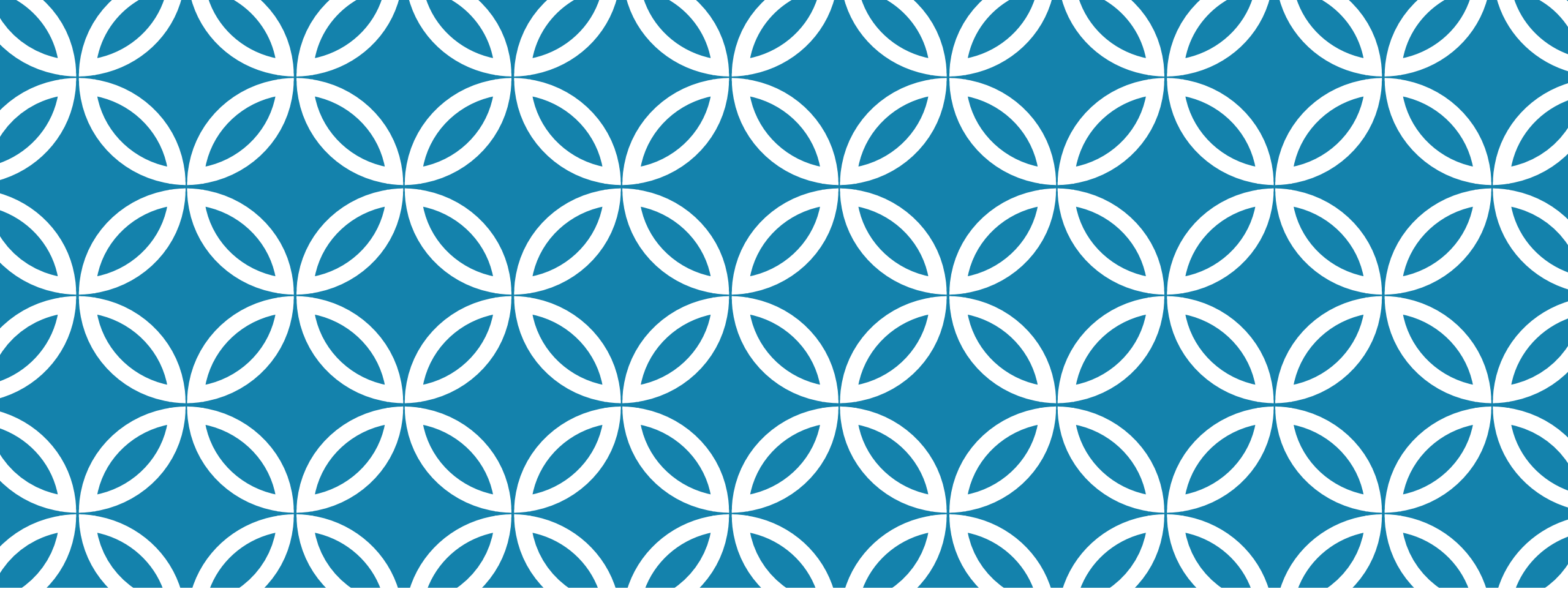




SAFE SYSTEMS APPROACH FOR SURFACE TRANSPORTATION PROGRAM (STP-L) 2027-2031 CFP

McHenry County &
North Shore Council of Mayors



WHAT IS THE SAFE SYSTEMS APPROACH?

Goal: to reduce the frequency and severity of crashes

- Seeks to build and reinforce multiple layers of protection

Six principles and five objectives

- Death and Serious Injuries are Unacceptable
- Humans Make Mistakes
- Humans are Vulnerable
- Responsibility is Shared
- Safety is Proactive
- Redundancy is Crucial



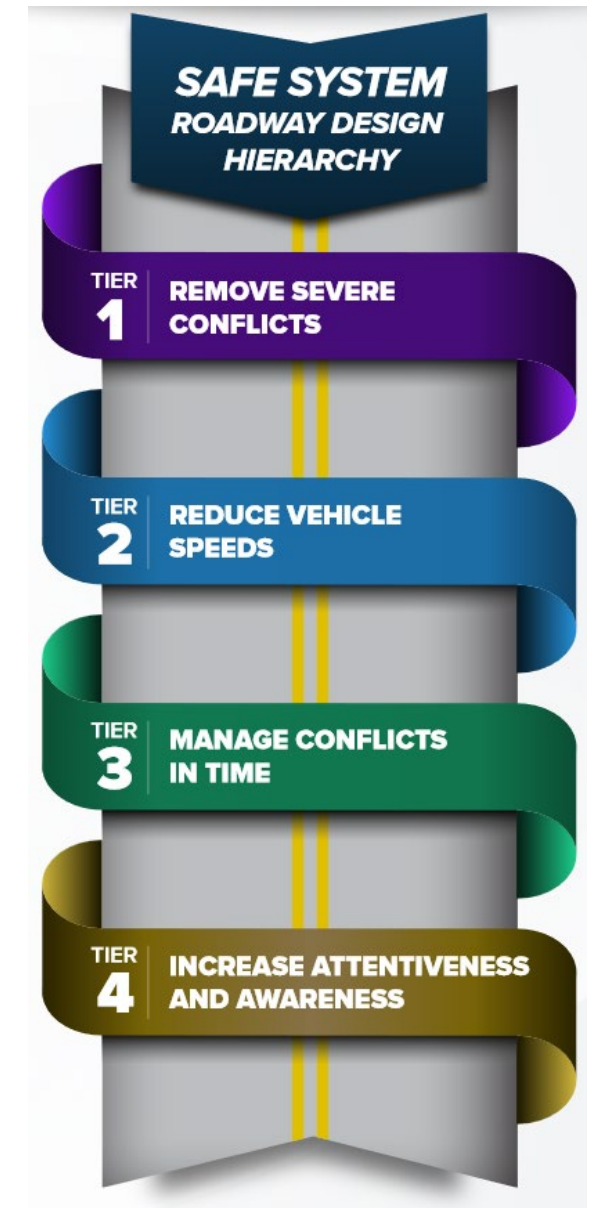
US DOT SAFE SYSTEM APPROACH

US DOT developed both project and policy frameworks to analyze alignment with the Safe Systems Approach

Project Framework:



Policy Framework:



WHY THE SWITCH TO SAFE SYSTEMS APPROACH (SSA) FROM CRASH REDUCTION FACTORS (CRF)?

Difficult to find matching components

Not cumulative (only highest scoring CRF)

Countermeasures separated from user volumes

Some CRFs have high granularity (“pedestal/span wire/mast arm/”), others low granularity (“add bike lane”)

- Low granularity most common with bike/ped infrastructure

Predominance of motorist-based countermeasures

Countermeasure	CRF (%)
Access management	25
Add bike lane	15
Add protected phase to left turn	54
Add separate 10' mixed-use trail	20
Add shoulder where not provided (0'-4')	25
Add shoulder where not provided (4' or greater)	35
Add sidewalk	10
Add turn lane (to existing)	3
Addition of truck climbing/passing lanes	20
Alignment reconstruction	15
Convert from 2-way to 1-way traffic	47
Convert pedestal to mast arm	45
Convert signal to roundabout	60
Convert span wire to mast arm	20
Convert stop/yield control to roundabout	80
Convert stop/yield control to signal	35
Convert unsignalized intersection warning beacons from static to dynamic	5
Extend turn lane	3
Implement systemic signing and visibility improvements	15
Improve at-grade crossing	15
Improve intersection lighting	55
Improve roadway lighting	30
Improve signal visibility	15
Improve skew angle – 3 leg intersection	30
Improve skew angle – 4 leg intersection	40
Increase all red clearance interval	14
Increase intersection radii	5
Increase pavement friction	24



WHAT DOES IT LOOK LIKE?

Intersections			
Current Roadway Approaches (Place "X" for condition that most closely applies)	Scaling Conditions for the Risk Factors Description	After Improvement Roadway Approaches (Place "X" for condition that most closely applies)	Scaling Conditions for the Risk Factors
	No Channelized Right-Turn Lane on Approach		0
	"Yield Condition" Channelized Right-Turn Lane on Approach		1.5
	"Free Flow Condition" Channelized Right-Turn Lane on Approach		3
-	N/A	-	N/A

Risk Factor: Bike Space Separation

Roadway Segments

Along Segment (Place "X" for condition that most closely applies)	Scaling Conditions for the Risk Factors Description	Along Segment (Place "X" for condition that most closely applies) 2	Scaling Conditions for the Risk Factors2
	Shared Use Path		0.00
	Buffered Bicycle Lane (protected) or Cycle Track		0.75
	Buffered Bicycle Lane (unprotected)		1.50
	On-Street Bicycle lane		2.25
	No designated facilities, "Shared the Road", or Sharrows		3.00
-	N/A	-	N/A

Alignment Framework – Final Scoring Matrix

Project Location: Example

Category	Vulnerable Road Users (VRU)	VRU Score	Motor Vehicles	Motor Vehicles Score
Exposure Score:	Vulnerable Road Users Subtotal	0	Motor Vehicles Subtotal	0
Likelihood Score:	Vulnerable Road Users Subtotal	1	Motor Vehicles Subtotal	1
Severity Score:	Vulnerable Road Users Subtotal	0	Motor Vehicles Subtotal	0
Mode Subtotal:	Vulnerable Road Users	0	Motor Vehicles	0
Total Current Score:				
0				

Category	Vulnerable Road Users (VRU)	VRU Score	Motor Vehicles	Motor Vehicles Score
Exposure Score:	Vulnerable Road Users Subtotal	0	Motor Vehicles Subtotal	0
Likelihood Score:	Vulnerable Road Users Subtotal	1	Motor Vehicles Subtotal	1
Severity Score:	Vulnerable Road Users Subtotal	0	Motor Vehicles Subtotal	0
Mode Subtotal:	Vulnerable Road Users	0	Motor Vehicles	0
Total After Improvements Score:				
0				

Percentage Safety Improvement

0.0%



DEMONSTRATING SAFETY CHANGES

- Complete Safety section on application
 - Add comprehensive details
 - Engineering diagrams, if P1 already done
 - Photos

Category	Subcategory	Countermeasure	Yes/No
Intersections	Intersection Improvement	Add left turn lane permissive	
		Add protective phase to left turn	
		Raised median	
		Add right turn lane	
		Add second turn lane to existing	
		Extend turn bays	
		Positive left turn offset - 1 ft. minimum	
	Improve Signal Timing	Signalization install adaptive traffic signal control	
		Signal interconnect	
		Increase yellow line	
		All red clearance	
		Signalization increase yellow interval and add all red interval	





TOOLS

Streetmix

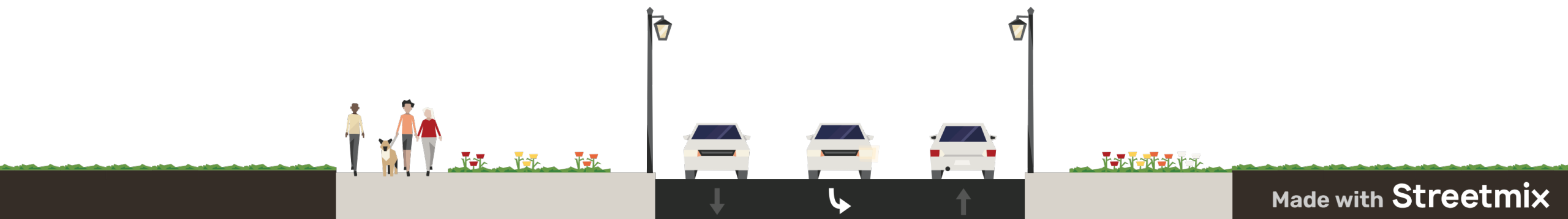
- Creates image of current & proposed conditions

Getting around Illinois

- Provides multiple AADT datasets

Strava Metro

- Provide calculated VRU counts

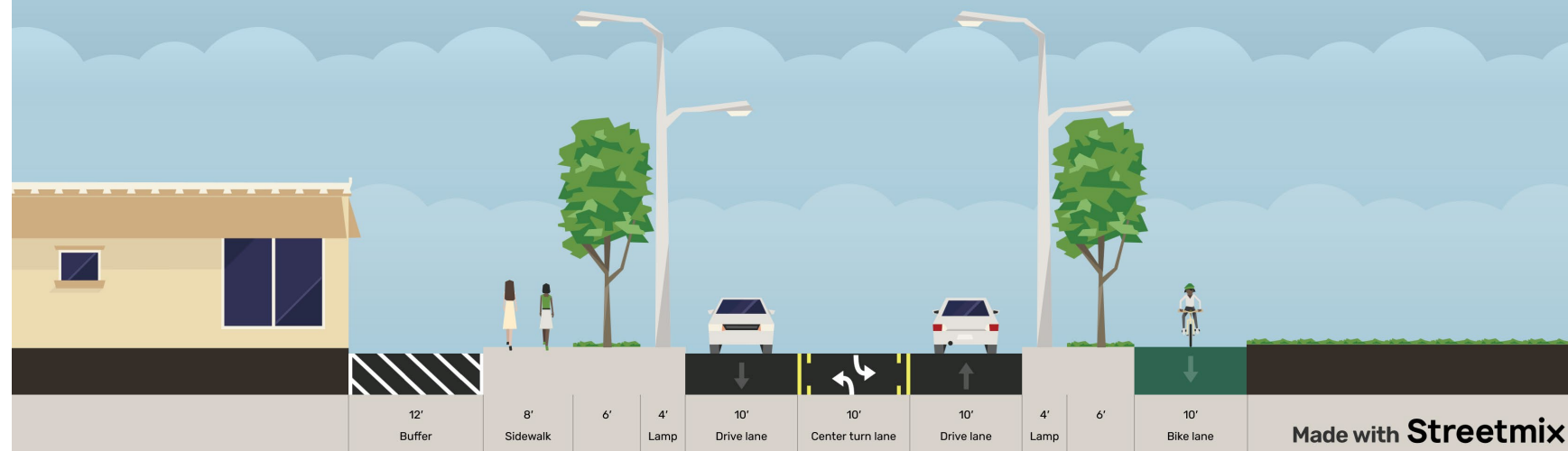




Sample Street Before



Sample Street After



FOLLOW UP QUESTIONS

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