DESTINATION SAFE STREETS

OTO Safety Action Plan

Systemic Safety Analysis

Equity Engagement

- Open Houses
- Survey
- Stakeholders
- Summer Engagement
- October 7 Pop-Up Demonstration
- Follow-up Survey

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High Injury Network

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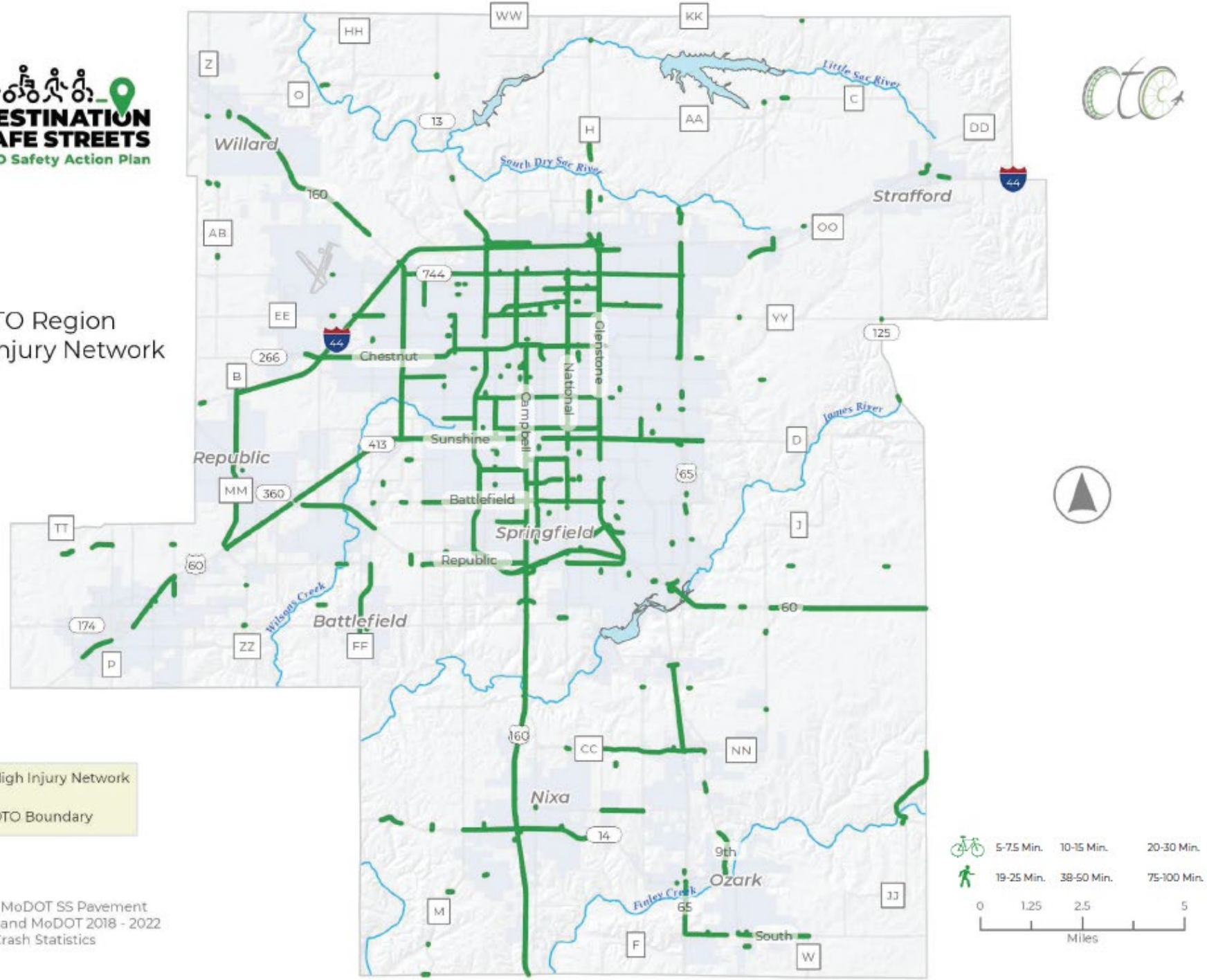
OTO Region High Injury Network



Sources: MoDOT SS Pavement Segments and MoDOT 2018 - 2022 Crash Statistics

Systemic Safety Analysis

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High Risk Characteristics

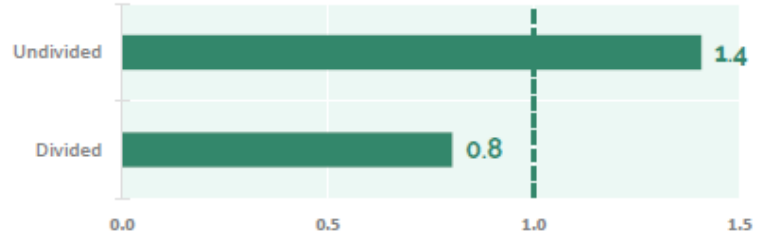
- Intersection Type
- Functional Classification
- Number of Lanes
- Shoulder Type
- Shoulder Width
- Access Control
- Horizontal Curvature
- Roadway Type
- Area Type
- Multimodal Activity

$$\text{Risk Factor} = \frac{\text{Percent of KSI Crashes}}{\text{Percent of Roadway Length}}$$

Median Access Control

Median access control refers to the presence of a center median and if the roadway is considered a divided roadway. Undivided roadways experience a higher share of KSI crashes and are considered a high-risk feature with a risk factor of 1.4.

FIGURE 7: MEDIAN ACCESS CONTROL RISK FACTORS



Median Access Control	Percent of KSI Crashes	Percent of Roadway Length	Risk Factor
Divided	53.7%	67.1%	0.8
Undivided	46.3%	32.9%	1.4

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Higher Risk Corridors

- Battlefield Street
- Chestnut Expressway
- Division Street
- Glenstone Avenue
- Grant Avenue
- Kearney Street
- MO 14 (Nixa and Ozark)
- National Avenue
- Republic Street
- S. Campbell Avenue
- Sunshine Street
- US 60 (Republic)

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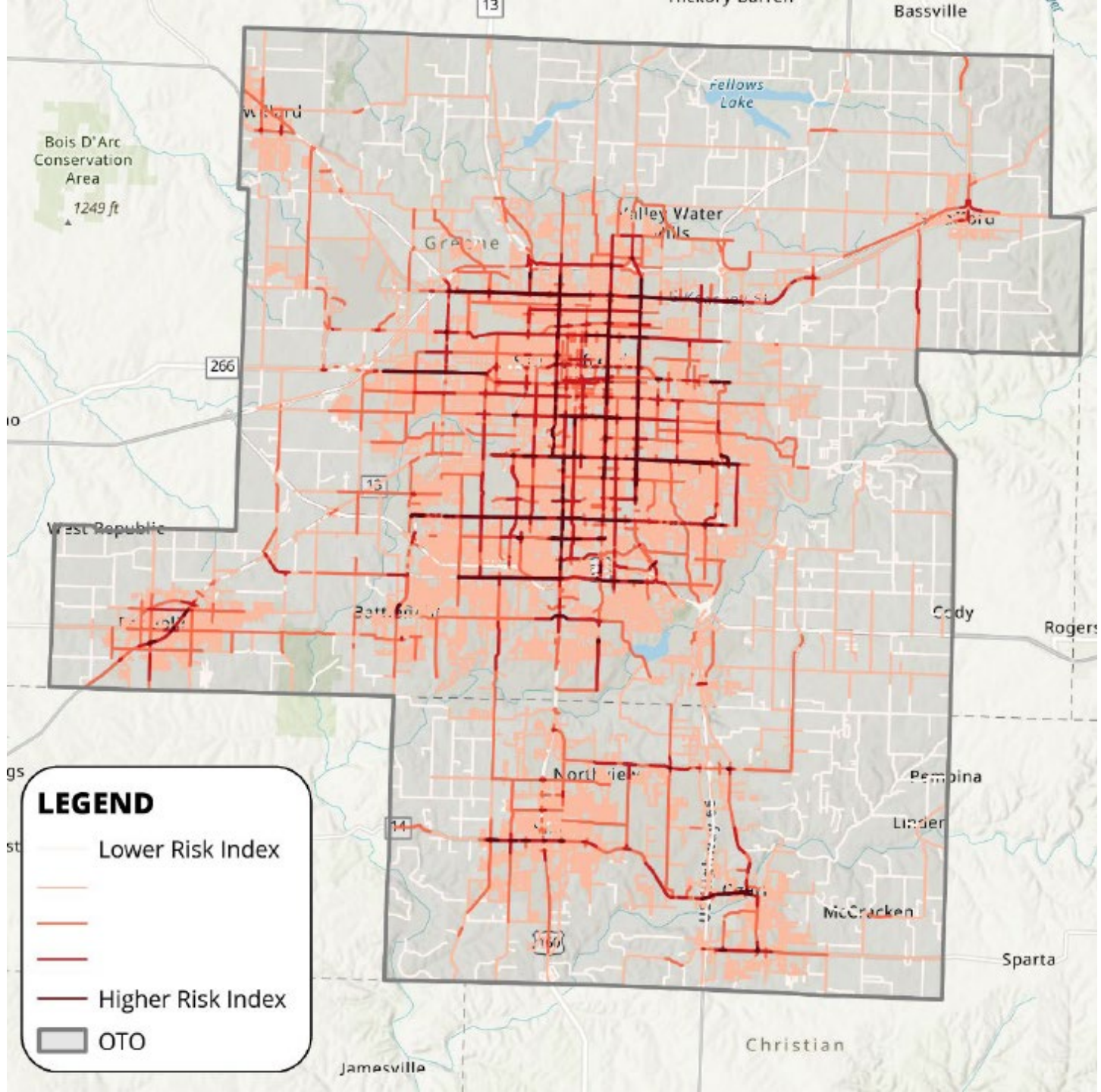
LEGEND
Lower Risk Index
Higher Risk Index
OTO
Bois D'Arc Conservation Area
1249 ft
Fellows Lake
Bassville
Valley Water
Mills
Gretna
West Republic
Cody
Rogers
Pembina
McCracken
Sparta
Christian
Jamesville
266
13
14

Policy and Process Review

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Topic	OTO Member Agency								
	Springfield	Greene County	Christian County	Republic	Ozark	Nixa	Battlefield	Willard	Strafford
Complete Streets	Yes	No	No	No	No	No	Yes	No	No
Lane Widths	No	Yes	Yes	Yes	No	No	No	No	No
Traffic Operations	No	No	No	No	No	No	No	No	No
Speed Limits	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Funding	Yes	Yes	No	Yes	Yes	Yes	No	No	No
Project Selection	No	Yes	No	Yes	No	Yes	No	No	No
Equity	No	No	No	No	No	No	No	No	No
Land Development	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Pedestrian Crossings	No	Partial	No	No	No	No	No	No	No
Speed Management	Yes	No	No	Yes	Partial	No	No	No	No
Performance Management	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
SRTS	Partial	Yes	No	No	No	No	No	No	No
Educational Campaigns	Partial	No	No	Partial	No	No	No	No	No
School Zones	Yes	No	Yes	No	No	No	No	No	No
ADA Transition Plan	Yes	Yes	No	Yes	Yes	No	No	No	No

Safety Toolkit

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Bicycle Lanes

PURPOSE

Aligns with the Safe Systems Approach principle of recognizing human vulnerability and separates users in space.

DESCRIPTION

Bicycle facilities can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles, and create a network of safer roadways for bicycling.

APPLICABLE LOCATIONS

New roads/existing roads through modifications. Bicycle facilities can be appropriate within various roadway contexts however, roadway context determines the appropriate facility type and design.

SAFETY BENEFITS

Converting traditional or flush buffered bicycle lanes to a separated bicycle lane with flexible delineator posts can reduce crashes up to 53% for bicycle/vehicle crashes

Bicycle lane additions can reduce crashes up to 49% for total crashes on urban 4-lane undivided collectors and local roads

30% reduction for total crashes on urban 2-lane undivided collectors and local roads

$$$$

DESIGN GUIDANCE CONSIDERATIONS

In order to maximize a roadway's suitability for riders of all ages and abilities, bicycle lane design should vary according to roadway characteristics (number of lanes, motor vehicle and truck volumes, speed, presence of transit), user needs (current and forecasted ridership, types of bicycles and micromobility devices in use within the community, role within the bicycling network), and land-use context (adjacent land uses, types and intensity of conflicting uses, demands from other users for curbside access). Separated bicycle lanes are recommended on roadways with higher vehicle volumes and speeds, such as arterials.

City and State policies may require minimum bicycle lane widths, although desirable bicycle lane widths can differ by agency and functional classification of the road, current and forecasted bicycle volumes, and contextual attributes such as topography. Studies have found that roadways did not experience an increase in crashes or congestion when travel lane widths were decreased to add a bicycle lane.

Studies and experience in U.S. cities show that bicycle lanes increase ridership and may help jurisdictions better manage roadway capacity.

In rural areas, rumble strips can negatively impact bicyclists' ability to ride if not properly installed. Agencies should consider the dimensions, placement, and offset of rumble strips when adding a bicycle lane.

Bicycle lanes should be considered on roadways where adjacent land use suggests that trips could be served by varied modes, particularly to meet the safety and travel needs of low-income populations likely to use bicycles to reach essential destinations.

Implementation Matrix

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Recommendations

Countermeasure	Purpose	Benefit	Timeframe	ROW	Quantity	Planning Level Cost	Estimated Cost
Sidewalks	Reduce pedestrian crashes	65%-89% reduction in pedestrian crashes	Short-term	No	1.3 miles	$370,000 per mile	$481,000
Pedestrian Hybrid Beacons (PHBs)	Reduce pedestrian crashes Reduce vehicle speeds	55% reduction in pedestrian crashes	Short-term	No	2 crossings*	$120,000 each	$240,000
Crosswalk Enhancements	Reduce pedestrian crashes Reduce vehicle speeds	40% reduction in pedestrian crashes	Short-term	No	4 intersections	$25,000 per intersection	$100,000
Pedestrian Refuge Islands	Reduce pedestrian crashes Reduce vehicle speeds	56% reduction in pedestrian crashes	Mid-term	No	8 islands	$115,000 per island	$920,000
Dilemma Zone Detection	Reduce rear end and right-angle crashes	39% reduction in KSI crashes at intersections	Short-term	No	4 signalized intersections	$60,000 per intersection	$240,000
Signal Heads with Retroreflective Backplates	Reduce rear end and right-angle crashes	15% reduction in total crashes	Short-term	No	56 signals	$3,000 per signal	$168,000
Permissive to Protected Left Turn Phase	Reduce left turn and right-angle crashes	--	Short-term	No	4 signalized intersections	$5,000 per intersection	$20,000
Improved Right Turn Angles	Reduce pedestrian crashes Reduce vehicle speeds	--	Mid-term	Yes	8 right turns	$400,000 per right turn	$3,200,000
Corridor Access Management	Reduce pedestrian, rear end, and right-angle crashes	25%-31% reduction in KSI crashes	Long-term	Yes	1.3 miles	--	--
BASELINE ESTIMATED TOTAL							**$5,400,000**

**PHB crossings at High Street and Bolivar Road*

Vision Zero Goals

ZERO Fatal Crashes by 2040

ZERO Serious Injury Crashes by 2050

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In Progress

- Strategies
- Finalize Engineering Draft Technical Memos
- Final Engagement
- Draft

Supplemental Planning

- Republic Awarded ADA Transition Plan
- Springfield Application Submitted

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