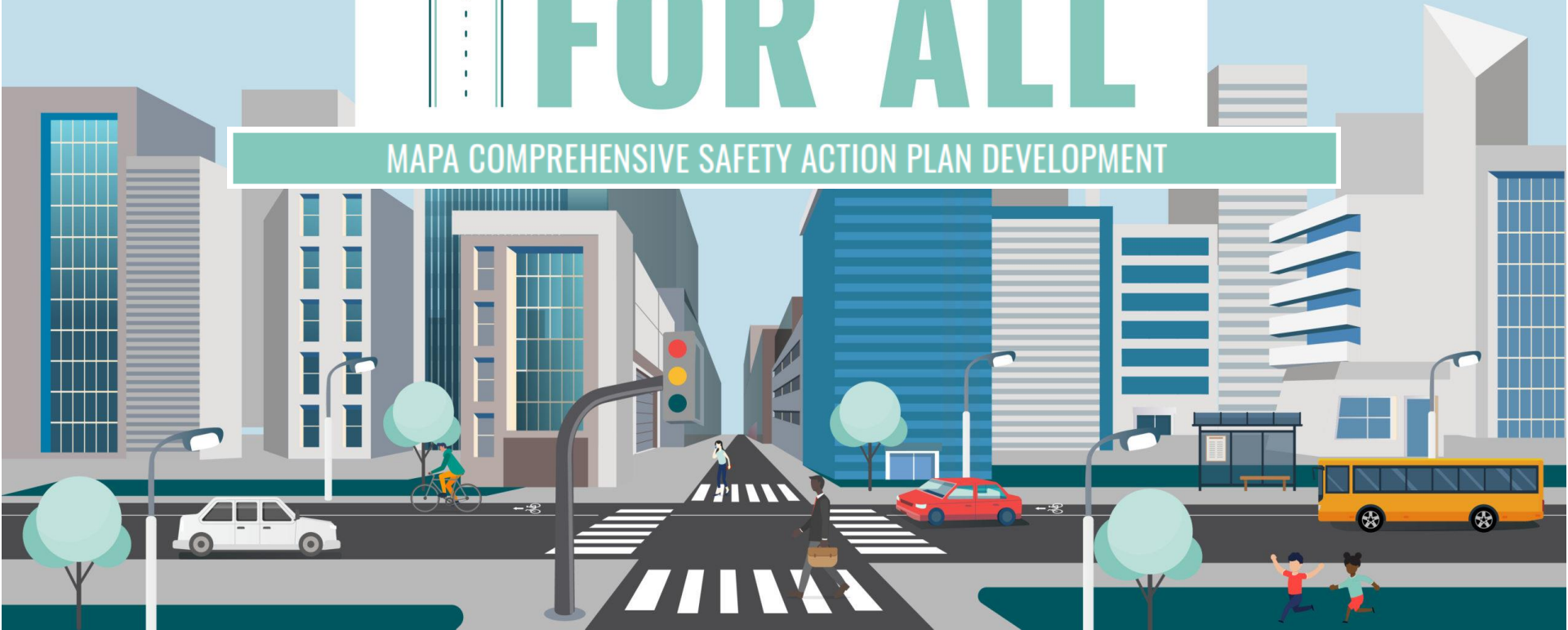


# SAFE STREETS FOR ALL

MAPA COMPREHENSIVE SAFETY ACTION PLAN DEVELOPMENT



Safety Committee Meetings:

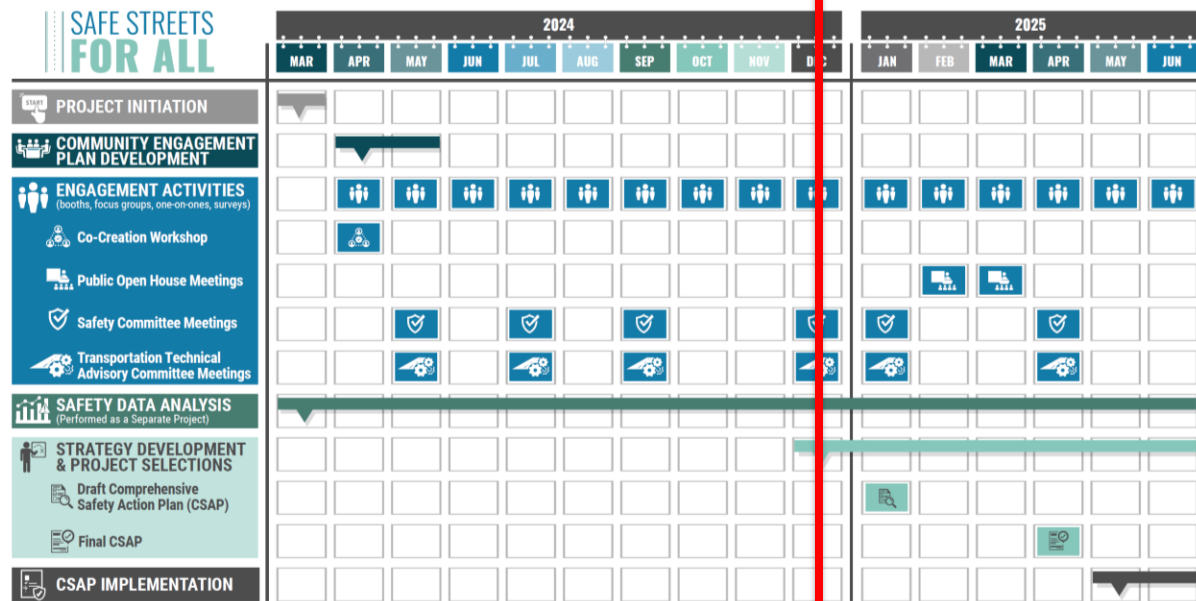
- #1 – Overview of Project
- #2 – Data Analysis
- #3 – Best Practice & Policy Review
- Safety Committee #4 – Project Prioritization

- High Priority Network
- Vision Zero Toolbox
- Priority Projects
- DAC Outreach and Equity Considerations

#5 – Recommendations / Draft Plan

#6 – Presentation of Final Plan

# Timeline



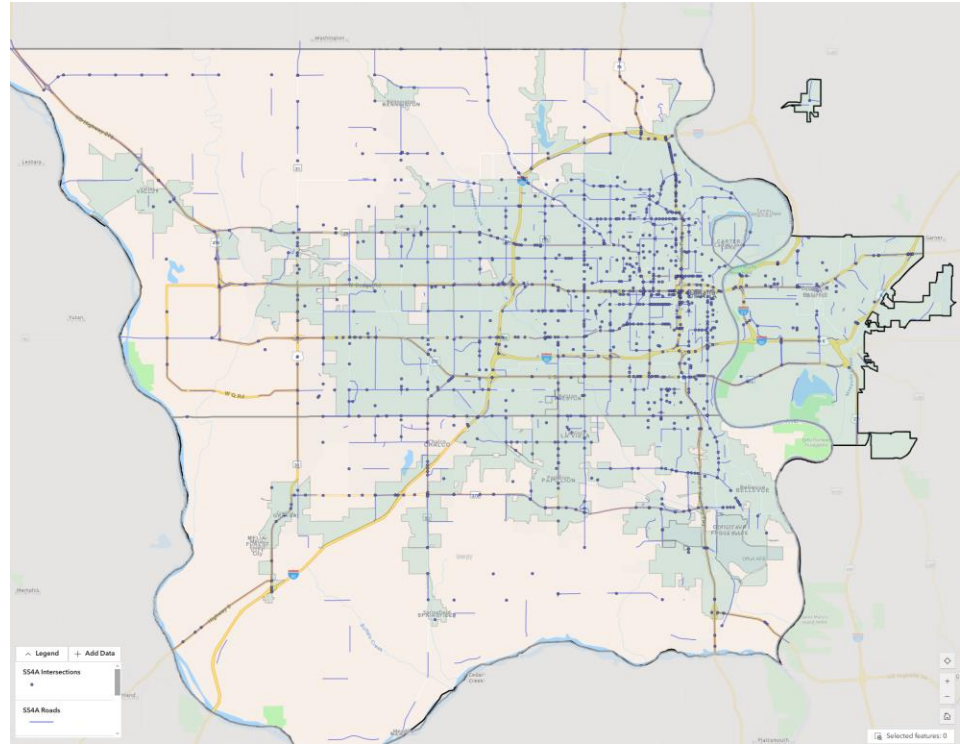
# Project Prioritization Methodology

1. Projects are based on the High Priority Network
2. Interventions and Crash Reduction Factors identified from a Proven Countermeasures List
3. Crashes assigned to projects, benefit-cost ratio calculated

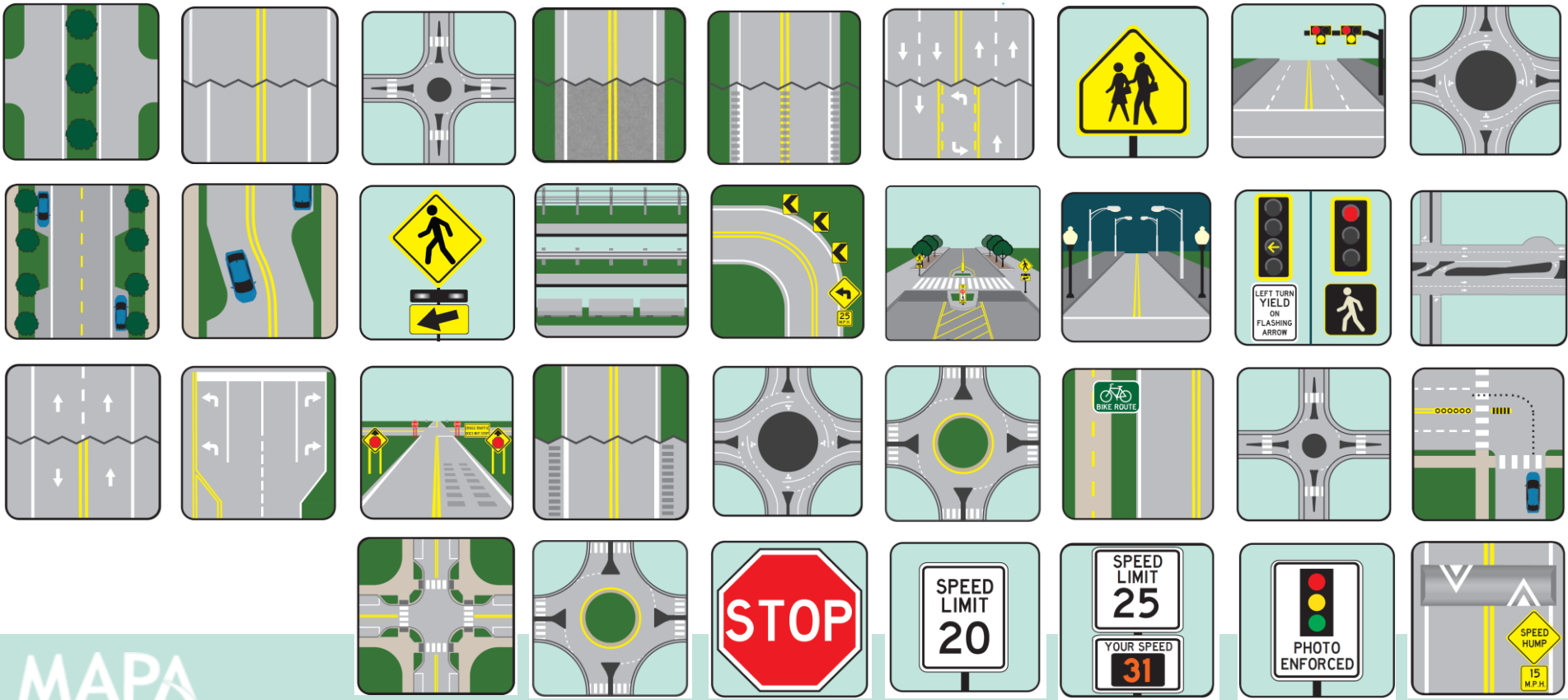
# High Priority Network

- High Injury Network (Retrospective)
- High Risk Network (Predictive)
- Community Survey Network (Responsive)

<https://mapacog.github.io/hpn-tool/>



# Countermeasure Toolbox



# Segment Countermeasures



Countermeasure Name	Brief Description	Cost (relative)	Quick Build Capable	Crash Reduction Factor	Traffic Considerations (Volume, Speed, or Cross-section)
Roadway Reconfiguration	Road Diets reduce the number of lanes, sometimes while simultaneously decreasing the width of lanes, to reduce the number of potential conflict points, decrease crossing distances by eliminating a lane or introducing pedestrian median islands, and reduce the travel speeds of motorists.	\$\$\$	Yes	30%	4-to-2 thru lanes: <18,000 ADT 6-to-4 thru lanes: <36,000 ADT
Lane Narrowing	A lane width reduction reduces lane width, typically by two or more feet, while maintaining the existing number of lanes. By reducing the lane width, motorists are encouraged to drive slower, and pedestrians have a shorter distance to cross. The reclaimed space can be used for pedestrian and bicyclist-friendly spaces.	\$\$	Yes	25%	-
Landscaped Buffers and On-Street Parking	Providing landscaped buffers, on street parking, and street trees between sidewalks and the roadway can significantly improve the pedestrian experience on urban streets. These improvement, including mature tree canopies, can visually narrow the roadway and potentially provide a traffic calming effect.	\$\$\$	No	NA	-
One-way to Two-way Street Conversions	One-way to Two-way Street Conversions generally reduce speeds, reduce conflicts, and manage traffic patterns due to how traffic perceives its surroundings. Lower speeds provide improved conditions and access for all modes of transportation, especially vulnerable road users.	\$\$\$	No	NA	-
Horizontal Traffic Calming	Traffic Calming is a deliberate set of design strategies and measures implemented on roadways to improve the safety of all users by slowing down vehicle speeds. Horizontal traffic calming shifts the roadway horizontally, narrowing the overall road width or by adding slight curves in the roadway through the use of bulb-outs, median islands, chicanes, or other physical infrastructure items	\$\$	Yes	30%	<20,000 ADT
Vertical Traffic Calming	Traffic Calming is a deliberate set of design strategies and measures implemented on roadways to improve the safety of all users by slowing down vehicle speeds. Vertical traffic calming adds vertical elements on or alongside the roadway, adding variation to encourage motorists to drive more slowly. Speed humps, raised crosswalks (i.e., speed tables), speed cushions, and raised intersections are examples of vertical traffic calming elements.	\$	Yes	30%	<10,000 ADT
Roadway Lighting	Street lighting enhances safety and accessibility by illuminating key areas and improving visibility, which decreases crash risk, and is an important component of improving pedestrian safety. This tool is particularly effective at controlled and uncontrolled intersections, midblock crossings, along sidewalks, and in areas with high pedestrian volumes like transit stops, commercial zones, schools, and parks.	\$	No	20%	-
Raised Medians and Access Management	Medians separate opposing traffic, reducing the number of head-on, cross-median crashes that can be especially dangerous. Raised medians offer VRU refuges mid-crossing, limit motor vehicle turns, and mitigate head-on collisions. To improve access management, the number of driveways within a given space should be limited (such as through the used of shared driveways between adjacent parcels), as well as limiting the width of driveways.	\$\$\$\$	Yes	40%	>12,000 ADT

# Intersection Countermeasures



Countermeasure Name	Brief Description	Cost (relative)	Quick Build Capable	Crash Reduction Factor	Traffic Considerations (Volume, Speed, or Cross-section)
Roundabout	A Single-lane Roundabout has a single entry lane and exit lane per approach (as well as only one internal lane), which lowers the number of conflict points, reduces travel speed, eliminates angle collisions, and reduces crossing distances for vulnerable road users (VRUs).	\$\$\$\$	No	65%	<30,000 EADT
	A Multi-lane Roundabout, compared to a single-lane roundabout, allows for more traffic volume but has more conflict points. A turbo roundabout is a variation of a multi-lane roundabout that adds lane dividers to encourage motorists to select the proper lane before entering the roundabout and not try to change lanes within the roundabout.	\$\$\$\$	No	65%	<45,000 EADT
	Mini Roundabouts functions the same as traditional single-lane roundabout, but are smaller in diameter, are single laned, have a traversable center to accommodate larger vehicles, and don't require additional right-of-way.	\$\$\$	Yes	65%	<20,000 EADT
All-way Stop Control Conversion (from 2-way)	All-way Stop Control Conversion is the conversion of a two-way stop-controlled intersection to be stop-controlled on all approaches; they reduce the need for drivers to wait for a safe gap in traffic to go and are more predictable. The MUTCD outlines warrants related to crash history, sight distances, vehicle/pedestrian/bicycle counts, left-turn conflicts, and operational characteristics in installing an all-way stop control.	\$	Yes	50%	<12,000 ADT (each approach) <=2 thru-lanes (each approach)
Reduced Left-turn Conflict Intersections	Reduced Left-Turn Conflict Intersections reconfigure left-turn only or left-turn and through movements by reducing the number or severity of vehicle-to-vehicle conflicts from cross-streets. Reducing the number of crossing conflict points decreases the opportunity for right-angle crashes, resulting in fewer severe injuries or fatalities. Common types of these intersections include restricted crossing U-turns (RCUT, aka J-turns) and median U-turns (MUT).	\$\$\$\$	No	35%	Prior Condition Stop-Controlled
Systemic Traffic Signal Modifications	Traffic signal modifications improve safety and efficiency by adjusting motorist behavior with measures like updated signal timings, flashing yellow arrows, retroreflective backplates, LED signals, and restrictions on right-turns on red. Other changes include adding Leading Pedestrian Intervals (LPIs), modernizing old signals, or replacing unwarranted signals with roundabouts, stop signs, or pedestrian-focused signals like RRFBs or PHBs.	\$\$	Yes*	15%	-
Intersection Daylighting	Intersection Daylighting improves the sight-distance for road users as they enter and navigate an intersection by restricting curb parking spaces leading up to an intersection. Restrictions can be accomplished through the use of pavement markings and flexible guideposts.	\$\$	Yes	30%	-
Curb Extensions	Curb Extensions and Bulb-Outs extend sections of sidewalks into the roadway, primarily at intersections and crossings, to decrease VRU crossing distances and enhance visibility and comfort. Curb Extensions prove to be effective across various locations, ranging from mid-block crosswalks to signalized intersections.	\$\$	Yes	30%	-
Left-turn Hardening	Left-turn Hardening reduces vehicle turning speed and increases vehicle yielding to pedestrians by guiding left-turning vehicles to take wider turns. This can be accompanied by or in-place of centerline hardening.	\$\$	Yes	30%	-

# Safety Countermeasures for Pedestrians & Bicycles



Countermeasure Name	Brief Description	Cost (relative)	Quick Build Capable	Crash Reduction Factor	Traffic Considerations (Volume, Speed, or Cross-section)
Rectangular Rapid-Flashing Beacon	Rectangular Rapid-Flashing Beacons (RRFB) use flashing lights to improve vehicle stopping and yielding behavior to crossing pedestrians at unsignalized locations. RRFBs are particularly effective at multilane crossings where the posted speed limits are 40 mph or under. Beacon activation occurs only when pedestrians are present.	\$\$	No	45%	(see FHWA STEP Guide, Table 1)
Pedestrian Hybrid Beacon	Pedestrian Hybrid Beacons (PHB), also known as High intensity Activated crossWalk (HAWK Signals), use flashing and solid-colored lights to improve vehicle stopping and yielding behavior to crossing pedestrians at unsignalized locations. PHBs, like RRFBs, activate only when pedestrians are present, and should be strongly considered for roadways with speeds higher than 40 mph.	\$\$\$	No	55%	(see FHWA STEP Guide, Table 1)
Systemic Crossing Modifications	This roadway feature prioritizes the safety, accessibility, and convenience of pedestrians of all ages and abilities by providing pedestrians with a secure and easily recognizable path to cross busy streets. These crossings often include clearly marked crosswalks, ample lighting, refuge islands, and well-defined signage.	\$\$	Yes	30%	(see FHWA STEP Guide, Table 1)
Raised Crossing	Raised Crossings are flush with the sidewalk, encouraging motorists to yield to pedestrians in the crosswalk and reinforcing slower speeds. Accessibility of the crossing is improved with raised crosswalks, as it allows pedestrians to cross at the same height as the sidewalk.	\$\$	No	30%	(see FHWA STEP Guide, Table 1)
Sidewalks	Utilizing sidewalks and paved shoulders enhances pedestrian and cyclist safety by providing designated spaces for their movement, separate from vehicular traffic. Integrating ADA-compliant features guarantees equitable access and promotes inclusivity, fostering a safer and more accommodating environment for all community members.	\$\$\$	No	90%	-
Bicycle Lanes	Bicycle lanes are dedicated facilities on or along roadways that make bicycling safer and more comfortable; they can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles. Bicycle lanes can be established through paint striping or separation by vertical elements like posts, curbs, or vegetation.	\$\$	Yes	55%	< 6,000 ADT < 35 MPH
Protected Bicycle Lanes / Cycle Tracks	Protected bicycle lanes establish physically separated spaces for pedal cyclists, substantially reducing cyclist-vehicle collisions. With a physical barrier, these lanes enhance safety by preventing risky interactions and improving perceived safety.	\$\$\$	Yes	45%	-
Shared-use Path	Shared-use Paths, also known as Off-street Trails when away from the roadway, contribute to safety and accessibility for active transportation and recreation by offering designated paths outside the curb and away from potential vehicle conflicts.	\$\$\$\$	No	25%	-
Safe Routes to School	Safe Routes to School encourages children to walk or bike to school, educates them on how to walk and bike safely, and facilitates the planning, development, and implementation of projects that support healthy, active, and safe walking and biking habits.	NA	No	35%	-



# Rural/Highway & Behavioral Countermeasures

Type	Countermeasure Name (for Toolbox)	Countermeasure Category (for Prioritization)	Brief Description	Cost (relative)	Quick Build Capable	Crash Reduction Factor (Rounded)	Traffic Considerations (Volume, Speed, or Cross-section)
Rural & Highway Countermeasures	Systemic Stop-control Modifications	Systemic Stop-control Modifications	Systemic Stop-control Modifications aim to increase the visibility of stop-controlled intersections. These modifications can include advanced intersection warning signage, retroreflective sign post panels, enlarged and double-up signs (i.e., posted on both the right and left of the roadway), approach rumbles, and (in the circumstance of two-way stop-controlled intersections) "Cross Traffic Does Not Stop" A Safety Edge(SM) is a strong, durable 30 degree transition between the edge of a paved roadway and the adjacent graded material, mitigating the problems associated with a vertical drop-off (such as tire scrubbing and motorists losing control of their vehicle trying to return to the roadway). Additionally, a Safety Edge can make the pavement more durable, leading to reduced edge raveling.	\$5	Yes	40%	-
	Safety Edge	Shoulder Modifications	Installing shoulders, or widening shoulders, provide a space for vehicles to pull over, including disabled vehicles, maintenance activities, crash avoidance, and enforcement. Installing new shoulder or widening existing shoulders presents a good opportunity for installing safety edges.	\$5	No	25%	> 1,000 ADT
	Shoulder Installation/Widening		Auxiliary turn lanes create a physical separation between turning traffic and adjacent through traffic, allowing motorists to decelerate prior to a turn and also providing storage for vehicles preparing to turn. Separate turn lanes potentially reduce rear end crashes as well as crashes between turning vehicles and opposing traffic. Offsetting turn lanes can increase visibility, as zero or negative offset turn-lanes	\$55	No	45%	-
	Turn-lane Additions	Turn-lane Additions	Pavement Friction Management involves measuring, monitoring, and maintaining pavement friction to maintain skid resistance and should be implemented where vehicles often slow down, stop, and turn. High friction surface treatment— a layer of specialized aggregate locked onto the roadway surface—should be used on intersection approaches, crosswalk approaches, near-end crashes, and locations with roadside barriers act as a shield to roadside hazards that cannot be redesigned, relocated, or removed, such as steep embankments or unmovable objects. The three main barriers, from the greatest deflection to least deflection, are cable barriers (made from steel cables on weak steel posts), metal beam guardrail (W-beam or box-beam mounted on timber or steel posts), and concrete barriers. It should be	\$5	No	55%	More effective on curves
	Pavement Friction Management	Pavement Friction Management	Enhanced Curve Delineation is the installation of retroreflective chevron signs and advance curve warning sign; these are shown to significantly reduce crashes along curves, especially nighttime crashes and in rural areas.	\$	Yes	30%	-
	Curve Delineation Modifications	Curve Delineation Modifications	Wider edge lines decrease the risk of roadway departure, as they make the edge of the travel lanes more visible and easier for motorists to identify. Wider edge lines can be used on all facility types in rural and urban areas.				
	Wider Edge Lines	Lane Departure Mitigation					
	Rumble Strips	Single-lane Roundabout					
	Roundabout	Multi-lane Roundabout					
Type	Countermeasure Name (for Toolbox)	Countermeasure Category (for Prioritization)	Brief Description	Cost (relative)	Quick Build Capable	Crash Reduction Factor (Rounded)	Traffic Considerations (Volume, Speed, or Cross-section)
Behavioral Countermeasures	Automated Enforcement		Automated enforcement detects and documents traffic violations, most commonly red light running and speed enforcement, through photographic evidence. The vehicle owner is identified by license plate and is notified of the infraction by mail. This countermeasure is currently available in Iowa but not in Nebraska.	\$\$\$	No	10%	-
	Roadway Feedback Signs		Speed Feedback Signs, posted alongside the Posted Speed Limit, register and display approaching drivers' speeds as they approach the sign to make them aware of their current speed - the displayed speed numbers flash if the driver is speeding.	\$	Yes	5%	-
	Speed Limit Reduction		Speed Limit Reductions are the systematic reduction of speed limits based on context, activity level, and conflict density, which reduces the number and severity of crashes. As a part of the process, more frequent posting of speed limits is suggested to most effectively reduce speeds.	\$55	Yes	25%	-
	High-Visibility Saturation Patrols		A saturation patrol (also called a blanket patrol or dedicated DWI patrol) consists of a large number of law enforcement officers patrolling a specific area looking for impaired drivers. These patrols usually take place at times and locations where impaired-driving crashes commonly occur. Like publicized sobriety checkpoint programs, the primary purpose of publicized saturation patrol programs is to deter driving after drinking by increasing the perceived risk of arrest. To do this, saturation patrols should be publicized extensively and conducted regularly, as part of an ongoing program.	NA	NA	NA	-
	Publicized Sobriety Checkpoints	N/A	Sobriety Checkpoints are highly visible, regularly conducted stops of motorists at predetermined locations to investigate whether motorists are impaired. Stops are conducted per vehicle or at a regular interval (e.g., every third vehicle). Although the primary purpose of checkpoints is to deter driving after drinking among the general population due to the perceived risk, sobriety checkpoints also remove impaired drivers from the road.	NA	NA	NA	-
	Integrated Enforcement		Integrated Enforcement is a type of high visibility enforcement (HVE) focused primarily on behavioral activities, such as driving under the influence, speeding, and seat-belt usage, and is seen in both regular traffic enforcement and crash investigations to specialized checkpoints and saturation patrols. Special enforcement activities focused on speeding or seat-belt use offer an additional opportunity to detect	NA	NA	NA	-
	Alternative Transportation		Alternative Transportation Programs reduce the need for individuals to drive while under the influence; these include for-profit rideshare services, nonprofit safe ride programs, and public transportation (such as subways or buses).	NA	NA	NA	-
	Mass Media Campaigns		Mass Media Campaigns are intensive communication and outreach activities focusing on key topics regarding safety, health, and well-being (such as driving under the influence) that use radio, television, print, social, and other mass media platforms. Some campaigns publicize a deterrence or prevention measure, such as a change in a State's DWI laws or through a highly-visible enforcement program.	NA	NA	NA	-
	Slow Zones		Slow Zones are areas that designate lower speeds (signed for 15 or 20 mph) than other areas nearby to create safe spaces for vulnerable populations that frequent them, such as parks, school zones, work zones, senior areas, neighborhoods, and downtowns.	\$55	No	30%	< 5,000 ADT

# Prioritized Projects



# Project Selection Criteria

Needed to be on the HPN.  
Small inclusions were made in  
these cases:

1. Jurisdiction Boundaries
2. Proximity/Contiguity
3. Project Size (<3 miles)
4. Agency Jurisdiction
5. Land Use Context
6. Roadway Cross Section

HPN intersection and segments were only excluded if:

1. Intersection crash patterns or risk factors would be mitigated by proposed overlapping segment improvement (or vice versa)
2. Limiting data on the HIN or HRN
3. Recently constructed or modified
4. Priority intersection point feature is not technically an intersection (e.g. it is an overpass/underpass)

752 Intersections (2.7%)

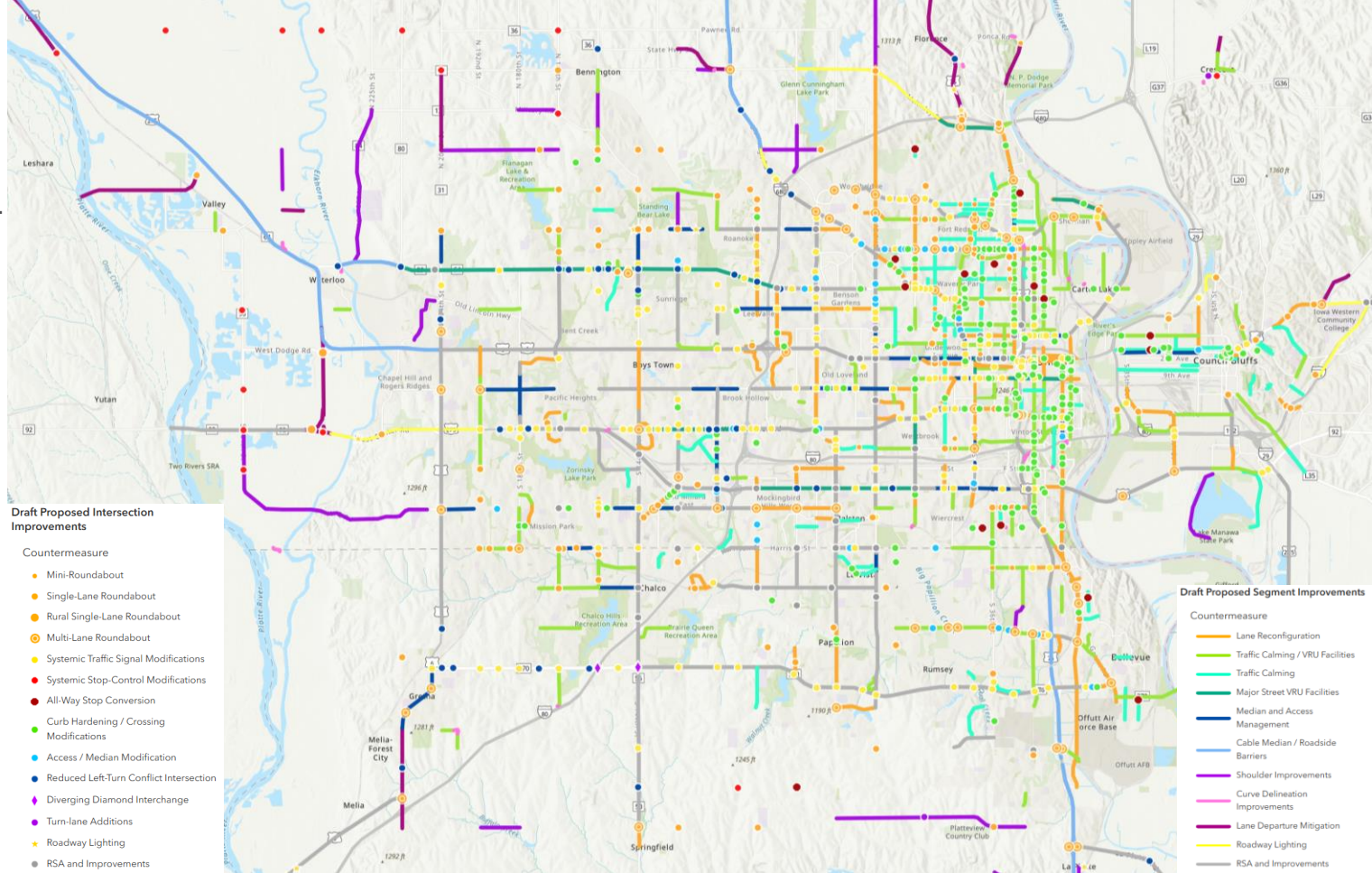
552 Miles of Road (7.8%)

1,705 KSIs Accounted For  
2,205 KSIs Total (77.3%)

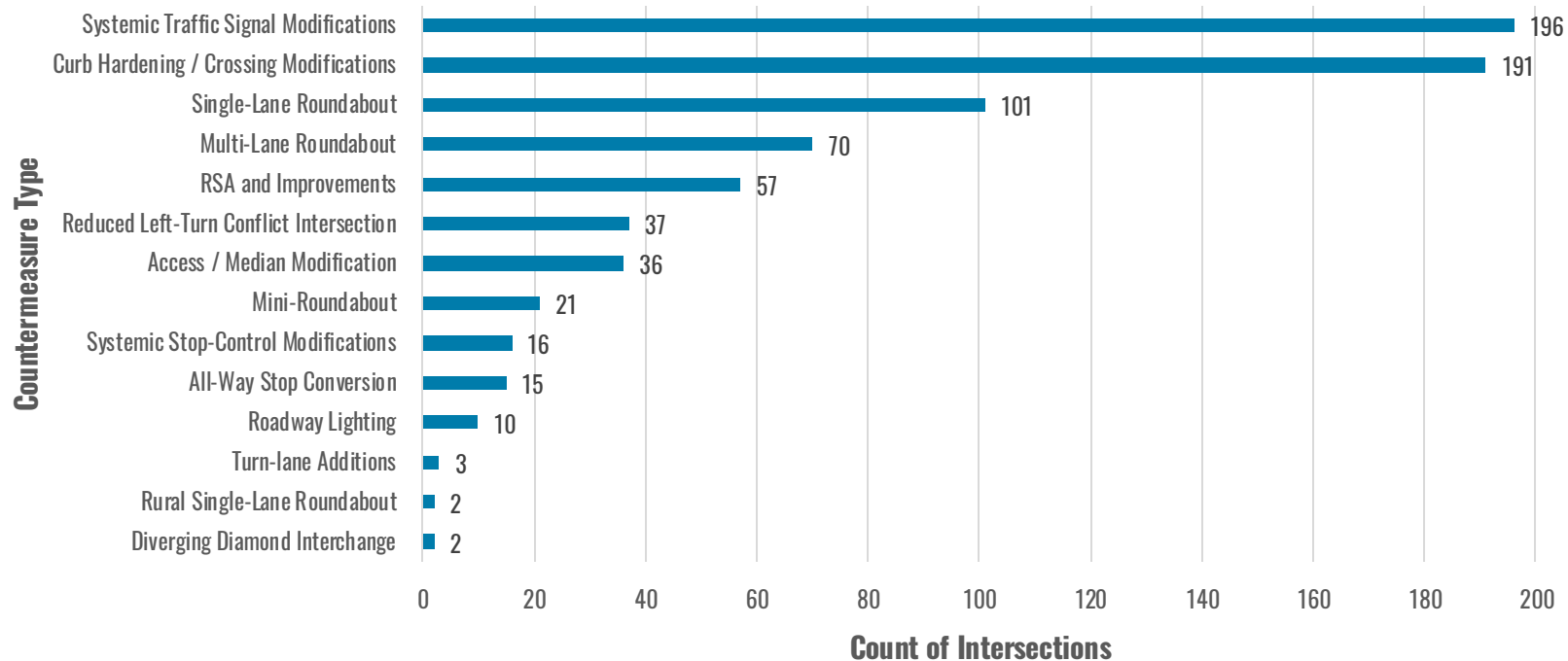
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10:1 and 28:1

Potential Reduction, at  
least:

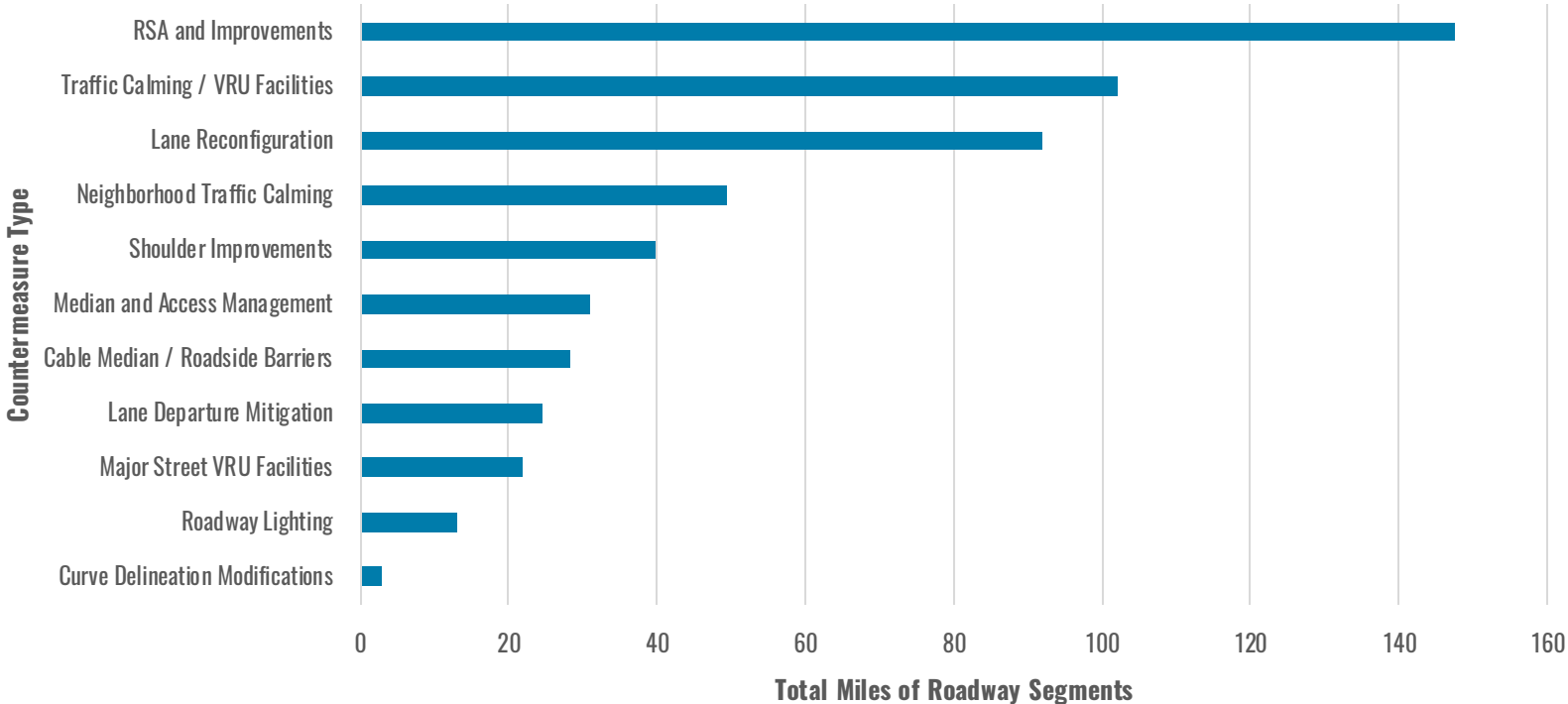
63 KSIs per Year



# Intersection Countermeasures



# Segment Countermeasures

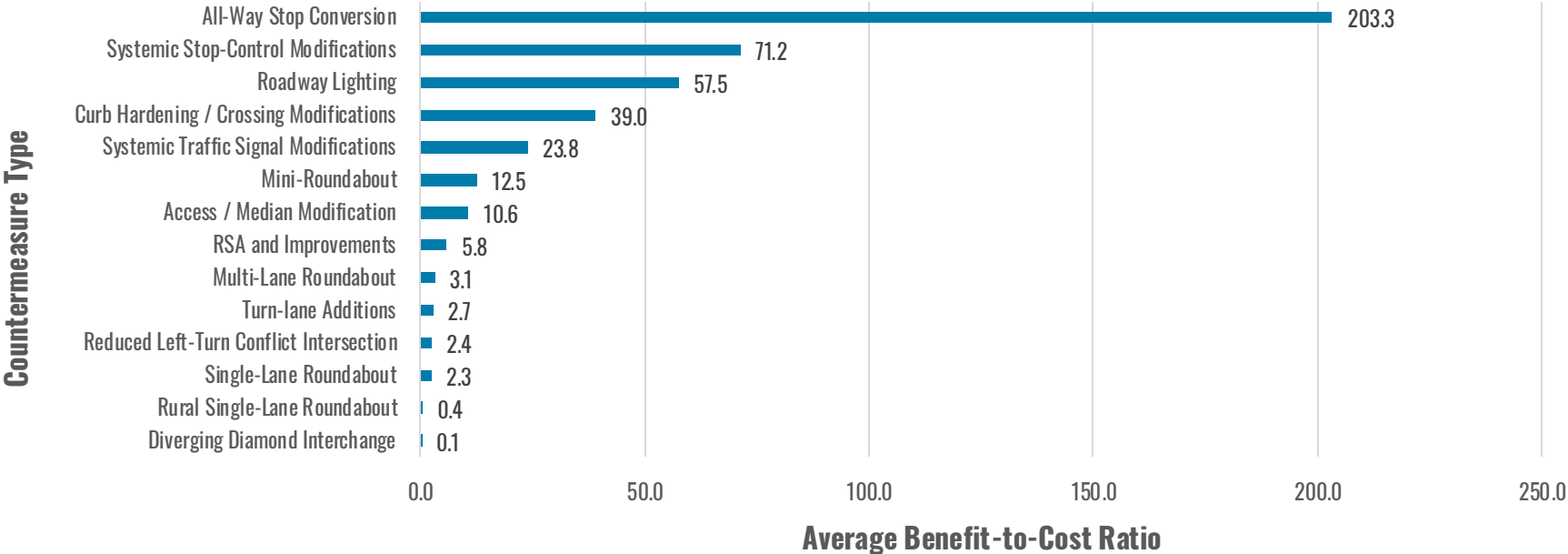


# Benefit-to-Cost Analysis

	NDOT	IDOT	USDOT
Urban intersection crash assignment	Within <b>0.05 mi (264 ft) of intersection</b> AND flagged as "Intersection Related"	<b>250 ft buffer</b> ; regardless of whether marked as intersection related or not	<b>250 ft buffer</b> ; regardless of whether marked as intersection related or not
Rural intersection crash assignment	Within <b>0.1 (528 ft) of intersection</b> AND flagged as "Intersection Related"		
Segment crash assignment	Assume crash points located along and <b>within 75 ft of segment</b> and NOT assigned to an intersection improvement location are assigned to the project segment		
Crash benefit (societal cost) calculation	Calculate a standard societal cost for each <b>crash type</b> based on the severity levels of all statewide crashes of that type	Use the societal costs based on crash severity (KABCO crashes) as recommended by IDOT	Use the societal costs based on crash severity (KABC crashes) as recommended by "USDOT BCA Guidance for Discretionary Grant Programs" (2025)
Crash severities included	KABCO	KABCO	KABCO
Cost	Construction cost only	Construction cost only	Total Project Cost

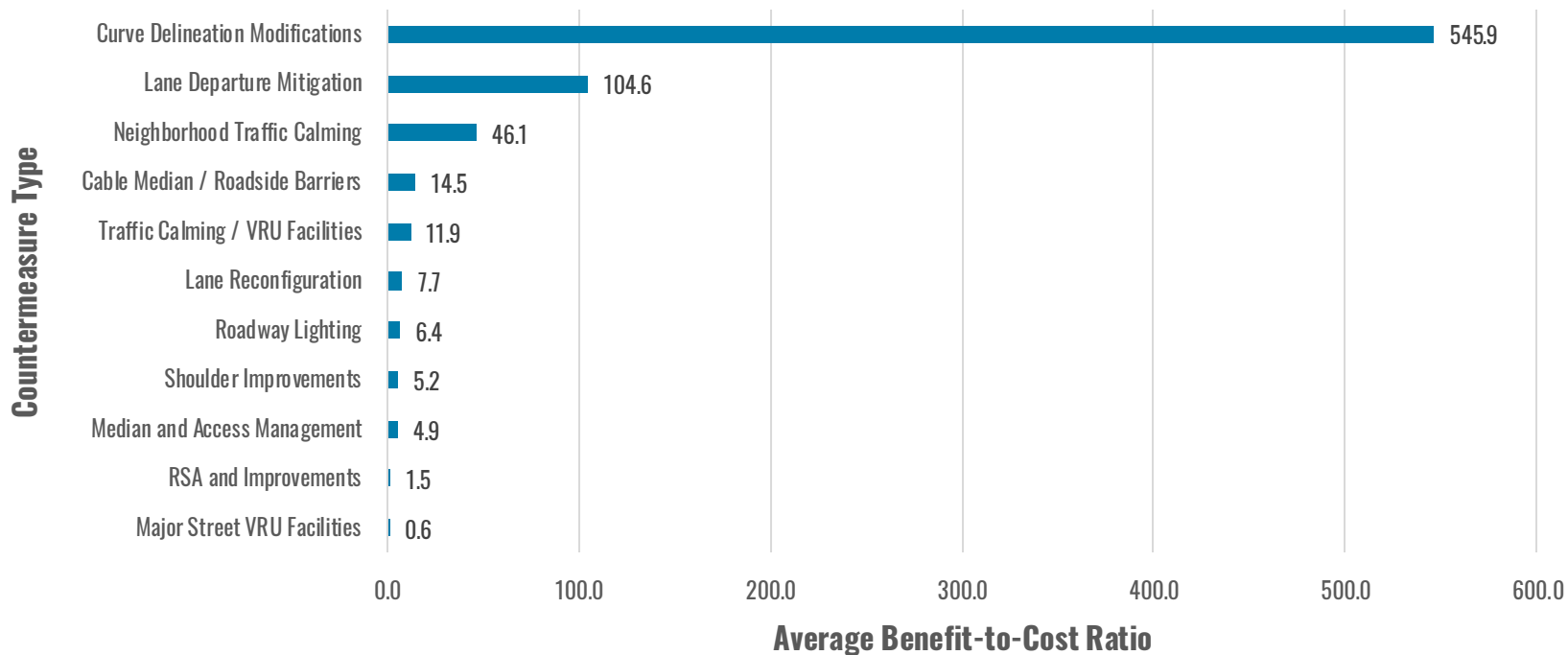
# Average Benefit-to-Cost Ratios - Intersections

Average Benefit to Cost Ratio by Intersection Countermeasure Type\*





# Average Benefit-to-Cost Ratios - Segments



USDOT Method									
County	Proj. Count	Improv. Count	Lives Saved	Serious Inj.		Total Cost	BCR		
				Avoided	Benefit				
Douglas	181	918	112.0	869.4	\$ 2,945,980,000	\$ 1,042,940,000			2.82
Sarpy	44	223	30.9	192.9	\$ 681,670,000	\$ 387,150,000			1.76
Pottawattamie	20	101	5.8	57.5	\$ 206,610,000	\$ 87,090,000			2.37
Multi-County	6	28	7.7	27.5	\$ 135,530,000	\$ 64,350,000			2.11
<b>All Region Total</b>	<b>250</b>	<b>1,270</b>	<b>156.3</b>	<b>1,147.3</b>	<b>\$ 3,969,790,000</b>	<b>\$ 1,581,530,000</b>			<b>2.51</b>
IDOT Method									
County	Proj. Count	Improv. Count	Lives Saved	Serious Inj.		Construction Cost	BCR		
				Avoided	Benefit				
Douglas	181	918	112.0	869.4	\$ 4,399,360,000	\$ 695,124,000			6.33
Sarpy	44	223	30.9	192.9	\$ 956,200,000	\$ 258,852,000			3.69
Pottawattamie	20	101	5.8	57.5	\$ 322,320,000	\$ 58,074,500			5.55
Multi-County	6	28	7.7	27.5	\$ 153,800,000	\$ 42,857,000			3.59
<b>All Region Total</b>	<b>250</b>	<b>1,270</b>	<b>156.3</b>	<b>1,147.3</b>	<b>\$ 5,831,680,000</b>	<b>\$ 1,054,907,500</b>			<b>5.53</b>
NDOT Method									
County	Proj. Count	Improv. Count	Lives Saved	Serious Inj.		Construction Cost	BCR		
				Avoided	Benefit				
Douglas	181	918	110.2	869.4	\$ 4,075,130,000	\$ 695,124,000			5.86
Sarpy	44	223	30.6	192.9	\$ 755,600,000	\$ 258,852,000			2.92
Pottawattamie	20	101	5.4	57.5	\$ 350,890,000	\$ 58,074,500			6.04
Multi-County	6	28	7.7	27.5	\$ 120,400,000	\$ 42,857,000			2.81
<b>All Region Total</b>	<b>250</b>	<b>1,270</b>	<b>153.9</b>	<b>1,147.3</b>	<b>\$ 5,302,020,000</b>	<b>\$ 1,054,907,500</b>			<b>5.03</b>

# Outreach in Disadvantaged Communities (DAC)

One Omaha and 712 Initiative support

Outreach activities fall 2024 and winter 2025

Top traffic issues to address

Feelings of safety by mode transportation

Other comments

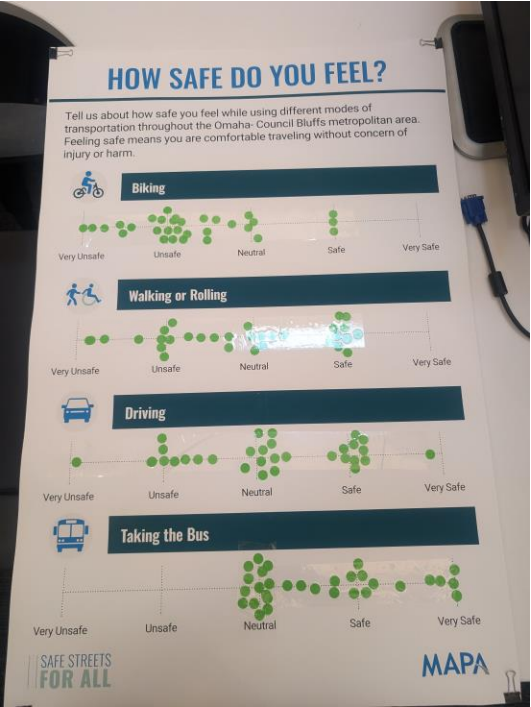
SAFE STREETS  
FOR ALL



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# Gifford Park Neighborhood Market: September 17



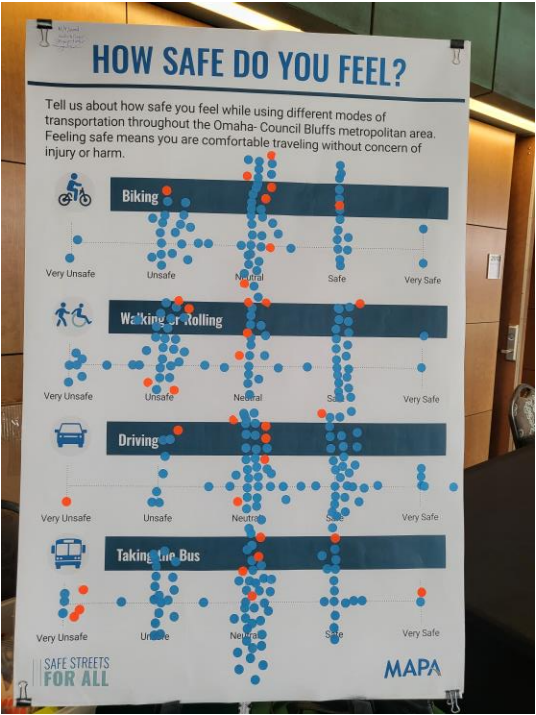
# Railroad Days: September 21

SAFE STREETS  
FOR ALL





# Cradle to Career Summit: November 9



## Upcoming DAC Engagement Booths

- Christmas in the Village – December 7
- Council Bluffs Chamber of Commerce Annual Meeting – January 2025
- Shamrock Shuffle – March 8
- Heartland Workforce Solutions – pending
- Omaha Public Library - pending

## Equity Considerations

An Equitable Region is one “...in which all residents—regardless of race/ethnicity, nativity, neighborhood, age, gender, or other characteristics—can fully participate in region’s economic vitality, contribute to its readiness for the future, and connect to its assets and resources...”

### MAPA Resolution No. 2020-29

<https://mapacog.org/wp-content/uploads/2020/06/MAPAs-Equity-Resolution.pdf>



## Mentimeter Idea Generation

Transportation equity means....

Transportation equity could be measured by....

Ideally, equitable transportation projects should provide...

# Questions?

