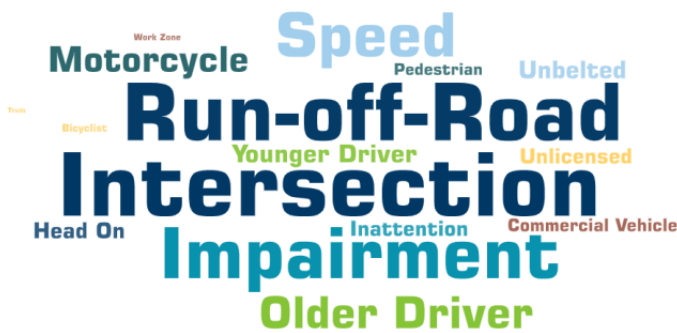




## Intersection Safety Solutions

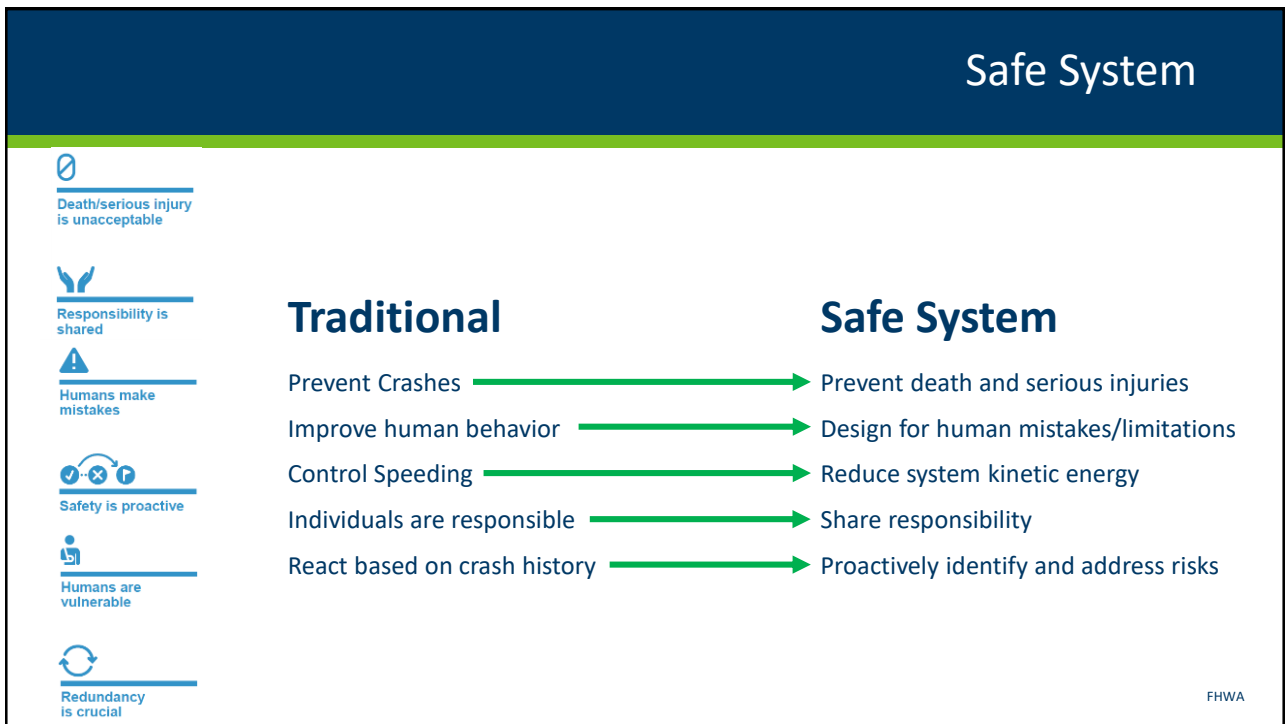
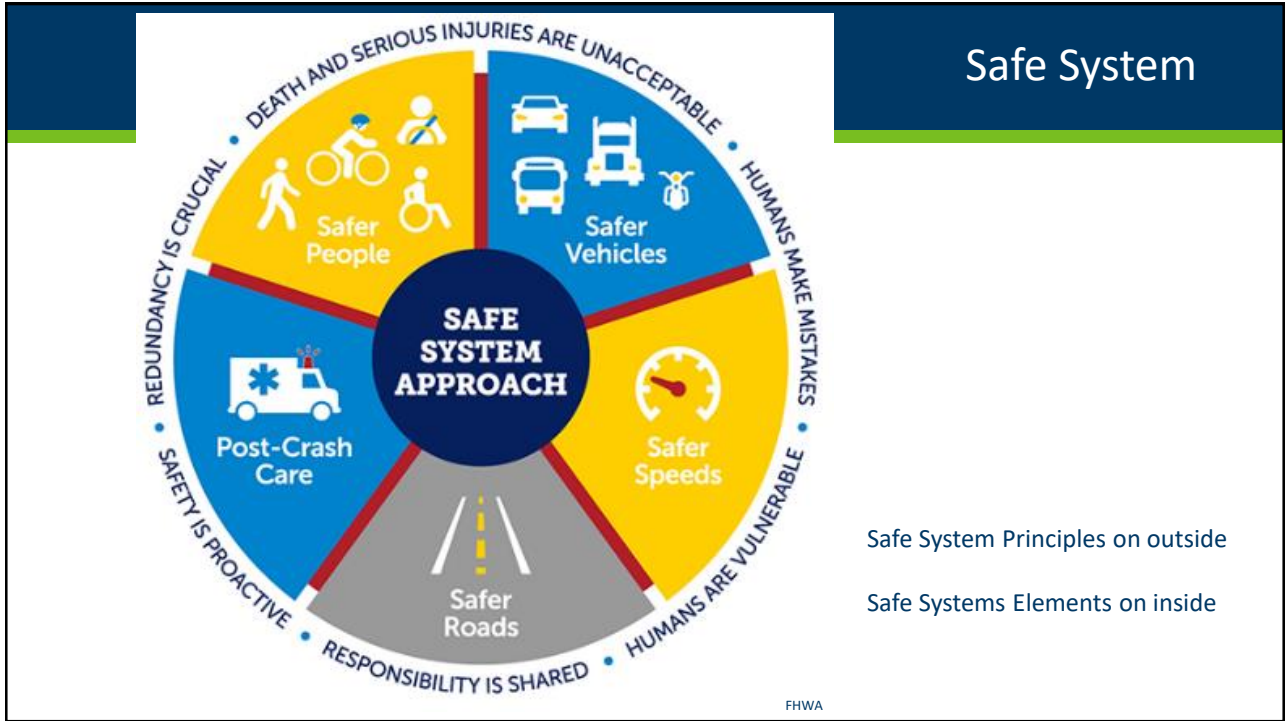
Ken Hansen | District 3 Traffic Engineer

## East Central Focus Area

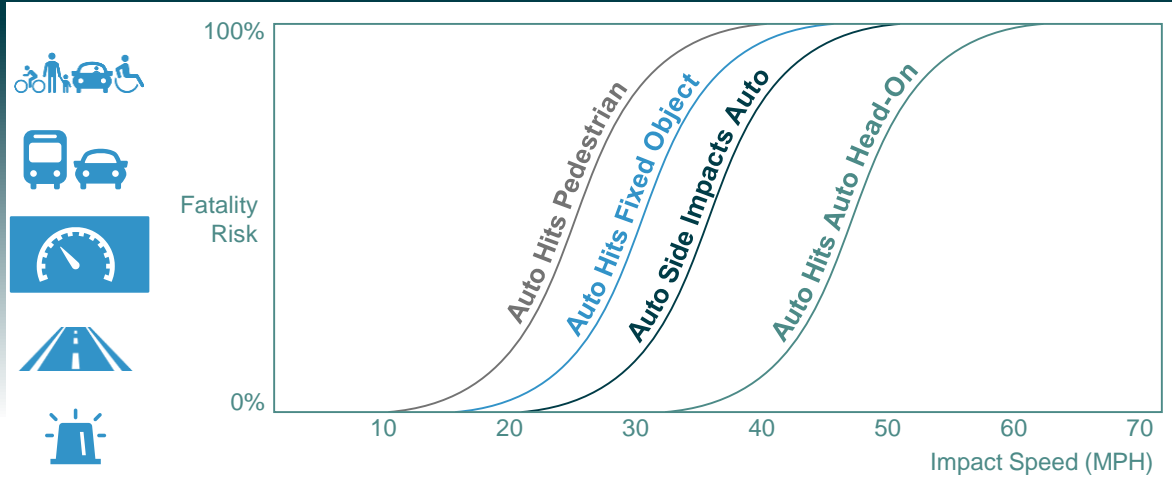


**Top 5 Focus Areas**

- These 5 focus areas account for the most **fatal and serious injury crashes** regionally:
- Intersections (42%)
- Run off the Road (35%)
- Impairment (26%)
- Speed (20%)
- Older drivers (20%)
- All are also statewide top focus areas.



### SAFE SPEEDS: FATALITY RISKS



FHWA

### SAFE ROADS: AVOIDING CRASHES



#### Avoiding crashes involves:



Separating users in space



Separating users in time



Increasing attentiveness and awareness

FHWA

## SAFE ROADS: CRASH KINETIC ENERGY



Managing crash kinetic energy involves:



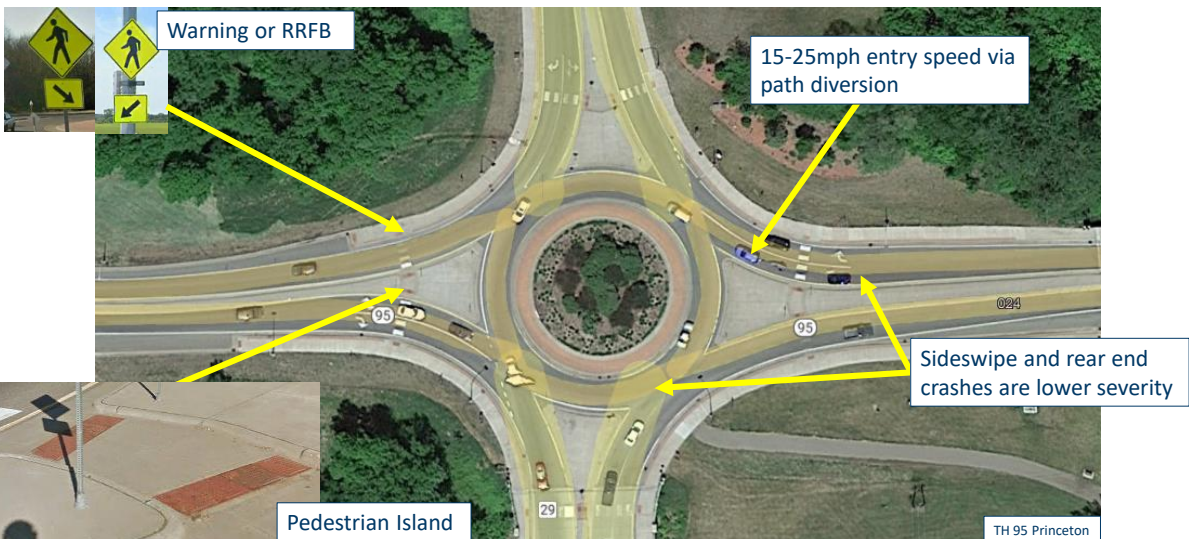
Managing speed



Manipulating mass

FHWA

## Safe System: Roundabouts

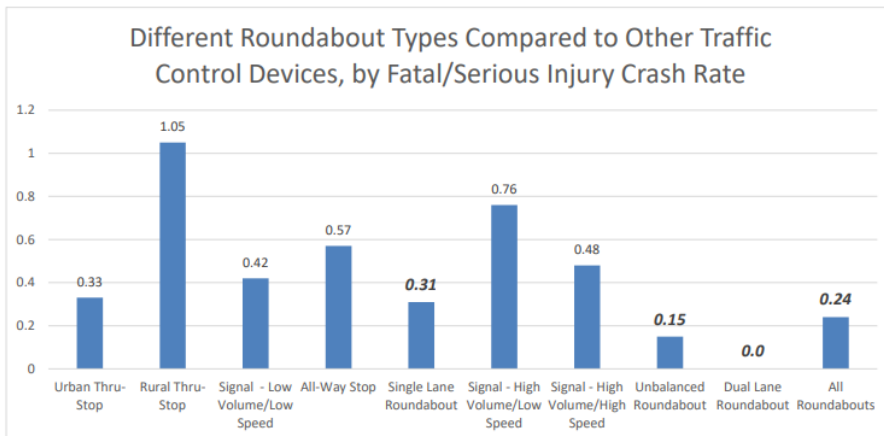


## Safe System: Roundabouts



## Safe System: Roundabout Crash Reduction

- 86% Reduction in Fatal Crashes
- 83% Reduction in Serious injury Crashes
- 57-63% Reduction in Pedestrian Crashes
- 3-16% reduction in Bicycle Crashes



MnDOT 2017



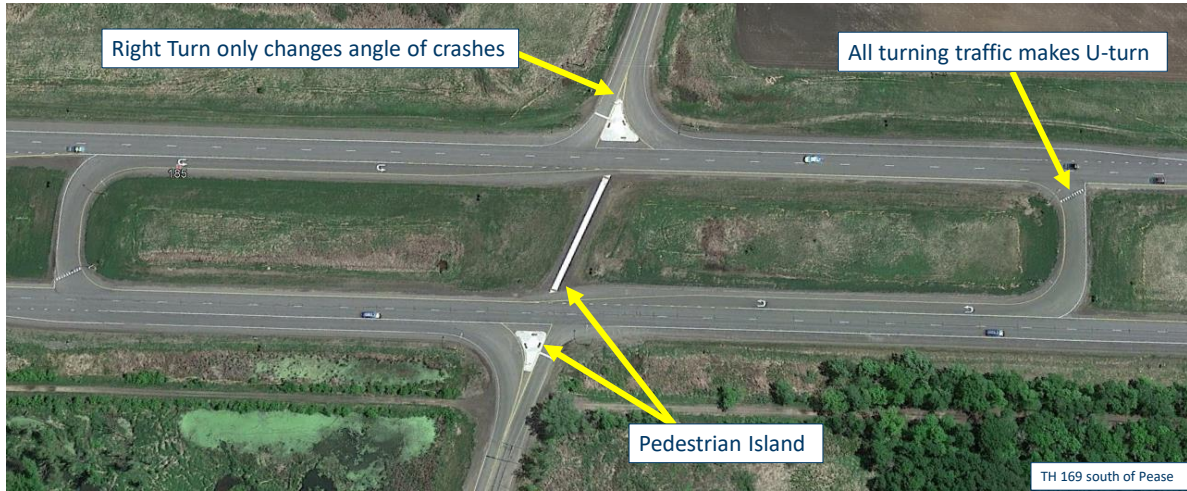
# Roundabouts Coming to an Intersection Near You



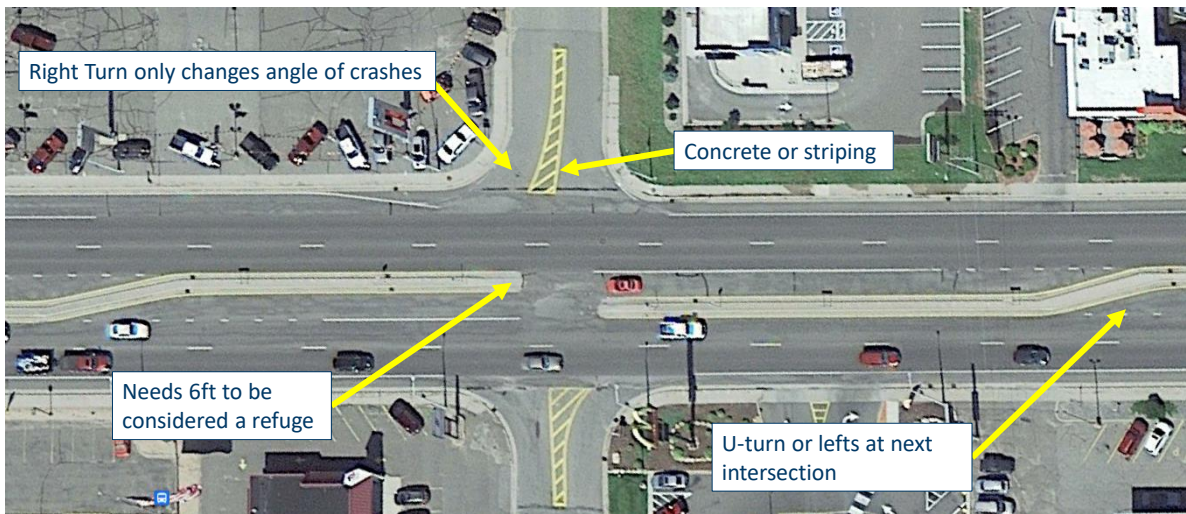
# Safe System: J-Turn (RCI, RCUT)



## Safe System: J-turn with only Median U-Turn

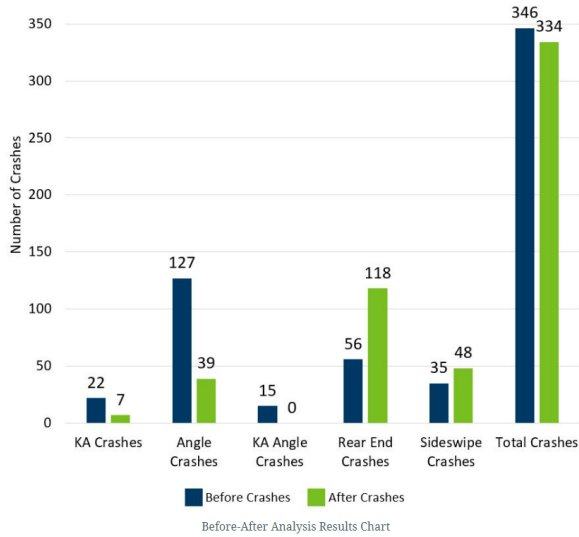


## Safe System: $\frac{3}{4}$ Access





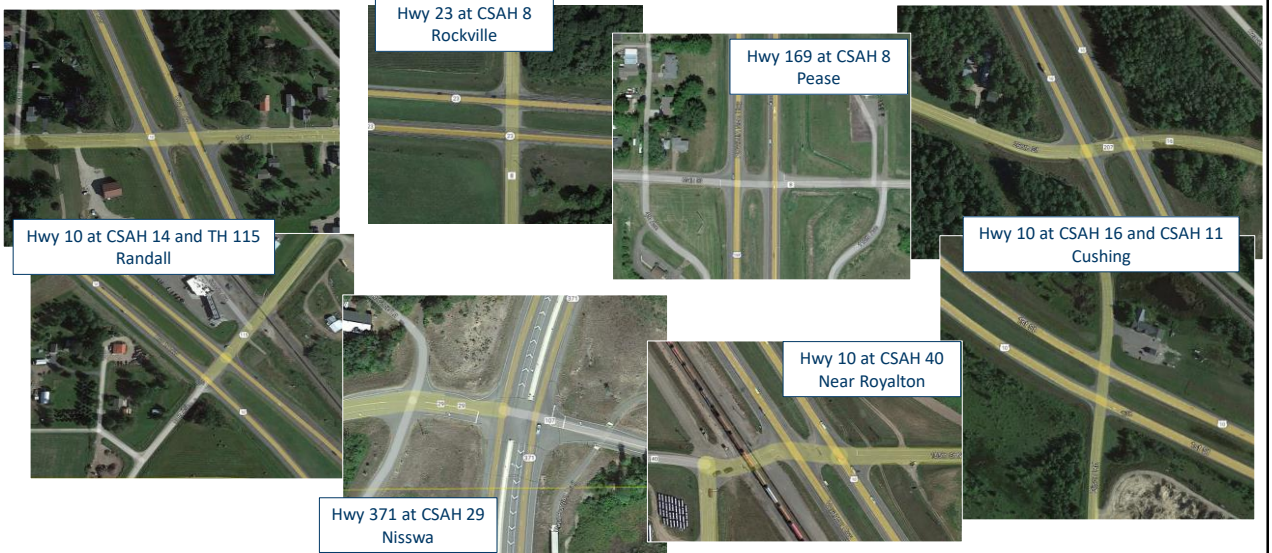
## Safe System: Roundabout Crash Reduction



- ~70% Reduction in Fatal Crashes
- 100% Reduction in Fatal and Serious Injury Crashes
- 70% Reduction in Angle Crashes
  - 103% increase in Rear End Crashes

MnDOT 2021

## J-Turns Coming to an Intersection Near You





## THE 5 SAFE SYSTEM ELEMENTS CREATE REDUNDANCY

The "Swiss Cheese Model" of redundancy creates layers of protection

Death and serious injuries only happen when all layers fail



FHWA

## Safe System Links

- FHWA Safe System Approach:

<https://www.transportation.gov/NRSS/SafeSystem>

- FHWA Safe System 2-pager:

[https://safety.fhwa.dot.gov/zerodeaths/docs/FHWA\\_SafeSystem\\_Brochure\\_V9\\_508\\_200717.pdf](https://safety.fhwa.dot.gov/zerodeaths/docs/FHWA_SafeSystem_Brochure_V9_508_200717.pdf)

- FHWA Safe System Presentation:

<https://highways.dot.gov/safety/zero-deaths/safe-system-approach-presentation-0>



# Thank You

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218-820-8341