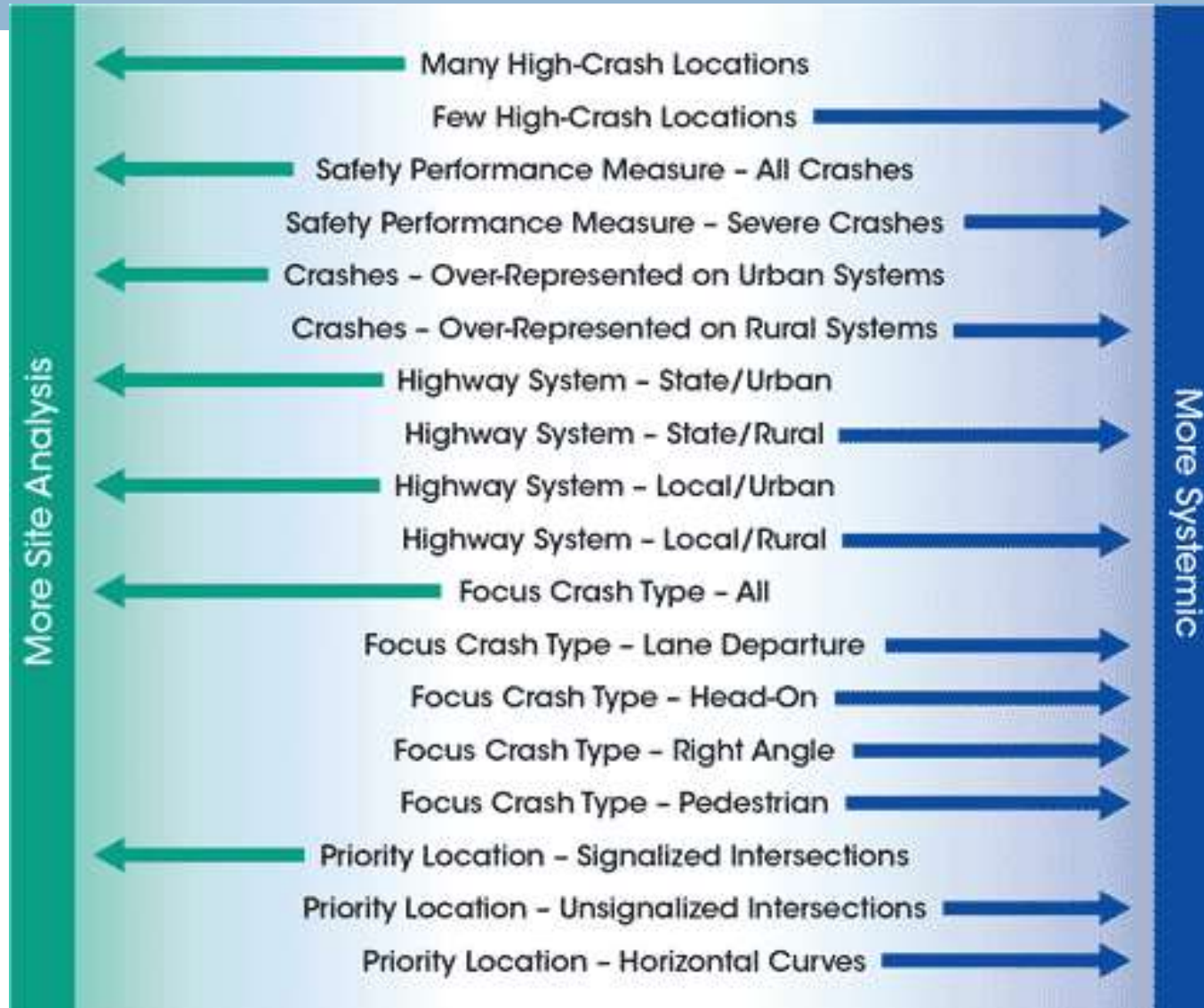
46

- Many high-crash locations suggest directing more safety funds towards site analysis projects rather than systemic safety projects.
- Overrepresentation of crashes in urban areas suggest a site analysis safety program, in rural area suggest a systemic program.



Balance of Interest of Pertinent Factors

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Source: FHWA

Guidance Questions

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- Answering to these questions offers an insight to the program managers.

Which countermeasure were implemented?

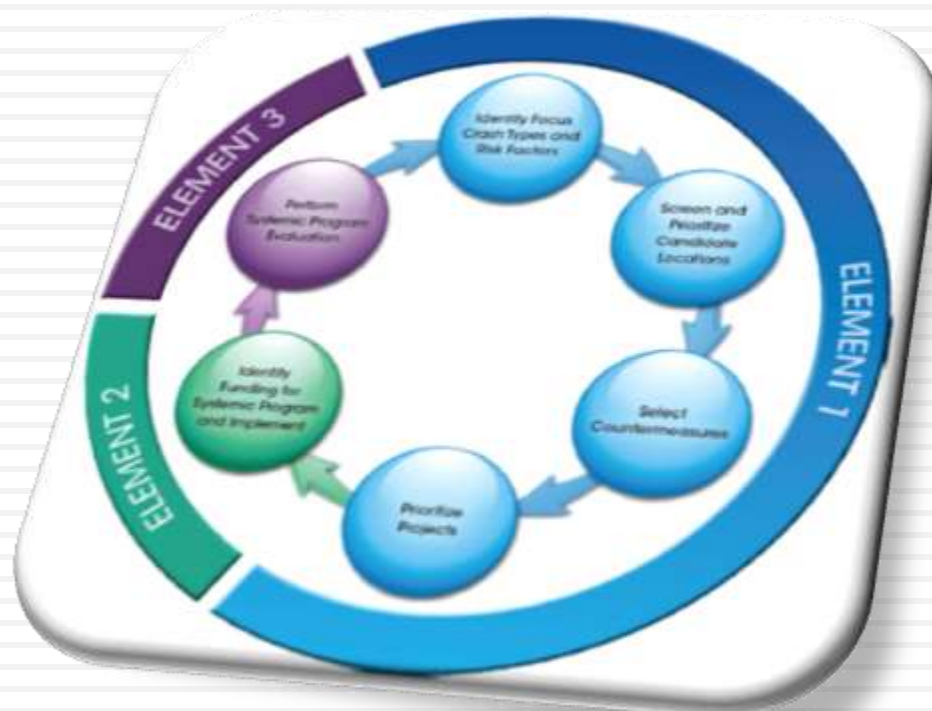
Where were the countermeasures implemented?

Which crash types were these countermeasures addressing?

Element 3:

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Evaluation of a Systemic Safety Program



Systemic Safety Project Selection Tool

Element 3 Introduction

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- Measuring the effectiveness of a countermeasure provides input to agencies for modifying and evolving their safety programs.



Roundabouts



Backplates with
Retroreflective Borders



Safety Edges_{SM}

Source: FHWA

Benefits of Evaluating Effectiveness

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- Builds confidence that a systemic program is a worthwhile investment.
- Positive results generate support for the systemic approach .
- Builds institutional and cultural support to invest funding for this type of analysis.



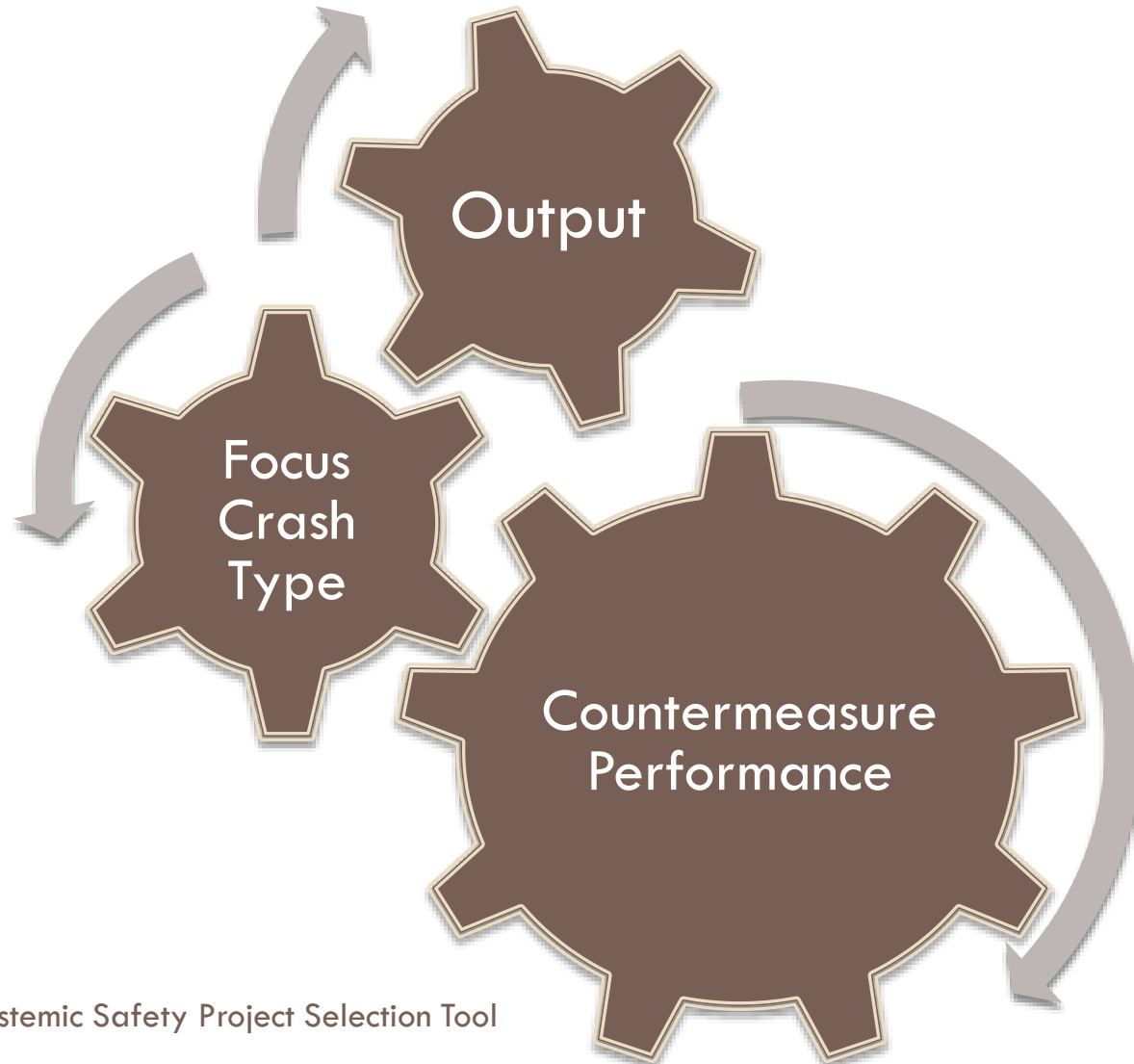
Suggested Evaluation of Data

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- Countermeasure
 - ▣ Definition of improvement implemented at site.
 - ▣ Precise implementation location and date.
- Crash Data
 - ▣ Before and after implementation
- Before and After Site Conditions
 - ▣ Roadway or intersection geometry
 - ▣ Intersection traffic control device
 - ▣ Road division
 - ▣ Speed limit
 - *among others*

Levels of Safety Evaluation Process

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First Level: Output

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- Annually review the funding decisions to evaluate if the selected improvements are consistent with the systemic funding goal.
- Output evaluation:
 - ▣ Were the project implemented on the focus facility types, especially locations consistent with the identified risk factors?



Second Level: Focus Crash Type

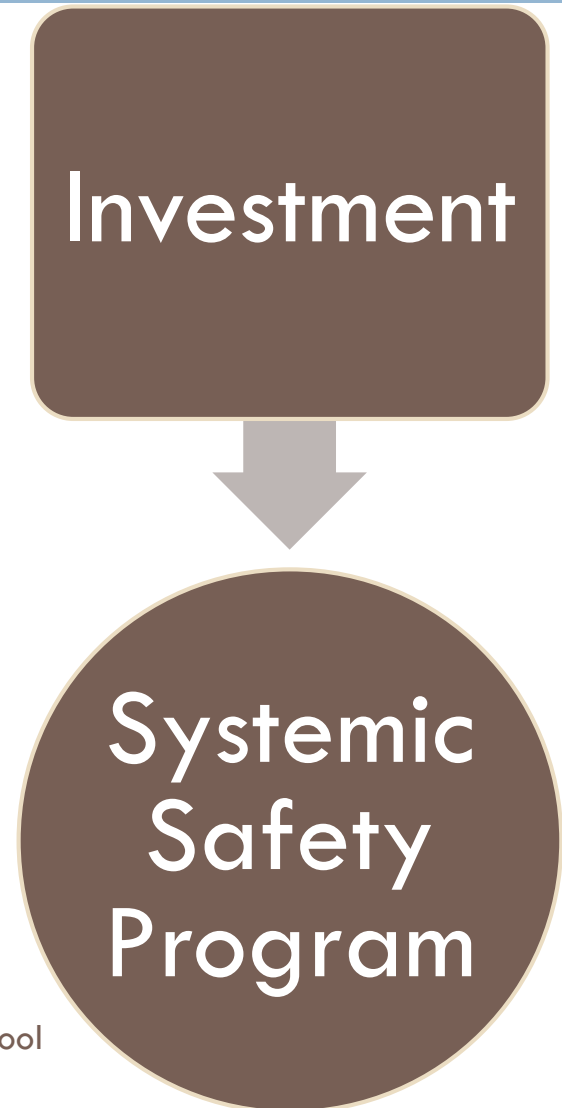
55

- What happened to the number of severe focus crash types, especially on focus facilities?
- The information must be easy-to-understand so program managers can understand the potential relationship between crash reductions and the implementation of systemic safety countermeasure.

Third Level: Countermeasure Performance

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- This level evaluates how individual countermeasures perform on a systemic basis.
- Provides the opportunity for agencies to continue directing investments toward effective countermeasures.



Technical References

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- *The Highway Safety Manual* (AASHTO, 2010)
 - ▣ www.transportation.org
- *The Art of Appropriate Evaluation, A Guide for Highway Safety Improvement Program Managers* is published by the NHTSA (2008).
 - ▣ www.nhtsa.gov
- *A Guide to Developing Quality Crash Modification Factors* (FHWA, 2010).
 - ▣ www.fhwa.dot.gov



Source: Safety.FHWA

PRACTICAL EXAMPLES






Step 1: Identify Crash Type

Source: Safety.FHWA

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1. Identify high priority emphasis area

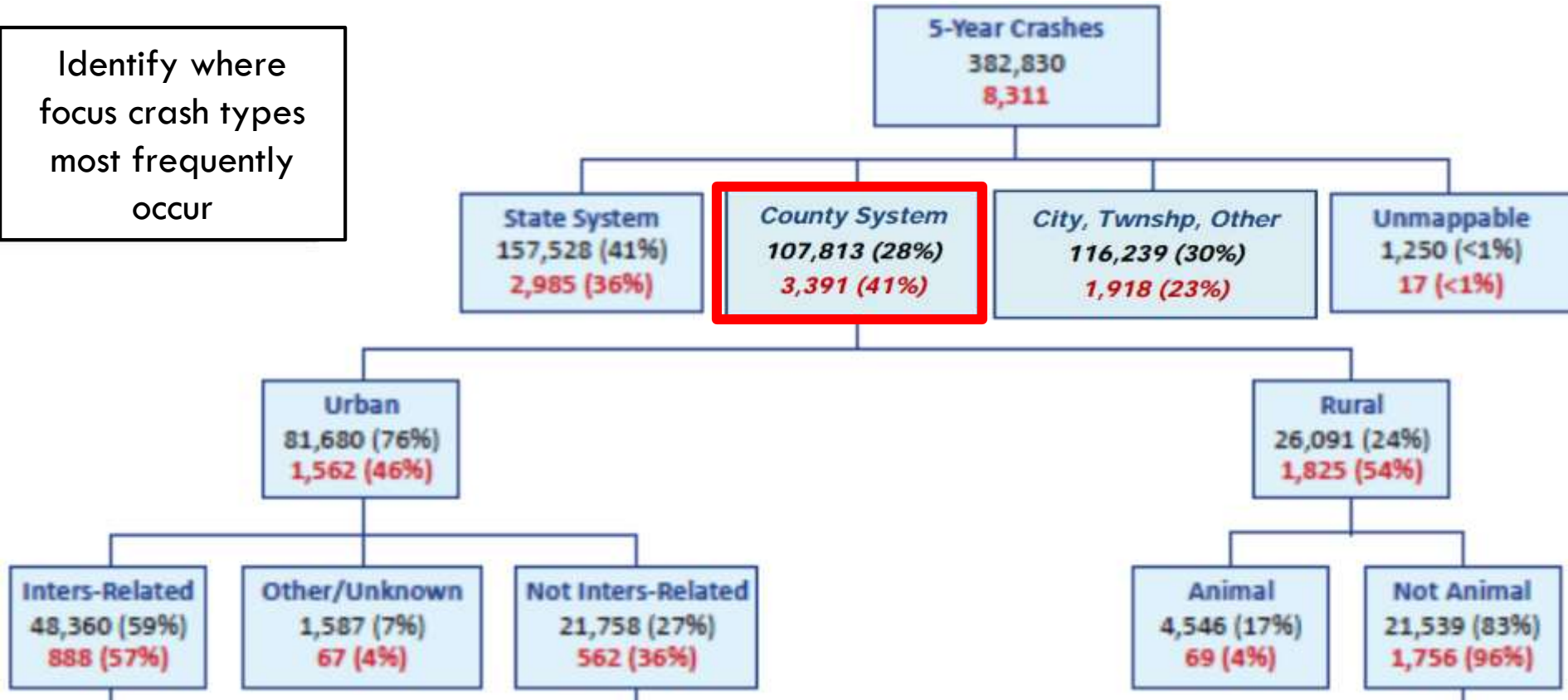
2. Identify where focus crash types most frequently occur.

Emphasis Area		Statewide Percentage	Statewide		
			State System	County system	City, Township & Other
Total fatal and serious injury crashes		8,300	2,998	3,379	1,923
Drivers	Young drivers (under 21) 	24%	21% (638)	25% (835)	28% (539)
	Unlicensed drivers	8%	8% (251)	7% (237)	9% (164)
	Older drivers (over 64)	14%	18% (527)	13% (429)	11% (206)
	Aggressive driving & speed-related	20%	20% (606)	20% (661)	22% (432)
	Drug & alcohol-related 	26%	23% (680)	26% (949)	26% (497)
	Inattentive, distracted, asleep drivers	20%	23% (693)	19% (638)	16% (300)
	Unbelted vehicle occupants 	25%	26% (782)	26% (872)	21% (400)
Special Users	Pedestrian crashes	8%	6% (180)	7% (222)	15% (291)
	Bicycle crashes	4%	2% (54)	3% (113)	8% (157)
Vehicles	Motorcycle crashes	16%	14% (416)	17% (591)	15% (293)
	Heavy vehicle crashes	10%	15% (456)	7% (249)	6% (114)
Highways	Train-vehicle collisions	0%	0% (1)	0% (7)	1% (17)
	Road departure crashes 	28%	27% (807)	32% (1,090)	22% (420)
	Intersection crashes 	42%	40% (1,212)	42% (1,422)	45% (871)
	Head-on & sideswipe (opposite) crashes	15%	17% (513)	14% (489)	14% (263)
	Work zone crashes	2%	2% (69)	1% (38)	1% (20)

Step 2: Identify Crash Location

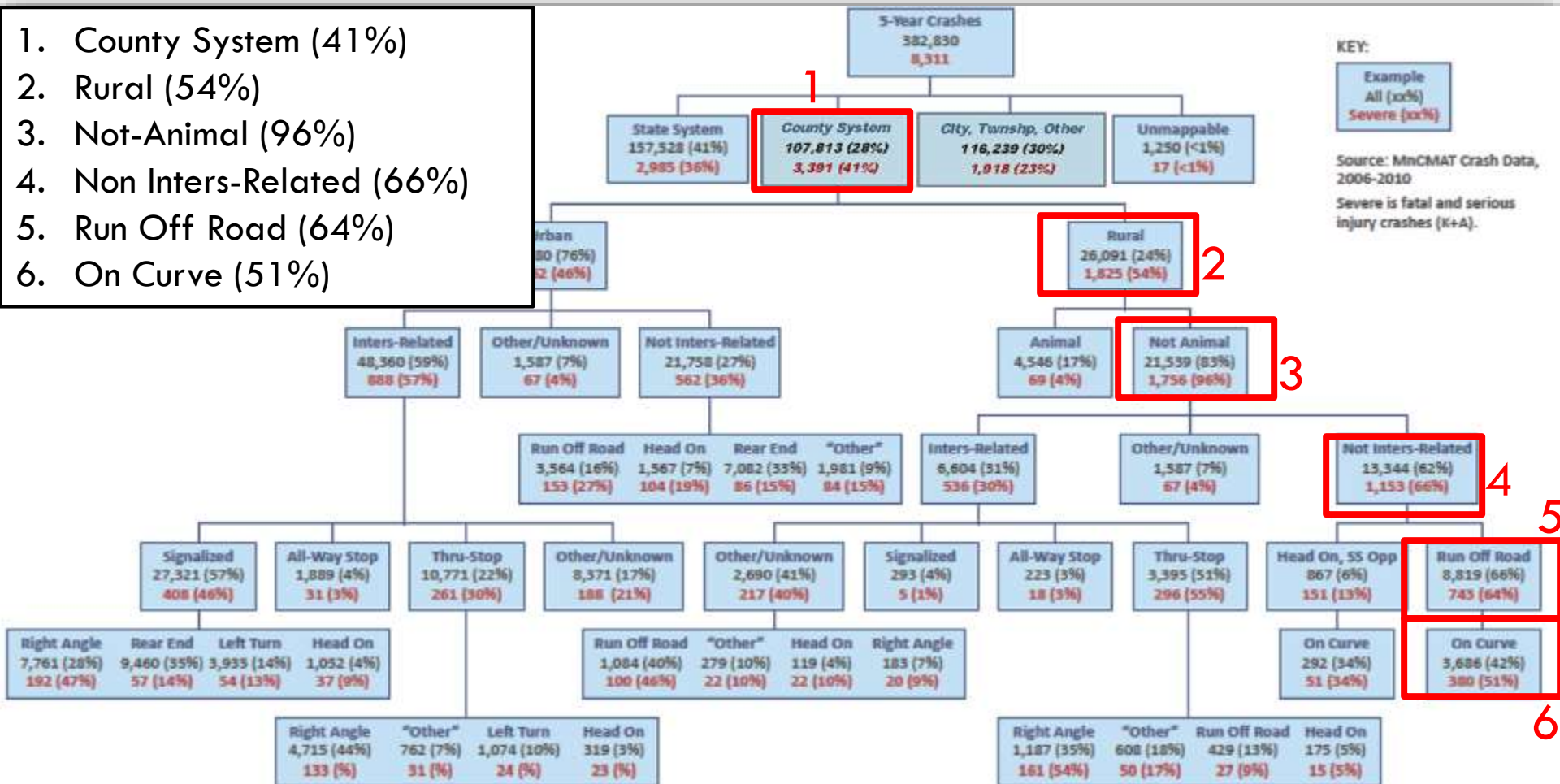
60

Identify where focus crash types most frequently occur



Identify Crash Location (cont.)

1. County System (41%)
2. Rural (54%)
3. Not-Animal (96%)
4. Non Inters-Related (66%)
5. Run Off Road (64%)
6. On Curve (51%)



According to the collision tree, there are more severe crashes on the county system, the majority are in rural areas involving road departure and mostly occur on curves.

Source: Safety.FHWA

Step 3: Identify Network Elements Analyzed

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Identify the network elements from focus facility types which represent the locations where the target crash types tend to occur.

For segment applications, this requires splitting corridors into elements with consistent design features to allow for selection of the same countermeasure.

Risk Factors

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Average Daily Traffic

Road Departure/Lane Departure Density

Access Density

Curve Radius

Edge Risk Assessment

Step 4: Identify Risk Factors

Rank	Corridor	Route	#	Start	End	Length	ADT	ADT Range	Road	Access	Curve	Critical	Edge	Totals	Tiebreakers	
									Departure Density	Density	Radius	Density	Risk		Edge	Risk
1	144.01	CNTY	89	CSAH-30	CSAH-30	1.4	480	★	★	★	★	★	★	★★★★★	3	0.28
2	40.04	CSAH	40	NEW LONDON CORP LIM	CSAH-2	5.9	450	★	★	★	★	★	★	★★★★★	2	0.17
3	131.01	CNTY	89	CSAH-30	MNTH-23	0.7	145		★	★	★	★	★	★★★★	2	0.29
4	9.02	CSAH	9	CR-90, WILLMAR CORP LIM	CSAH-10	5.6	940	★	★	★	★	★	★	★★★★	1	0.14
5	5.06	CSAH	5	150TH AVE NW	CSAH-29 CSAH-1	10.1	628	★	★	★	★	★	★	★★★★	1	0.14
6	31.02	CSAH	31	NEW LONDON CORP LIM	MNTH-23	1.6	920	★	★	★	★	★	★	★★★★		0.13
7	8.01	CSAH	8	RENVILLE COUNTY LINE	LAKE LILLIAN CORP LIM	3.6	750	★	★				★	★★★	2	0.33
8	4.01	CSAH	4	CSAH-8	CSAH-20	6.7	320		★				★	★★★	2	0.09
9	2.05	CSAH	2	CSAH-10	MNTH-23	9.8	385			★		★	★	★★★	2	0.04
10	4.04	CSAH	4	CR-98	CSAH-40	2.4	290			★		★	★	★★★	2	0.00
11	38.01	CSAH	38	CSAH-40	CSAH-48	2.1	130			★		★	★	★★★	2	0.00
12	132.01	CNTY	89	CSAH-8	CSAH-8	2.2	190			★		★	★	★★★	2	0.00
13	42.01	CSAH	42	CSAH-7	COUNTY LINE	0.5	120			★		★	★	★★★	2	0.00
14	9.03	CSAH	9	CSAH-10	CSAH-40, REDWOOD ST	4.9	1,800		★	★		★	★	★★★	1	0.45
15	25.01	CSAH	25	CSAH-5	USTH-71	3.2	1,315		★	★		★	★	★★★	1	0.25
...
74	1.03	CSAH	1	MNTH-23	PENNOCK CORP LIM	7.0	333							...	1	0.03
75	116.02	CNTY	89	CSAH-3	MNTH-40	7.0	98							...	1	0.03
76	2.04	CSAH	2	ATWATER CORP LIM	CSAH-10	6.7	1,018							...	1	0.00
77	28.02	CSAH	28	CSAH-2	COUNTY LINE	2.0	315							...	1	0.00

Total Stars — 26 33 34 33 22
 % That Gets Star — 36% 46% 47% 46% 31%

Purpose

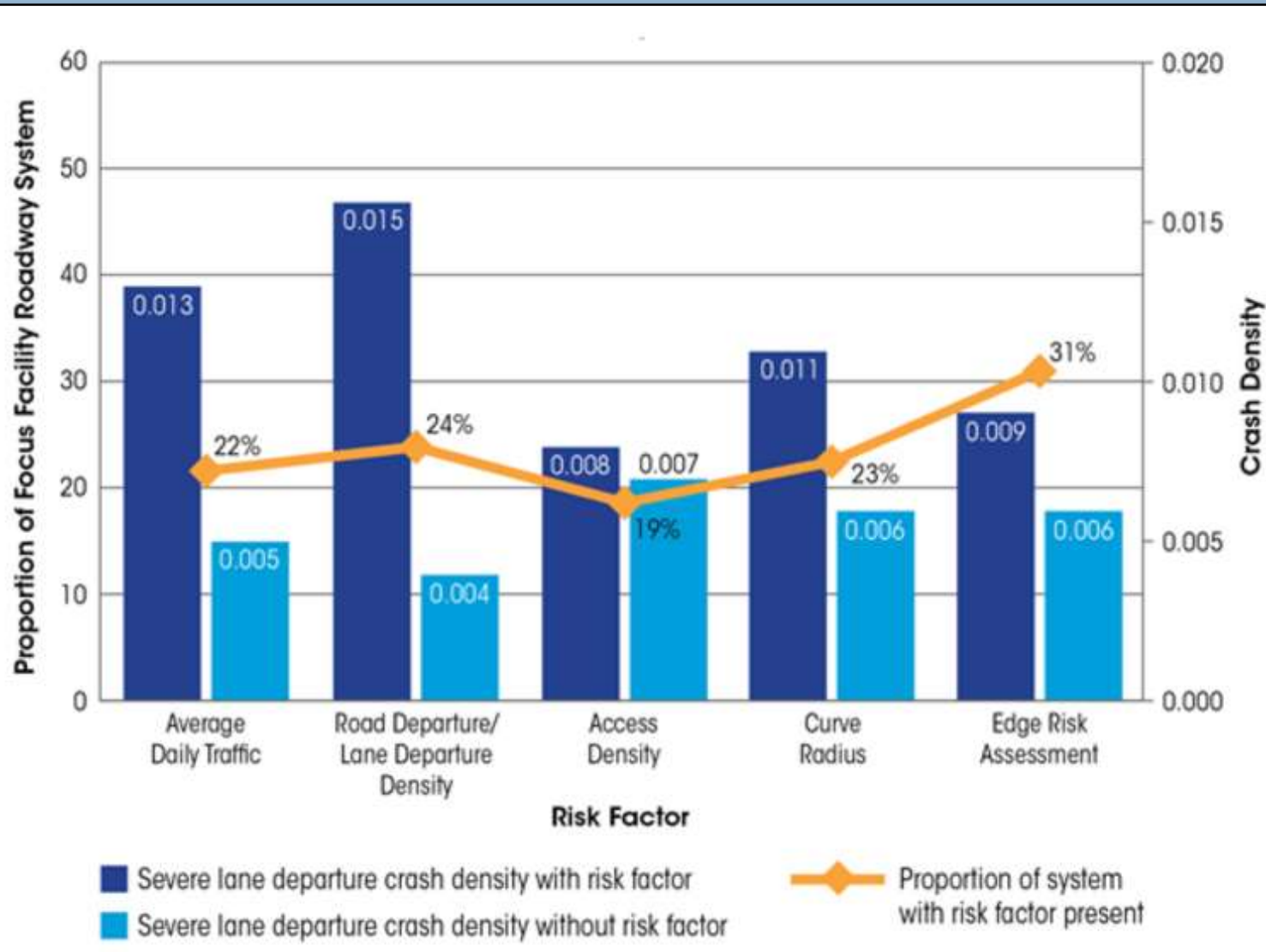
Evaluate the risk factors of the systems and locations selected for analysis using roadway and traffic characteristics in order to rank/prioritize at-risk locations.

- A ★ indicates the corresponding risk factor is present.
- More ★s identify locations as higher priority candidate for safety investment.

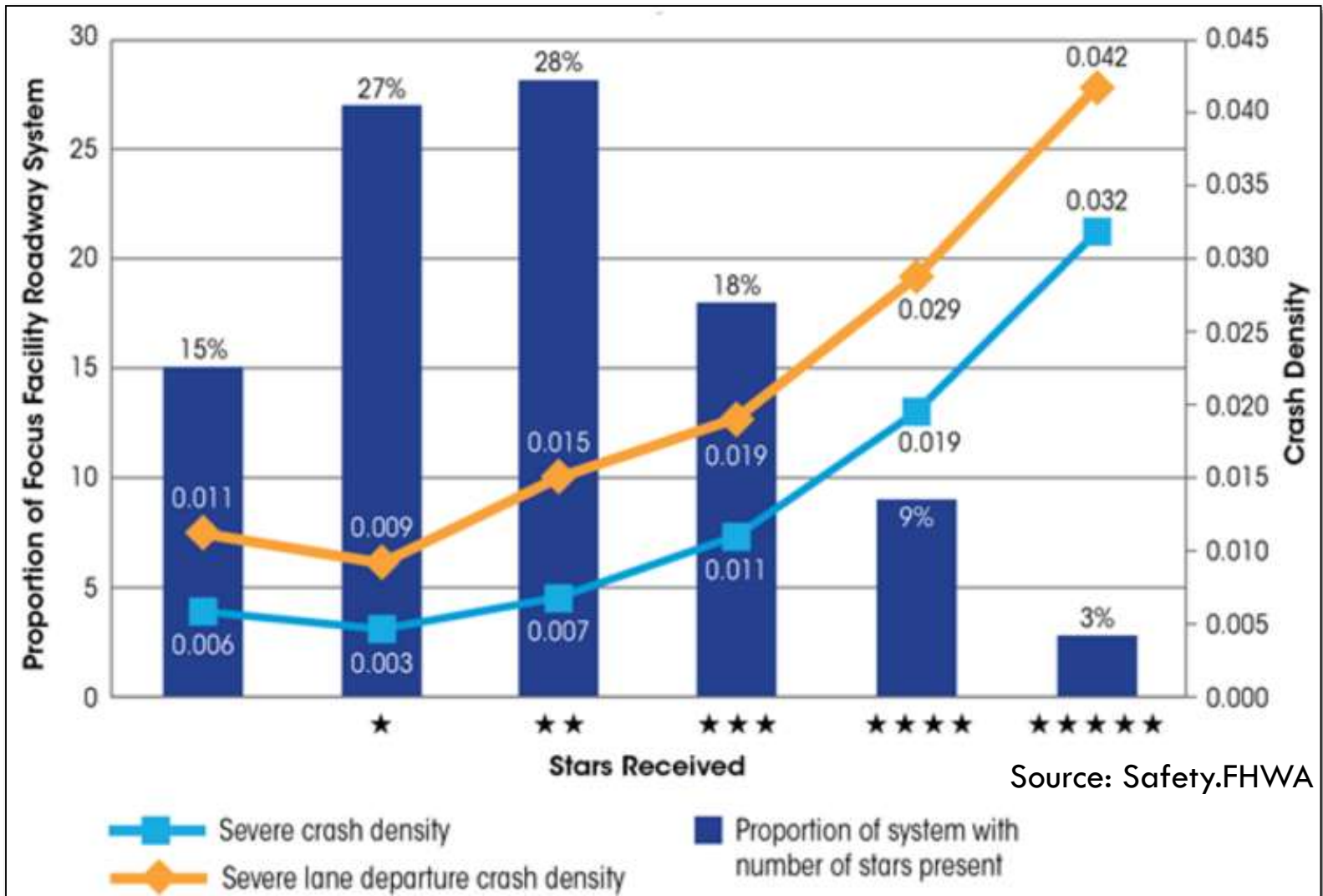
Identify Risk Factors (cont.)

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Purpose:
Assess selected risk factor to determine their feasibility for differentiating between elements on the focus facility type.



Step 5: Determine the Locations Based on the Number of Risk Factors



Step 6: Selecting Countermeasures

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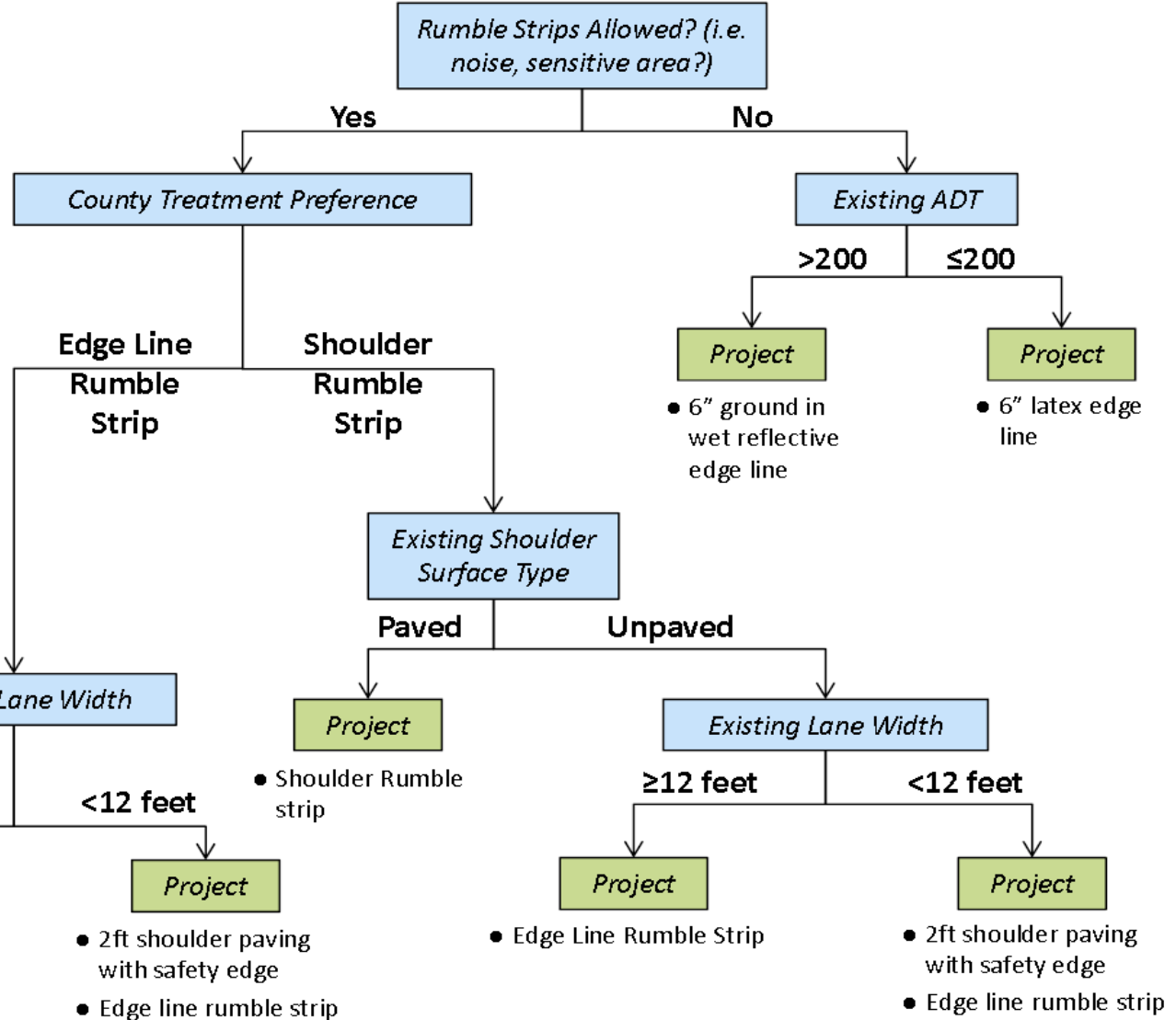
- Select the countermeasure taking into consideration:
 - Costs
 - Effectiveness
 - Timeframe for implementation
 - If it has already been proven or tried



Step 7: Create a Decision Process for Project Selection

Provide a decision process to facilitate consistency in the selection of countermeasures. It utilizes ADT, lane width, and shoulder surface type for rural two-lane segments.

Adapted from Minnesota County Road Safety Plan Project



- Edge Line Rumble Strip

- 2ft shoulder paving with safety edge
- Edge line rumble strip

- Edge Line Rumble Strip

- 2ft shoulder paving with safety edge
- Edge line rumble strip

Step 8: Develop Safety Projects and Associated Implementation

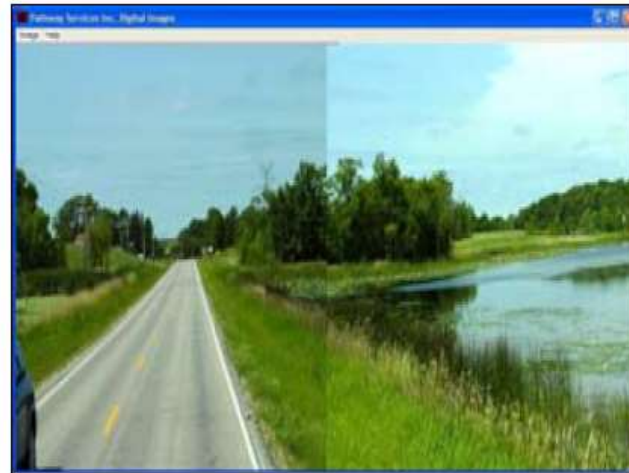
County Highway 26 from State Highway 23 to County Highway 15



Roadway Data

Type: County Highway
 Number: 6

 Start: State Highway 23
 End: County Highway 15
 City/Rural: Rural
 County:
 District: 4
 ADT: 888
 Facility Type: 2-Lane
 Lane Width: 12
 Shoulder Width: 2
 Shoulder Type: Gravel
 Length (miles): 8.0
 Rumble Installed: none



Crash Data

2005-2009 MnCMAT Crash Data

5 years

	Total	Road Dept	K+A
Crashes	15	11	1
Density (per mile per year)	0.38	0.28	0.03
Rate (per MVM)	1.62	1.19	0.11

Develop Safety Projects and Associated Implementation (cont.)

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Ranking Criteria

	Value	Critical	Risk Ranking
ADT Range	634	600 to 1200	★
RD Density	0.28	0.08	★
Access Density	8.88	4.30	★
Curve Critical Radius Density	0.75	0.59	★
Edge Risk	2	2 or 3	★
			★★★★★

Short List of Strategies Considered

Description	Type	Cost per mi	Mileage	Cost	Notes - Noise sensitive area adjacent to Big Lake.
2' Shoulder Pave+RS+Safety Edge	Proactive	\$40,000	0.0	\$0	
Rumble Strip	Proactive	\$3,000	0.0	\$0	
Rumble StripE	Proactive	\$3,500	6.0	\$21,000	
6" Edge Lines	Proactive	\$650	0.0	\$0	
Ground In Wet-Reflective Markings	Proactive	\$8,500	2.0	\$17,000	

Implementation Cost

Federal Funds	\$34,200
Local Match (10% of Total project cost)	\$3,800
Total Project Cost	\$38,000

Rank: 1
 Segment ID: 26.01
 Date: 2/12/2011

LOCAL ROAD SAFETY CHECKLIST



Local Road Safety Checklist Agenda

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- Introduction
- C.1 Organizational Checklist
 - ▣ 3 Steps
- C.2 Data Checklist
 - ▣ 4 Steps
- C.3 Training and Technical Assistance Checklist
- C.4 Funding Checklist
 - ▣ 3 Steps
- C.5 Program Administration Checklist
 - ▣ 3 Steps

Introduction

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- Questions to identify opportunities to enhance local road safety program.

Checklist

**Department &
Centers**

- DOT
- LTAP

C.1: Organizational Checklist

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Action Steps



1. Is local road safety identified as a priority in the SHSP?

2. Does your agency have a local road safety champion?

3. Is there a formally established local road safety program?

C.1: Organizational Checklist –Step 1

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- Is local road safety identified as a priority in the SHSP?
 - ▣ Determine the magnitude of the problem
 - ▣ Develop a local road safety emphasis area in SHSP
 - ▣ Develop strategies to address local road safety
 - ▣ Invite local agency representatives to be involved in SHSP development and implementation efforts
 - ▣ Form a SHSP committee to help promote local road safety



C.1: Organizational Checklist -Step 2

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- Does your agency have a local road safety champion?
 - ▣ Establish the champion's roles and responsibilities
 - ▣ Identify a list of potential champions
 - DOT executive management
 - Planning and engineering division chiefs
 - LTAP directors
 - ▣ Assess organizational structure related to local road safety
 - ▣ Compare benefits from a single champion and committee



C.1: Organizational Checklist -Step 3

- Is there a formally established local road safety program?
 - Determine strengths and weaknesses in: the identification, prioritization and administration of local road projects
 - What level of support is needed: information, training, technical assistance and/or implementation
 - Identify staff or resources for each level
 - Explore partnerships with LTAPs, MPOs and/or universities.

C.2: Data Checklist

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□ Action Steps

1. Is pertinent local road crash data available to your DOT for analysis?

2. Is your statewide crash database available to local agencies in an easily accessible format?

3. Are local agencies aware of local road crash data limitations?

4. Are local agencies aware of the data analysis tools available to them through your local safety program?

C.2 Data Checklist -Step 1

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- Is pertinent local road crash data available to your DOT for analysis?
 - ▣ Assess availability of local road crash data and opportunities to improve it.
 - ▣ Coordinate data improvement efforts with the State's traffic records.



C.2 Data Checklist -Step 2

- Is your statewide crash database available to local agencies in an easily accessible format?
 - Determine the best methods for sharing local crash data, providing data analysis, and assisting with project identification.
 - If necessary, develop a protocol for providing access to data for local agency practitioners.
 - Develop crash data analysis tools to streamline data analysis process for locals.

C.2: Data Checklist –Step 3

- Are local agencies aware of local road crash data limitations?

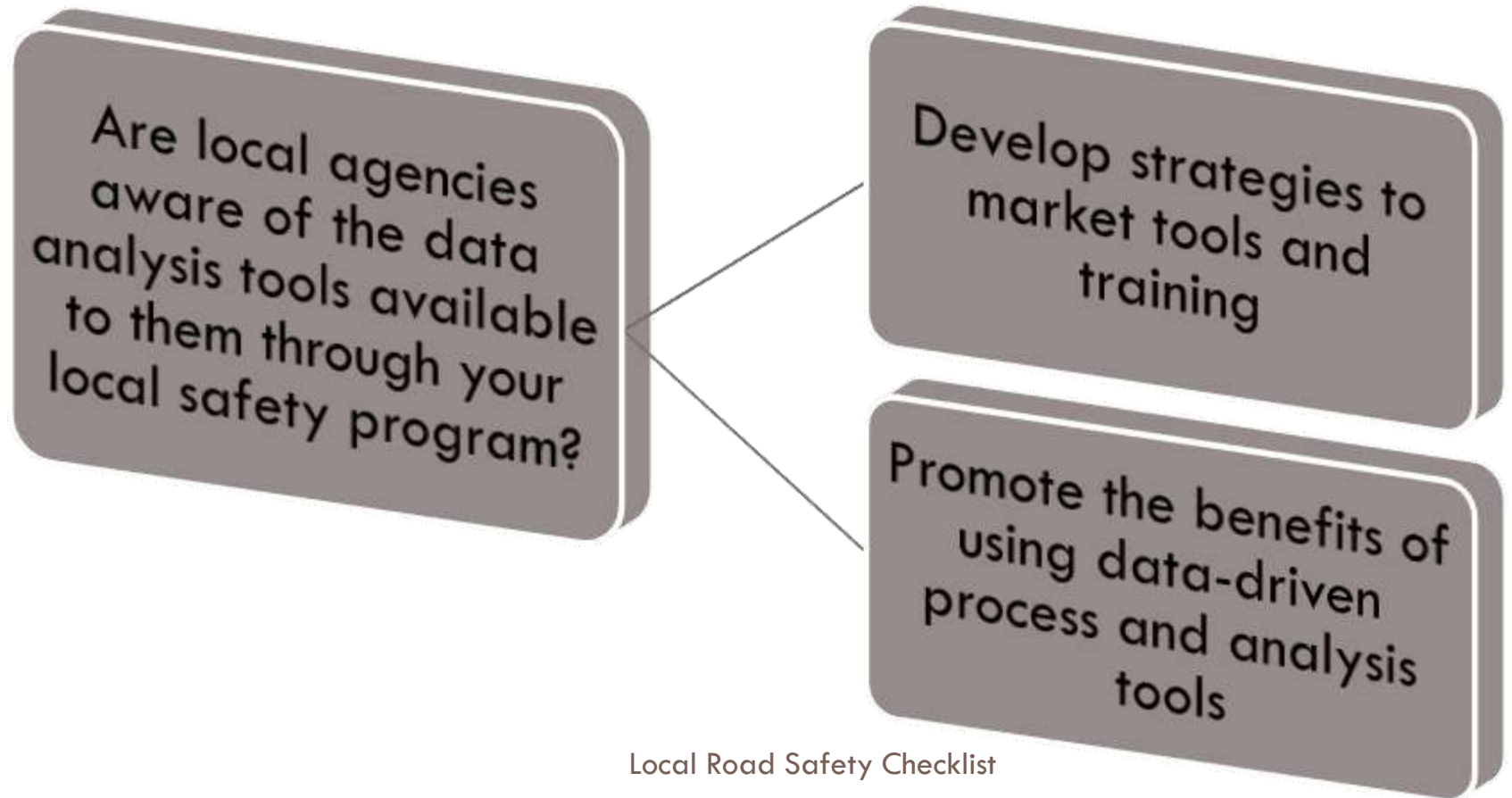
Incorporate local safety data training



DOT/LTAP training programs



C.2: Data Checklist –Step 4



C.3: Training and Technical Assistance Checklist

□ Action Step

1. Is safety-related technical assistance and/or training provided to local agencies?

- A. Conduct an assessment of local practitioner needs related to training and technical assistance opportunities
 - a. *Data analysis > Problem and Countermeasure Identification > Project Development*
- B. Coordinate with State's entities that can provide training and technical assistance such as LTAP and/or MPO
- C. Identify needed resources such as staff time, funding and partnerships

C.4: Funding Checklist

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□ Action Steps



1. Are funds provided to local agencies for road safety improvement projects?

2. Is the amount of funding provided for local road safety projects commensurate with need?

3. Are local agencies aware of available funds for safety improvement?

C.4: Funding Checklist –Step 1

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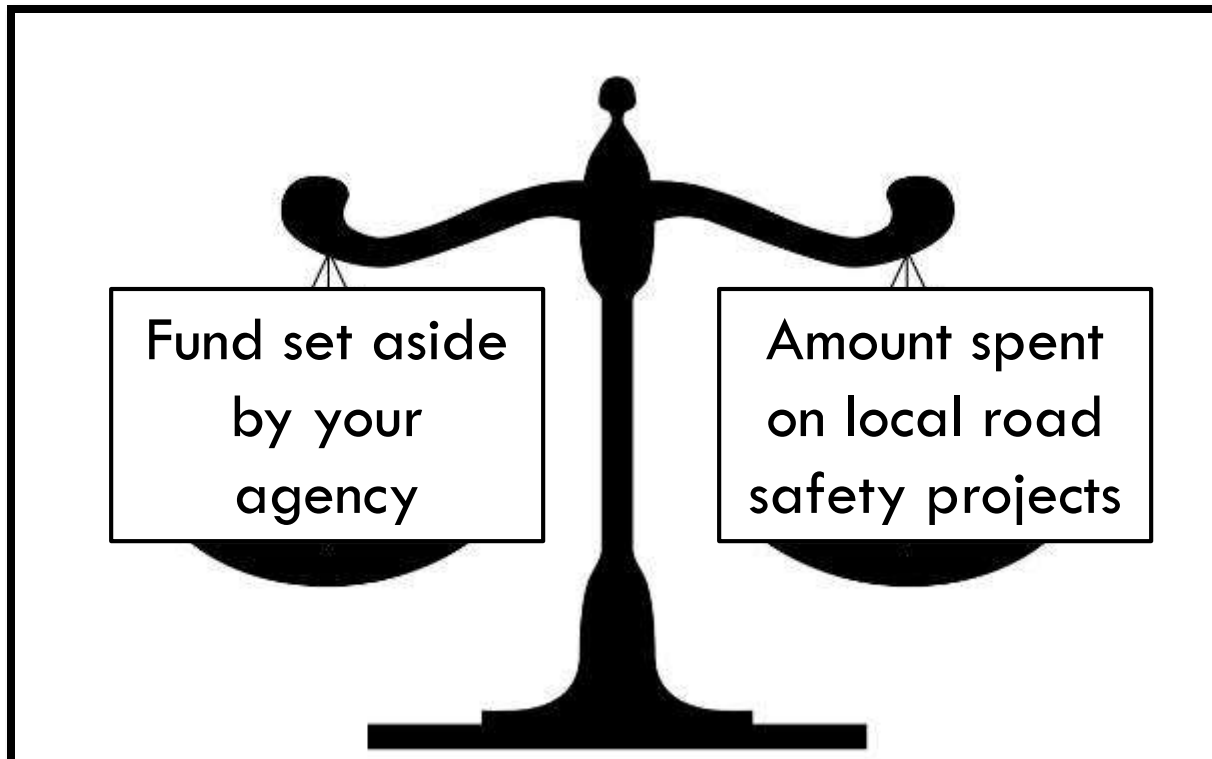
- Are funds provided to local agencies for road safety improvement projects?
 - ▣ Determine the availability of funding.
 - ▣ Develop a methodology to deliver funding to local roads projects.



C.4: Funding Checklist –Step 2

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- Is the amount of funding provided for local road safety projects commensurate with need?



Determine if funding allocations should be adjusted

C.4: Funding Checklist –Step 3

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- Are local agencies aware of available funds for safety improvement?

Interview local agencies to determine if they are aware



Explain the application and funding process




Work with FHWA to identify HSIP training opportunities

C.5: Program Administration Checklist

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□ Action Steps



1. Does your DOT implement practices to streamline the Federal-aid process for local agencies?

2. Do administrative issues restrict local agencies from applying for Federal-aid funding?

3. Have your local safety programs been evaluated for effectiveness?

C.5: Program Administration Checklist –Step 1

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- Does your DOT implement practices to streamline the Federal-aid process for local agencies?



Systemic safety improvements
Grouping multiple projects
Identify local match early in the process

C.5: Program Administration Checklist –Step 2

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- Do administrative issues restrict local agencies from applying for Federal-aid funding?

Identify any local agency certifications/requirements to administer Federal-aid funding.

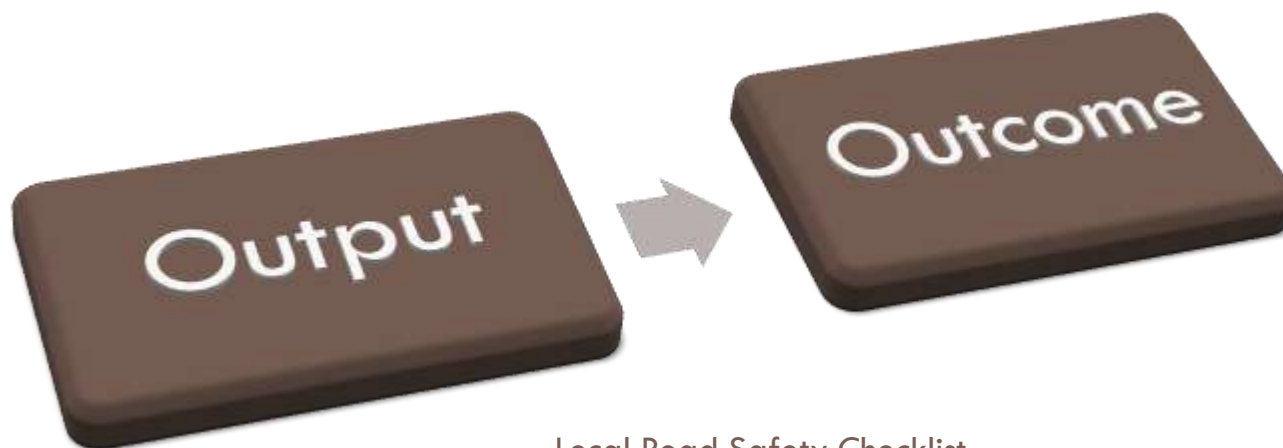
Assess the feasibility of a local road safety program coordinator per district.

Identify resources that provide guidance on local-aid certification process.

C.5: Program Administration Checklist –Step 3

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- Have your local safety programs been evaluated for effectiveness?
 - ▣ Develop an evaluation plan.
 - ▣ Identify performance outcome and output measures.
 - ▣ Conduct an assessment of program capabilities.



Local Road Safety Checklist

References

- H. P., R. S., Bennett, J. D., & B. W. (2013). *Systemic Safety Project Selection Tool* (pp. 3-77, FHWA-SA-13-019). USA, Washington, DC: Department of Transportation Federal Highway Administration, Office Safety.
- Assessment of Local Road Safety Funding, Training, and Technical Assistance - Safety | Federal Highway Administration. (n.d.). Retrieved 2016, from http://safety.fhwa.dot.gov/local_rural/training/fhwasa13029/checklist.cfm

Thank you!