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Local Road Safety Plans and Vision Zero

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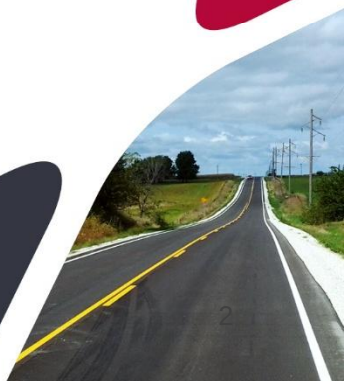
Agenda

- LRSPs
  - Review of LRSP Background and Purpose
  - LRSP Process
- Vision Zero
- Questions



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1 - Review of LRSP Background and Purpose

LRSP Background and Purpose

- What is a LRSP?
  - Coordination between agencies on driver-related countermeasures
  - Proactive safety improvements based on risk factor assessment
  - Define a focused plan for practitioners to make informed, prioritized safety decisions
  - Use results of the analysis to leverage and apply for funding
- Goal – Proactive safety improvement projects and programs that can be implemented by the agency

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LRSP Background and Purpose

- Driver-related countermeasures
  - Survey for driver-related countermeasures
  - Workshop with representation from 5E's of safety
    - Engineering
    - Education
    - Enforcement
    - Emergency Response
    - Everyone
- Engineering countermeasures
  - List of proactive safety projects

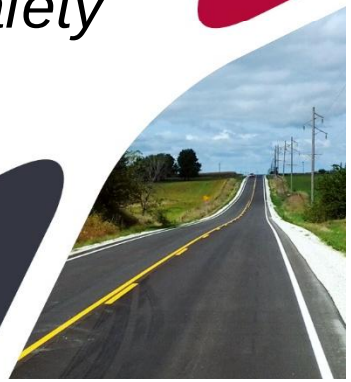
LRSPs per the Feds:

"The systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types.

The approach provides a more comprehensive method for safety planning and implementation that supplements and complements traditional site analysis.

It helps agencies broaden their traffic safety efforts and consider risk as well as crash history when identifying where to make low cost safety improvements."

FHWA – Office of Traffic Safety



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Where have LRSPs been done?

- Minnesota (2009 - 2013)
- North Dakota (2012-2015)
- Iowa (2015 – ongoing)
- Kansas (2017 – ongoing)

- Under Development in:
  - California
  - FHWA (various jurisdictions)
  - Other locations throughout the country

2 – LRSP Process

LRSP Process Overview

- Data Collection
- Data Analysis
- Countermeasure Selection
- Develop Projects
- Develop LRSPs
- Stakeholder Outreach

Data Collection

- Crash data
- Roadway features
  - Lane width
  - Shoulder width/type
  - Speed limit
  - Pavement condition
  - Etc.
- Volume data

Data Collection from Local Agencies

- 911 address database
- Shoulder width and type
- Intersection lighting
- Curve chevron signage
- Centerline rumble strips
- Edgeline and/or shoulder rumble strips
- Transverse rumble strips

Database Development

- Segment database
- Intersection database
- Curve database

Data Analysis

- The KABCO injury severity scale (National Safety Council, 1990) is used to summarize crash data.
- The KABCO scale is used by the investigating officer on the scene to classify injury severity for occupants with five categories:
  - K – killed/fatal injury
  - A – disabling/serious injury
  - B – evident/minor injury
  - C – possible/unknown injury
  - O – no apparent injury/Property Damage Only (PDO)

Data Analysis

- Crash maps
  - K and A (Fatal and Serious Injury)
  - KABCO (all crashes)
- Comparison of crashes to Strategic Highway Safety Plan (SHSP) emphasis areas
- Crash analysis breakdowns (crash trees)
  - Paved vs unpaved roads
  - Vehicle vs nonmotorist
- High-crash location list

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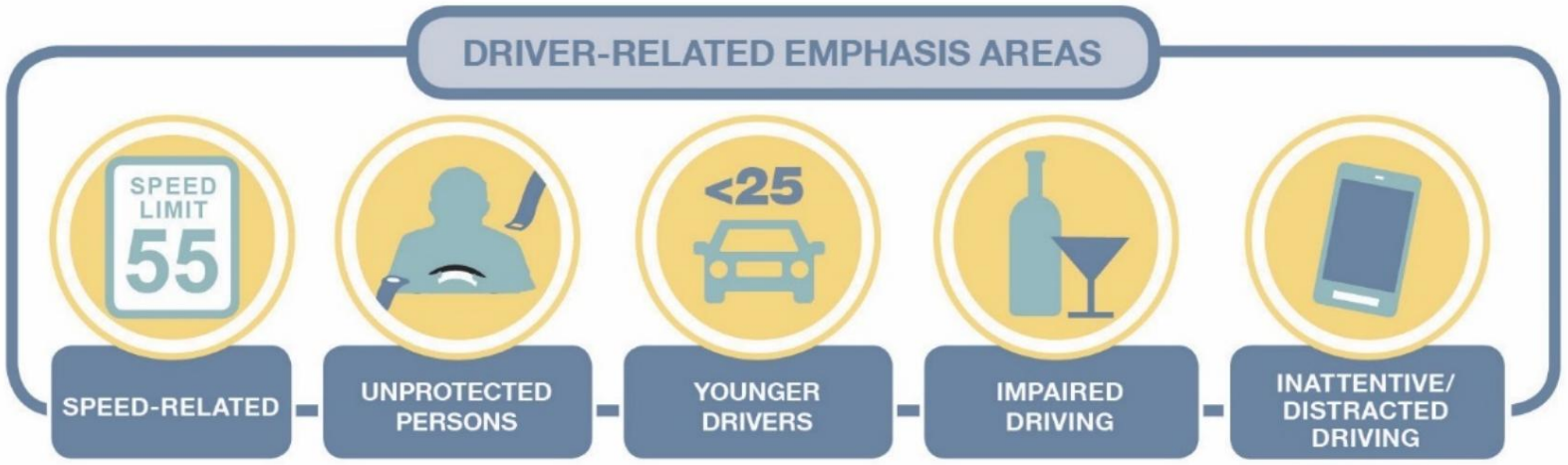
Data Collection from Counties

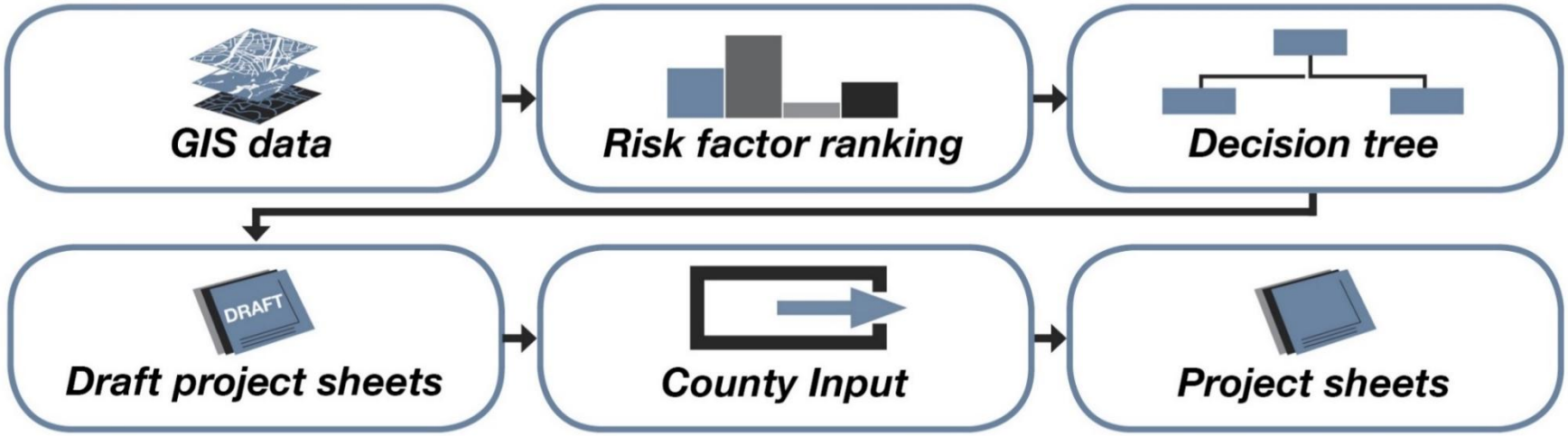
- Questionnaire on driver-related emphasis areas
  - Distributed prior to the workshop
  - Countermeasures discussed at the first workshop



Data Collection from Counties

- Example driver-related countermeasures
  - Younger drivers
    - Conduct additional training in schools
    - Enforcement of graduated driver's license laws
  - Inattentive/distracted driving
    - Incorporate information on distracted driving into education programs for young drivers
    - Conduct education and awareness campaigns
    - Visibly enforce existing statutes to deter distracted driving

Project Selection Methodology



Risk Factors and Ranking

- Identification of systemic safety improvements
  - Risk factors can include:
    - Roadway features
    - Intersection features
    - Traffic volumes
  - Risk factor ranking will be conducted for:
    - Roadway segments
    - Intersections
    - Curves

Decision Trees

- Develop decision trees to aid in systematic selection of safety improvement projects for each:
  - Roadway segment
  - Intersection
  - Curve

Develop Project Sheets

PROJECT SHEET LAYOUT

Project Location and Agency Contact Information

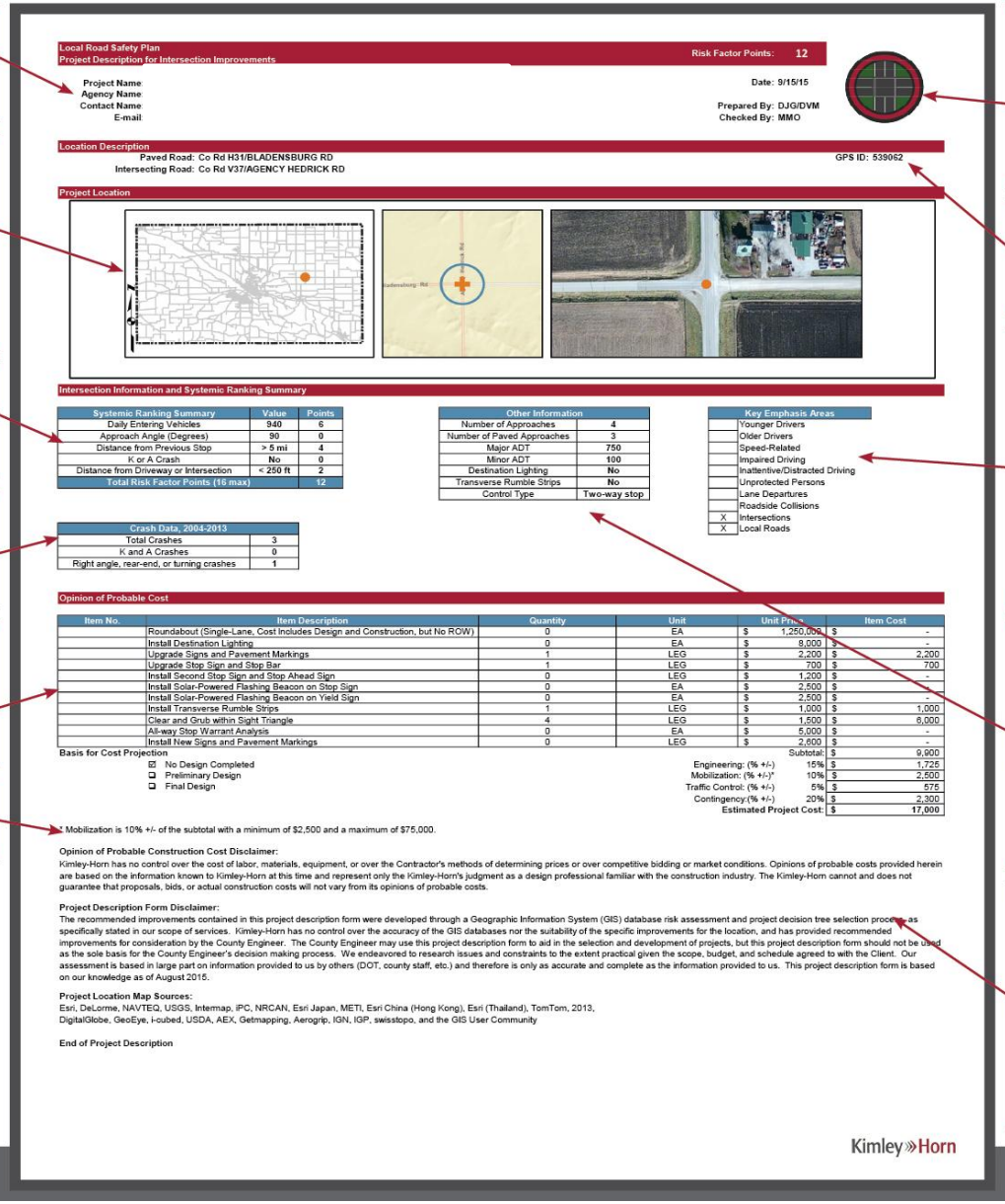
Location of Project with respect to County, on a Zoomed in Map, and Aerial of Project Location

Summary of Systemic Ranking for the Location

Brief Crash Data Summary for the Location

Opinion of Probable Cost for the Identified Improvements

Additional Information/Notes



Local Road Safety Plan
Project Description for Intersection Improvements

Risk Factor Points: 12

Project Name:
Agency Name:
Contact Name:
E-mail:

Date: 9/15/15

Prepared By: DJG/DVM
Checked By: MMO

Location Description
Paved Road: Co Rd H31/BLADENSBURG RD
Intersecting Road: Co Rd V37/AGENCY HEDRICK RD

GPS ID: 539062

Project Location

Intersection Information and Systemic Ranking Summary

Systemic Ranking Summary	Value	Points
Daily Entering Vehicles	940	6
Approach Angle (Degrees)	90	0
Distance from Previous Stop	> 5 mi	4
K or A Crash	No	0
Distance from Driveway or Intersection	< 250 ft	2
Total Risk Factor Points (16 max)		12

Other Information	
Number of Approaches	4
Number of Paved Approaches	3
Major ADT	750
Minor ADT	100
Destination Lighting	No
Transverse Rumble Strips	No
Control Type	Two-way stop

Key Emphasis Areas	
	Younger Drivers
	Older Drivers
	Speed-Related
	Impaired Driving
	Inattentive/Distracted Driving
	Unprotected Persons
	Lane Departures
	Roadside Collisions
X	Intersections
X	Local Roads

Crash Data, 2004-2013	
Total Crashes	3
K and A Crashes	0
Right angle, rear-end, or turning crashes	1

Opinion of Probable Cost

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
	Roundabout (Single-Lane, Cost Includes Design and Construction, but No ROW)	0	EA	$ 1,250,000	$ -
	Install Destination Lighting	0	EA	$ 8,000	$ -
	Upgrade Signs and Pavement Markings	1	LEG	$ 2,200	$ 2,200
	Upgrade Stop Sign and Stop Bar	1	LEG	$ 700	$ 700
	Install Second Stop Sign and Stop Ahead Sign	0	LEG	$ 1,200	$ -
	Install Solar-Powered Flashing Beacon on Stop Sign	0	EA	$ 2,500	$ -
	Install Solar-Powered Flashing Beacon on Yield Sign	0	EA	$ 2,500	$ -
	Install Transverse Rumble Strips	1	LEG	$ 1,000	$ 1,000
	Clear and Grub within Sight Triangle	4	LEG	$ 1,500	$ 6,000
	All-way Stop Warrant Analysis	0	EA	$ 5,000	$ -
	Install New Signs and Pavement Markings	0	LEG	$ 2,600	$ -

Basis for Cost Projection
- ☑ No Design Completed
- ☐ Preliminary Design
- ☐ Final Design

Subtotal:		$ 9,900
Engineering: (% +/-)	15%	$ 1,725
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 575
Contingency:(% +/-)	20%	$ 2,300
Estimated Project Cost:		$ 17,000

* Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000.

Opinion of Probable Construction Cost Disclaimer:
Kimley-Horn has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Kimley-Horn at this time and represent only the Kimley-Horn's judgment as a design professional familiar with the construction industry. The Kimley-Horn cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Project Description Form Disclaimer:
The recommended improvements contained in this project description form were developed through a Geographic Information System (GIS) database risk assessment and project decision tree selection process as specifically stated in our scope of services. Kimley-Horn has no control over the accuracy of the GIS databases nor the suitability of the specific improvements for the location, and has provided recommended improvements for consideration by the County Engineer. The County Engineer may use this project description form to aid in the selection and development of projects, but this project description form should not be used as the sole basis for the County Engineer's decision making process. We endeavored to research issues and constraints to the extent practical given the scope, budget, and schedule agreed to with the Client. Our assessment is based in large part on information provided to us by others (DOT, county staff, etc.) and therefore is only as accurate and complete as the information provided to us. This project description form is based on our knowledge as of August 2015.

Project Location Map Sources:
Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013, DigitalGlobe, GeoEye, i-cubed, USDA, AEX, Getmapping, Aerogrip, IGN, IGP, swisstopo, and the GIS User Community

End of Project Description

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Icon Displaying Project Type (Intersection, Curve, or Segment)

Unique GPS Identification Number

Key Emphasis Area Crashes that the Project is anticipated to Address (from the Iowa Strategic Highway Safety Plan)

Other Information at this Location that is Important for Developing the Recommendations within the Decision Tree

Opinion of Probable Cost Disclaimer, Project Description Form Disclaimer, and Project Location Map Sources

SEGMENTS

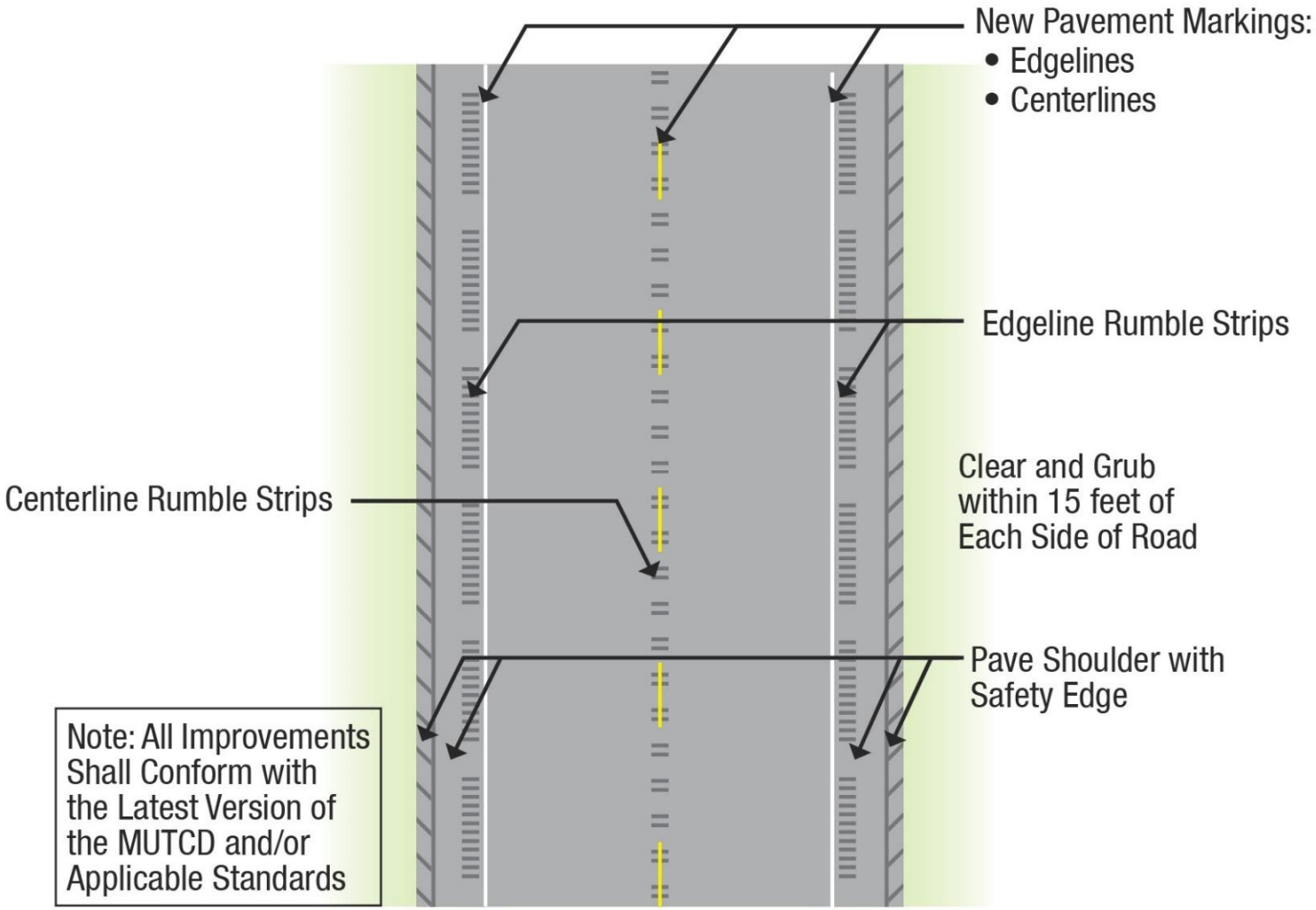
Segments – Potential Risk Factors

- Volume
- Lane width
- Shoulder type
- Access density
- Lane departure crashes

Segments – Potential Countermeasures and CMFs

Safety Countermeasure	Crash Modification Factor	Estimated Cost
Wider (6-inch) Pavement Markings	0.825	$2,000/mile
Clear and Grub	0.78	$5,000 - $20,000/mile
Edgeline Rumble Strips	0.61 – 0.67	$2,000/mile
Centerline Rumble Strips	0.55 – 0.91	$1,000/mile
Pave 2-ft Shoulder with Rumble Strips	0.75 – 0.99 “Pave Shoulder” 0.61 – 0.67 “ Edge Rumble Strip”	$65,000/mile

Segments – Potential Countermeasures



Segments – Site Specific Countermeasures

- Provide safer slopes and ditches
- Modify horizontal alignment
- Remove/relocate objects in hazardous locations
- On-pavement markings for speed control
- Post-mounted delineators
- Guardrail
- Curve treatments along segment

VISION ZERO

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What is Vision Zero?

"Vision Zero is a strategy to eliminate all traffic fatalities, while increasing safe, healthy, equitable mobility for all." (Vision Zero Network)

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Traditional vs. Vision Zero Approach

(Vision Zero Network)

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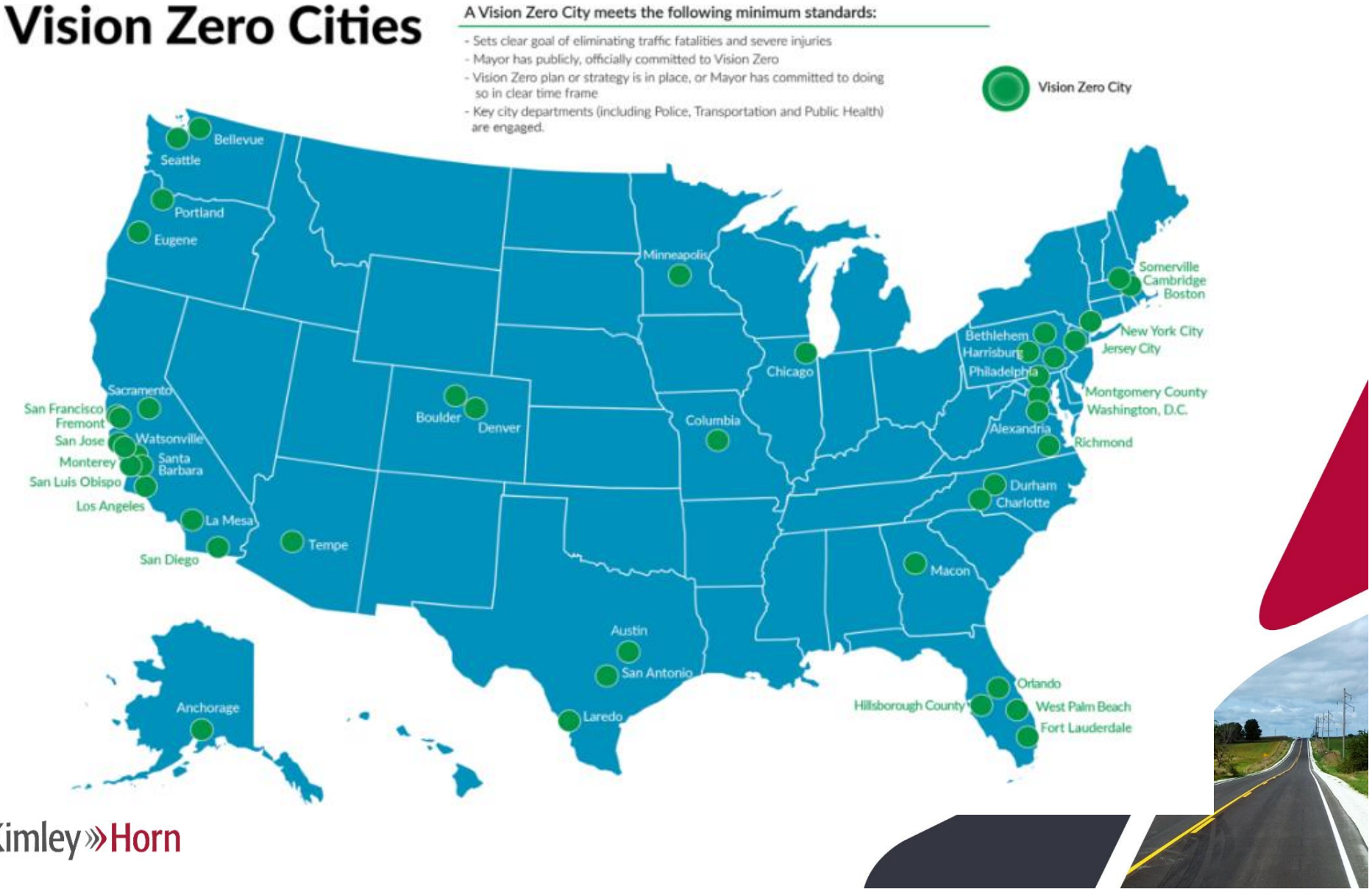
Vision Zero Cities



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Minimum Requirements

- Goal and timeframe for elimination of fatalities
- Mayor officially committing to Vision Zero
  - Directing staff to prioritize Vision Zero
- Action Plan in place
- Key departments actively engaged
  - Public health
  - Law enforcement
  - Transportation
- Regular task force meetings to evaluate efforts

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5 – Questions

Thank You!


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