

MINNESOTA
TOWARD **ZERO** DEATHS

Traffic Safety Update

Minnesota County Engineers Association

June 17, 2022

Brian Sorenson, State Traffic Engineer



Agenda

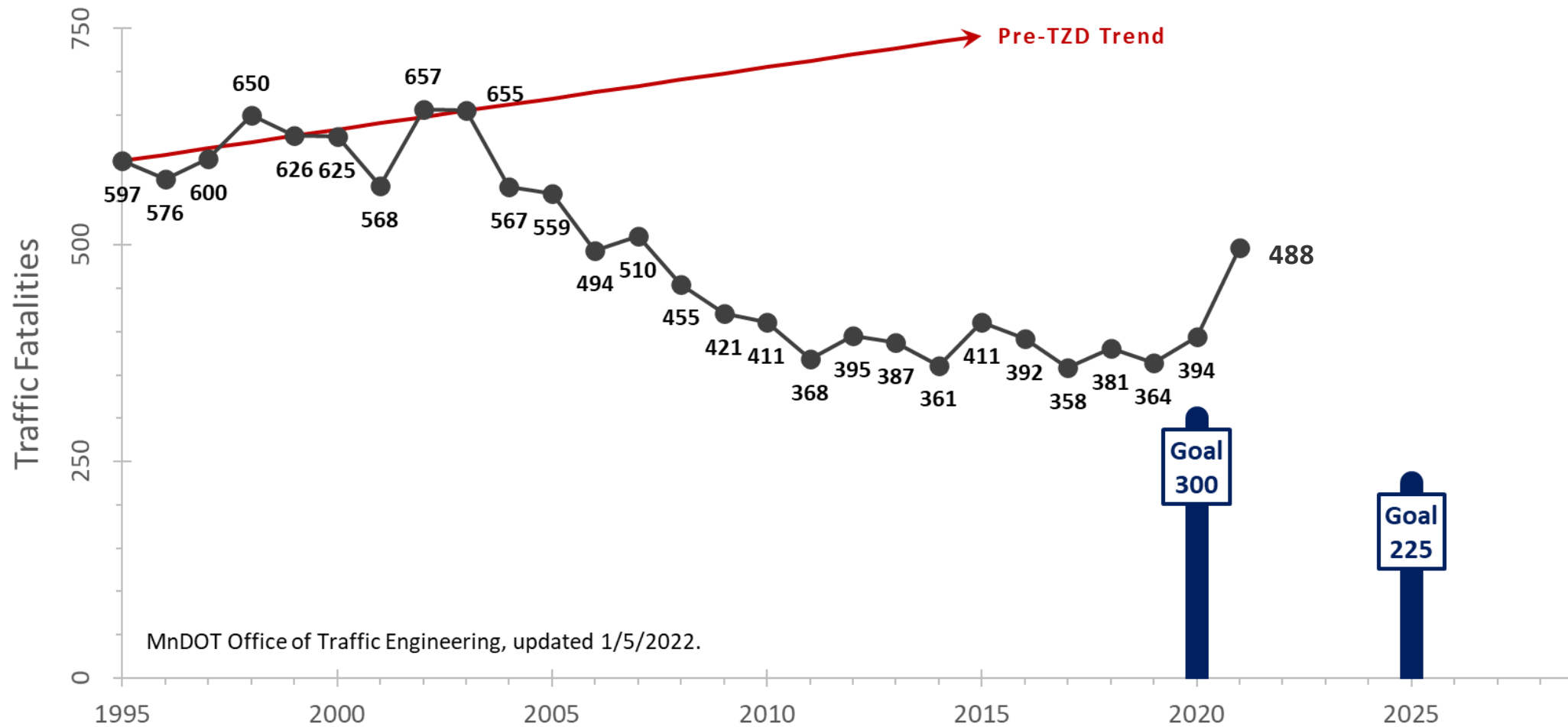
- 1. Fatality Update**
- 2. Traffic Safety Culture**
- 3. Safe System**

Fatality Update

Minnesota Fatalities in 2021: **488**

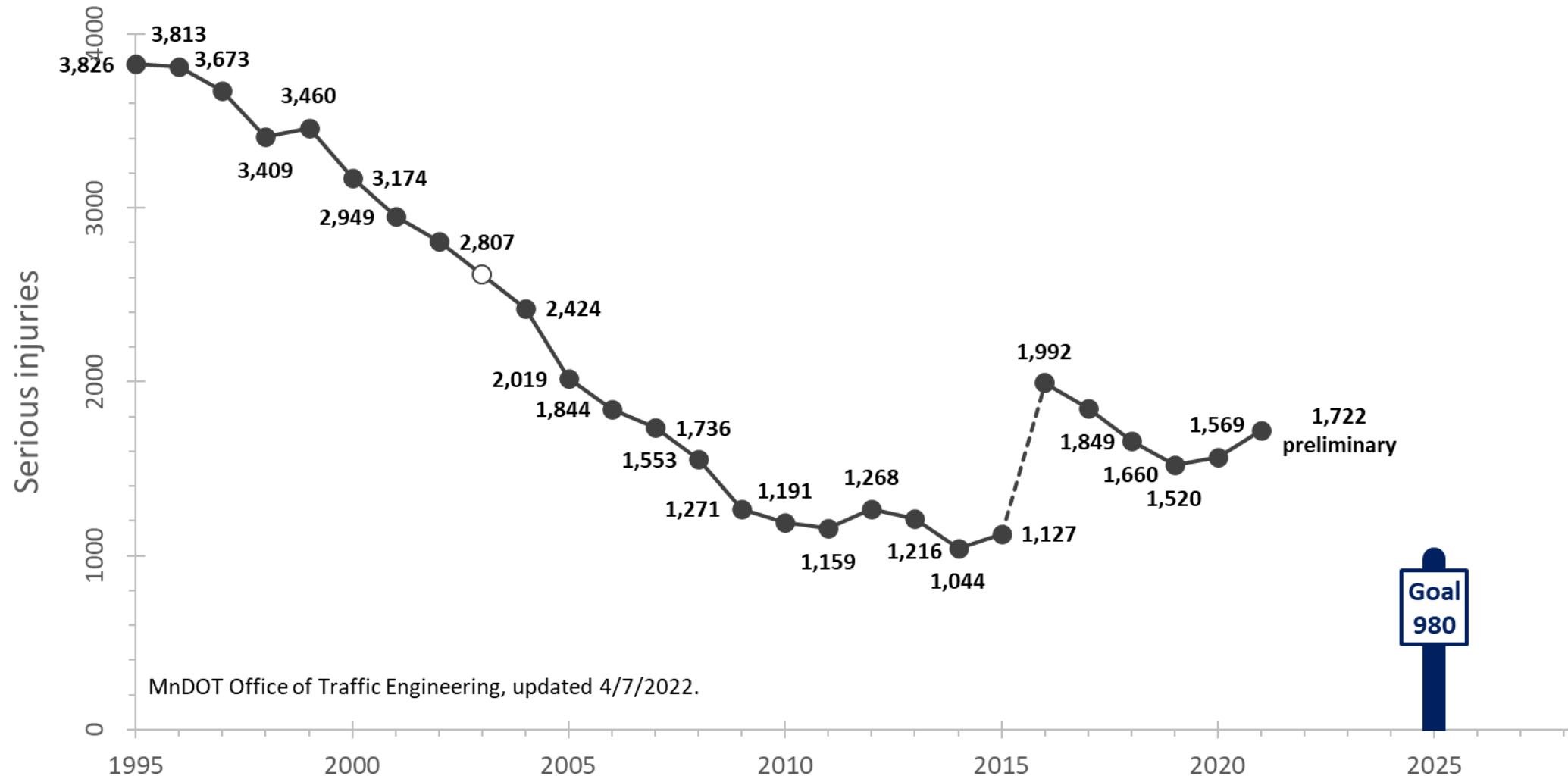
- Highest number of fatalities since 2007 (510)
- 24% increase: largest single year percentage increase since 1944 (274 to 336)
- Serious Injuries increased in 2021 (+10%)

Statewide Fatalities Since 1995

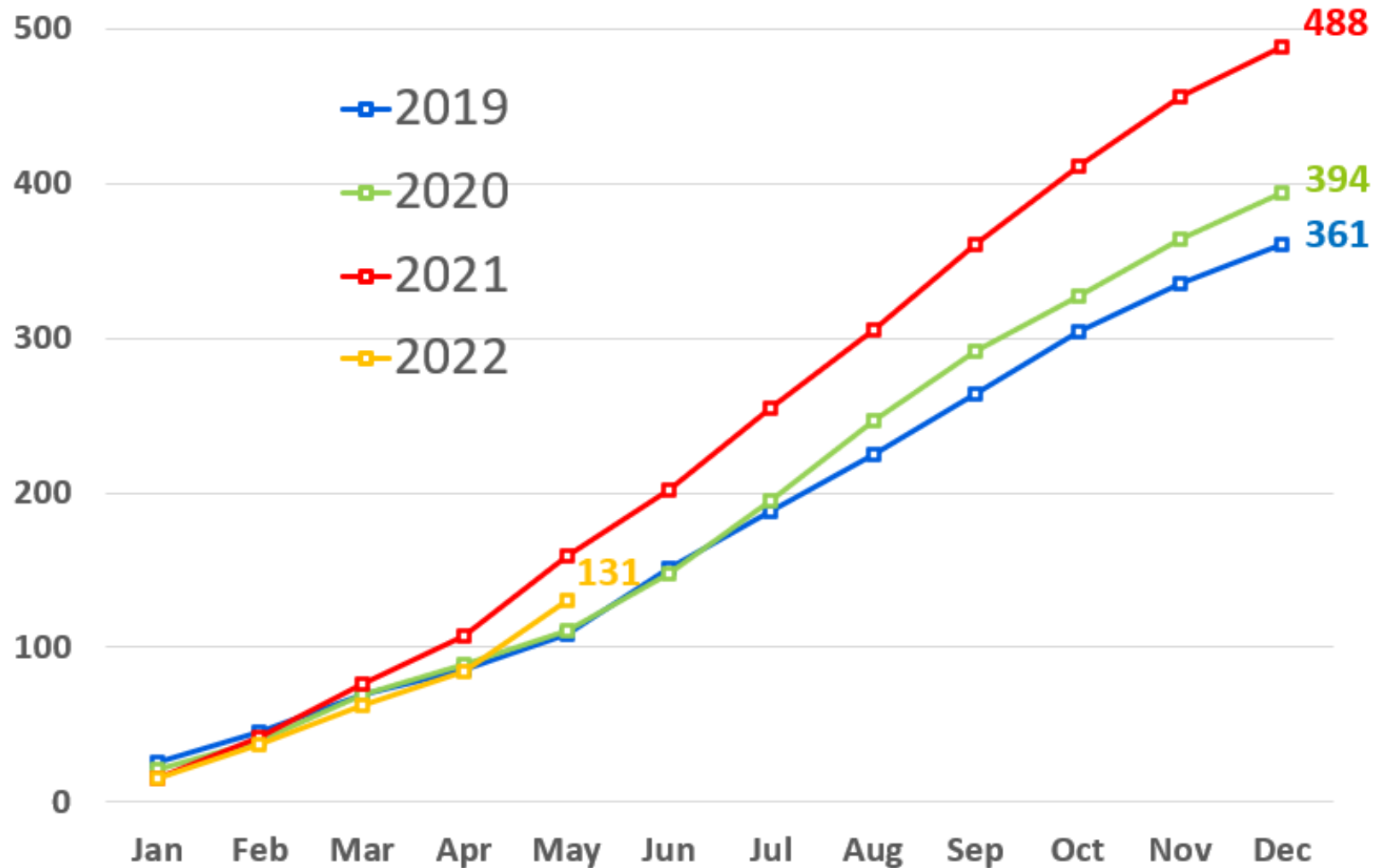


MnDOT Office of Traffic Engineering, updated 1/5/2022.

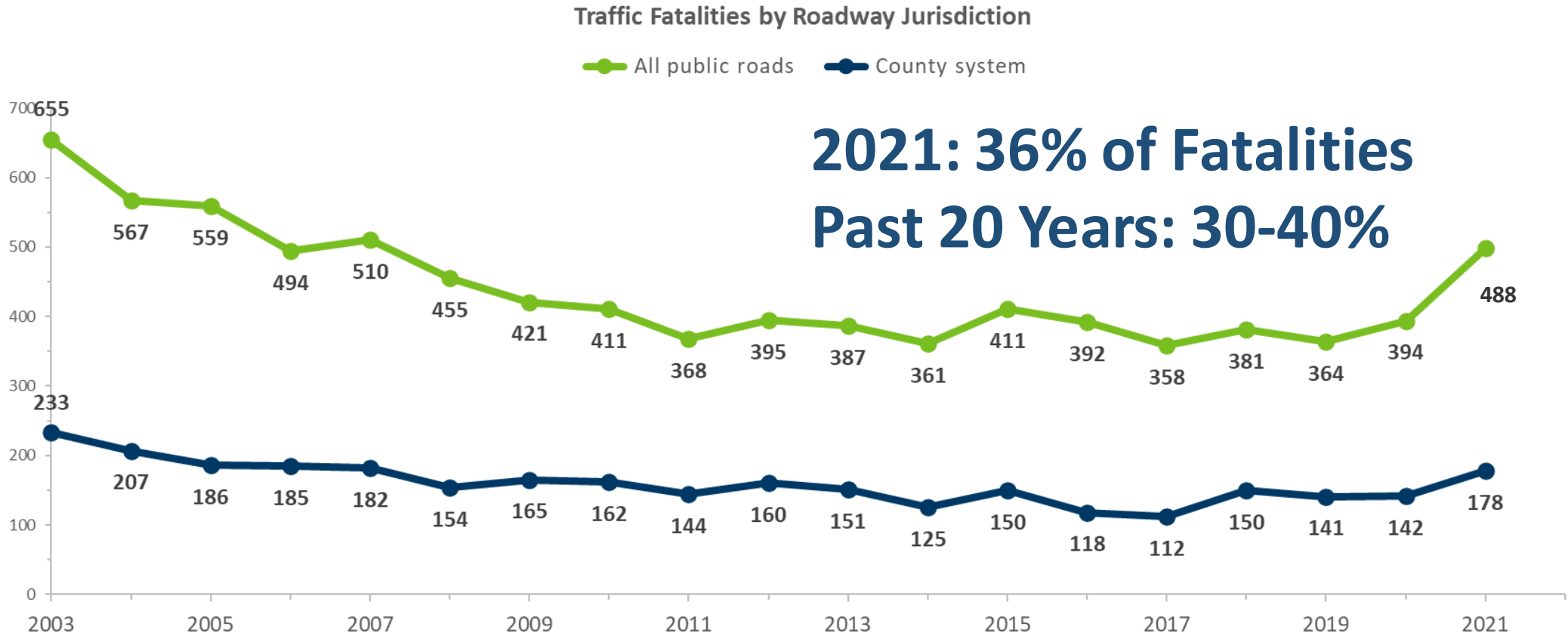
Statewide Serious Injuries Since 1995



Statewide Fatalities By Month (2019 – May, 2022)



County System Fatalities



Fatal crash trends by system

Roadway system	2017-2019 average	2020	2020 % change	2021 (preliminary)	2021 % change
State	157.0	163	+4%	206	+31%
County	124.0	135	+9%	158	+27%
City	43.0	51	+19%	58	+35%
Township	14.0	16	+14%	15	+7%
Other*	3.0	4	+33%	27	+800%
Total	341.0	369	+8%	464	+36%

* Preliminary “other” includes ramps and connectors which will be adjusted to corresponding networks

Fatality Update

Why have fatalities jumped?

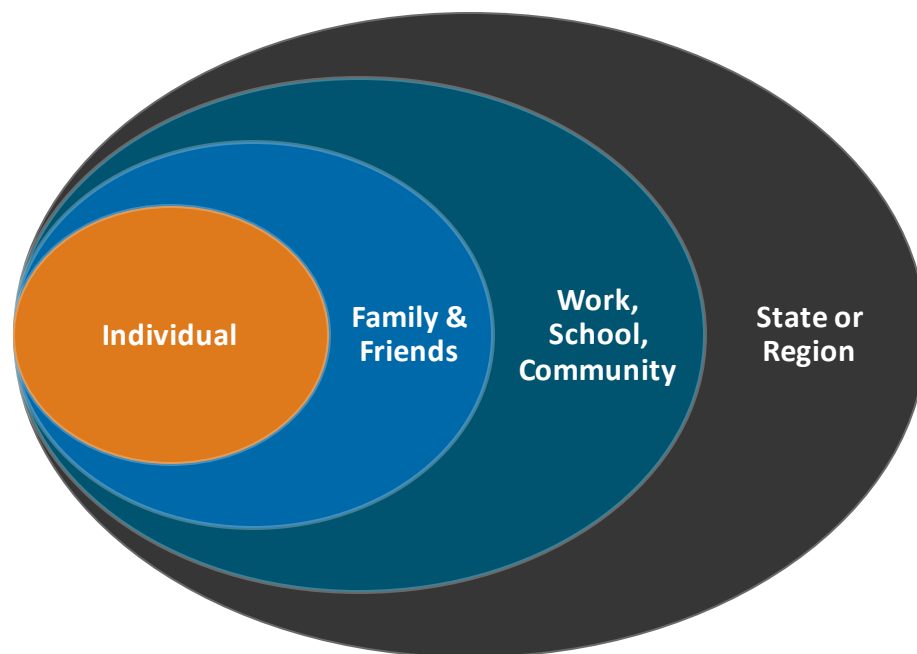
- Changes in enforcement have resulted in significant increases in speed and unbelted as factors in fatal crashes
 - 116% increase in speed-related fatalities from 2019-2021
 - 49% increase in unbelted fatalities from 2019-2021
- Overall, more people are more willing to engage in risky driving behaviors

What can we do about it?

- Traffic Safety Culture
- Safe System Approach

The Future of Minnesota TZD

Traffic Safety Culture



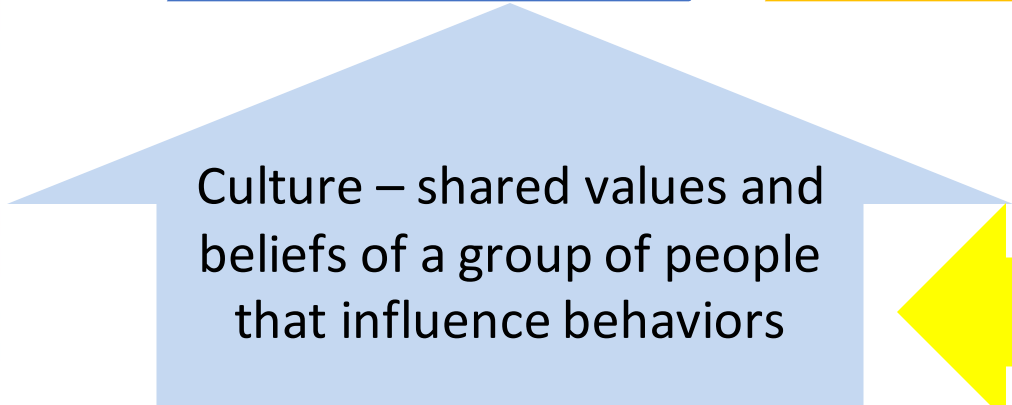
Using the environment to create lasting changes to beliefs and behavior

Safe System



“Safety Net” to protect people when mistakes are made

Traffic Safety Culture



Effective Behavioral Countermeasures

- Create intentional experiences designed to change beliefs
- Come from a trusted source
- Fosters conversation (not arguments)

Seat Belt Use Across the Social Ecology



Asking others to wear a seat belt

Family seat belt rules

Schools

- Education and promotion of bystander engagement

Workplaces

- Seat belt policies and training

Key Leaders

- Advocating for policies, engagement

Law Enforcement

- Officers always wearing seat belts
- Consistent enforcement & advocacy

Five Tips to Grow Traffic Safety Culture

1. Raise concern and hope
2. Change beliefs to change behavior
3. Correct misperceptions of culture
4. Improve the effectiveness of existing strategies
5. Build a diverse coalition to leverage resources across the social ecology

Actions to Grow Traffic Safety Culture

- Use our voice more effectively to **raise concern and hope** and correct misperceptions.
- For each strategy/countermeasure we are currently using, **identify what beliefs we are trying to change and among whom**. How could we be more effective at changing these beliefs?

Actions to Grow Traffic Safety Culture

- Start actively revealing and growing beliefs supportive of the **Safe System Approach**.
- Leverage **key conveyors of traffic safety culture** in our communities:
 - Identify the key conveyors
 - Prioritize what beliefs/behaviors we want to grow
 - Engage key conveyors to grow beliefs/behaviors

Safe System

THE SAFE SYSTEM APPROACH



The “Swiss Cheese Model” of redundancy creates layers of protection

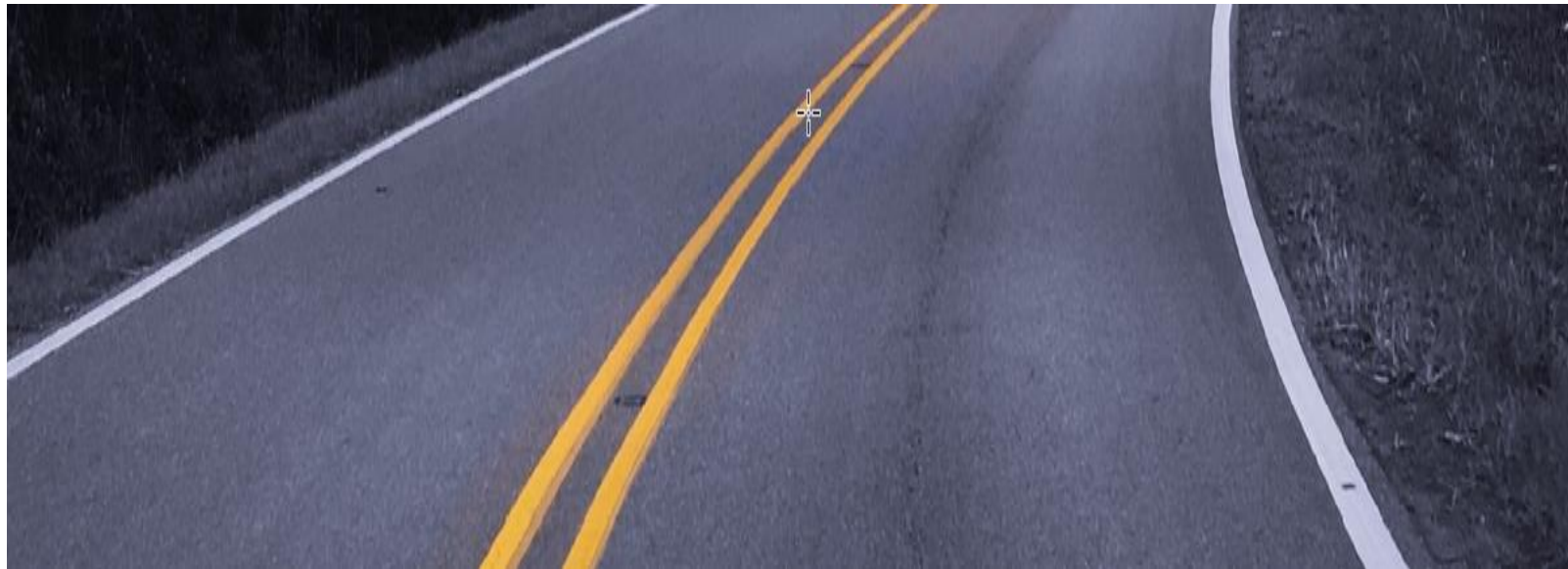
Death and serious injuries only happen when all layers fail



Safe System Approach

6" Edgelines

- Studies have shown 20-40% reduction in run-off-the-road fatal/serious injury crashes
- All new edgelines placed on State roadways will be at least 6" beginning in 2022 (supply issues)



Recessed 6" Edgelines

- Recessing: life of the line will at least double, leading to a reduction in life cycle striping costs
- Great HSIP project. Systemic approach could prioritize higher volume, higher speed roadways first



Rumblestrips



- Studies have shown 13-51% reduction in fatal/serious injury crashes
- 2011: required on all rural high speed TH projects
- 2017: Optimized Noise-reduced option developed. No public complaints using this design.

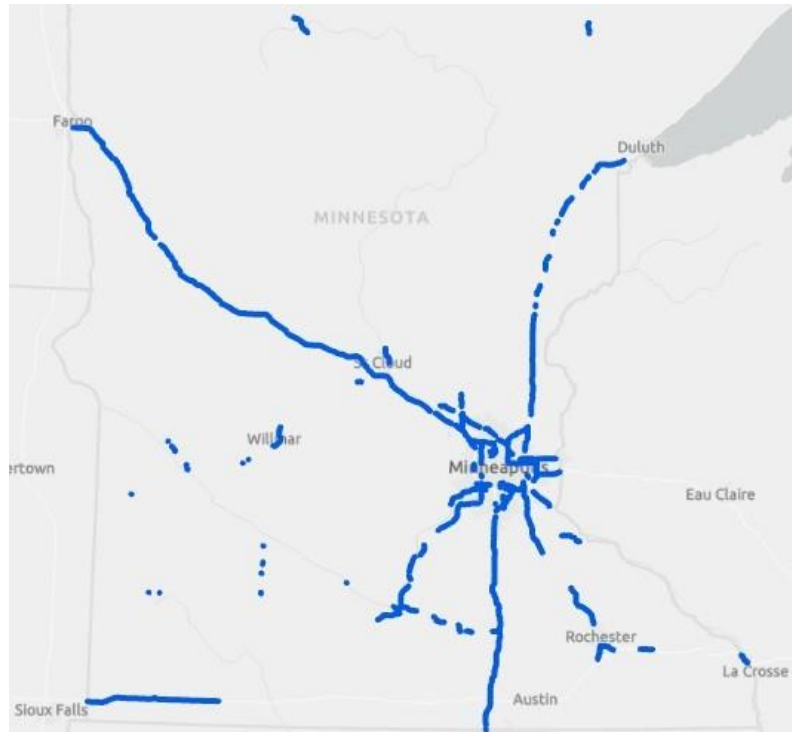
Intersection Constrictor

- Reduce rural high speed mainline intersection approach widths to 10' with centerline and edgeline sinusoidal rumblestrips
- Trial included 30 intersections installed in 2018



High Tension Cable Median Barrier

95% Reduction in
Fatal Head-on Crashes



2003: None
2014: 450+ miles
2018: 705 miles
2021: 1173 miles



Roundabouts



- Have reduced severe crashes by 80-90% at TH intersections
- Reduced pedestrian crashes by 60% vs comparable stop/signalized intersections
- Nationwide experience of 50% reduction in pedestrian crashes (NCHRP 672)

Reduced Crossing Intersections (RCI's)



- Have shown an 69% reduction in death & serious injury crashes.
- Over 50 now installed in Minnesota. 50+ more have been programmed or are in the planning stages

Safe System on Minnesota Roads

WHAT COULD THIS LOOK LIKE???

- Cable median barrier on all Freeways and Expressways
- Removal of all crossovers on Expressways
- All wet reflective and min. 6" pavement markings
- 2+1 designs with barrier on high speed 2-lane roadways
- Greater use of geometrics to reduce speeds (lane reductions, channelization, roundabouts)

Safe System on Minnesota Roads

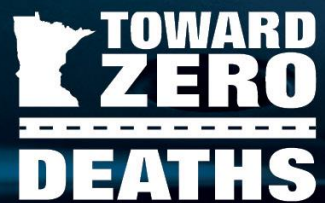
WHAT MIGHT IT TAKE?

- Majority of all traffic-safety-specific funding is federal
- Should MnDOT and the counties work together to request state-level funding for local agencies to make safety-specific improvements similar to HSIP?
- Legislation proposed for a Traffic Safety Advisory Council that would have more formally involved partners in guiding TZD program and include annual state TZD funding

Safe System on Minnesota Roads

WHAT MIGHT IT TAKE?

- Prioritization of safety, specifically life-changing crashes in project selection and scoping
- Willingness to invest in safety at a higher level with non-safety funding sources
- Research/data to ensure investments result in highest reductions in K/A crashes for the dollar
- Effective Public Engagement
- Local agency partnerships and regular local agency information sharing/brainstorming



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TZD Update

Minnesota County Engineers Association

January 20, 2022

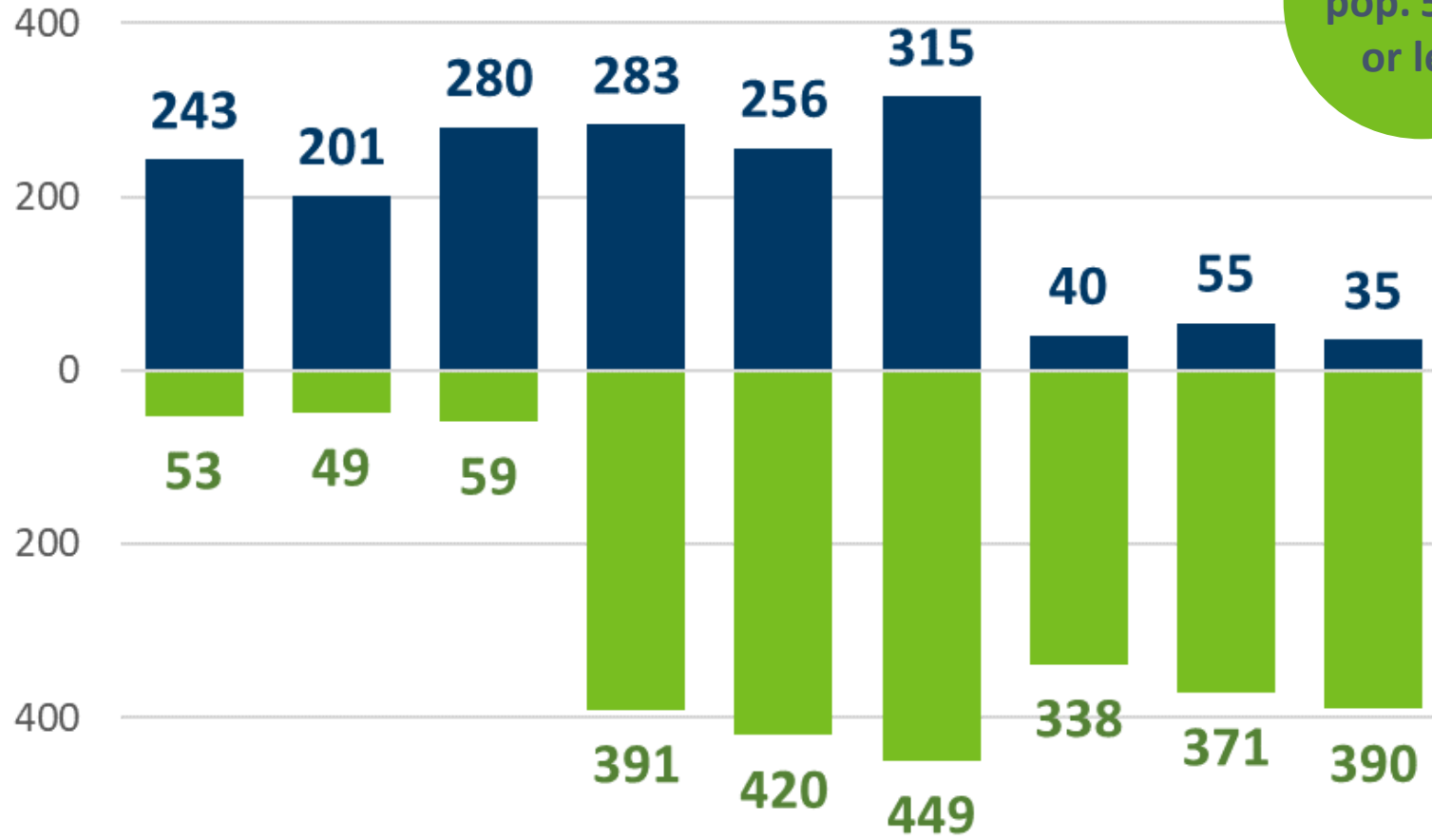
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Fatal and serious injury crashes on county system

■ Rural ■ Urban

Rural:
pop. 5,000
or less

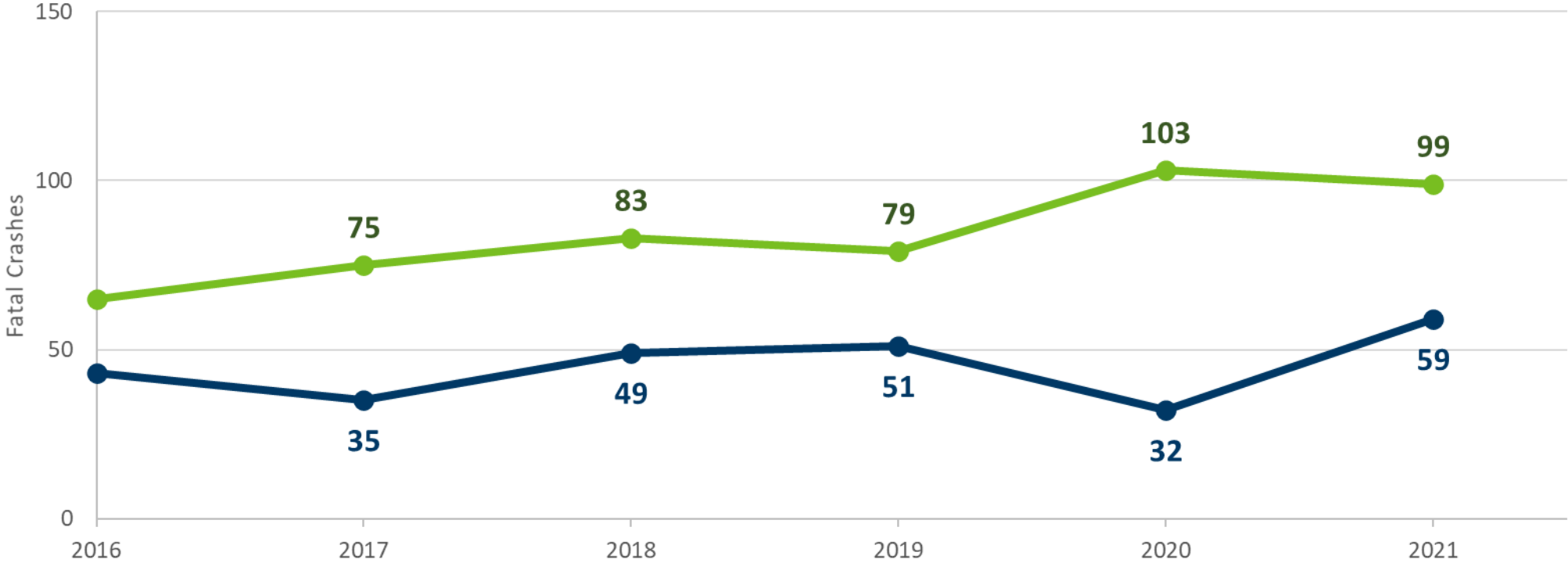


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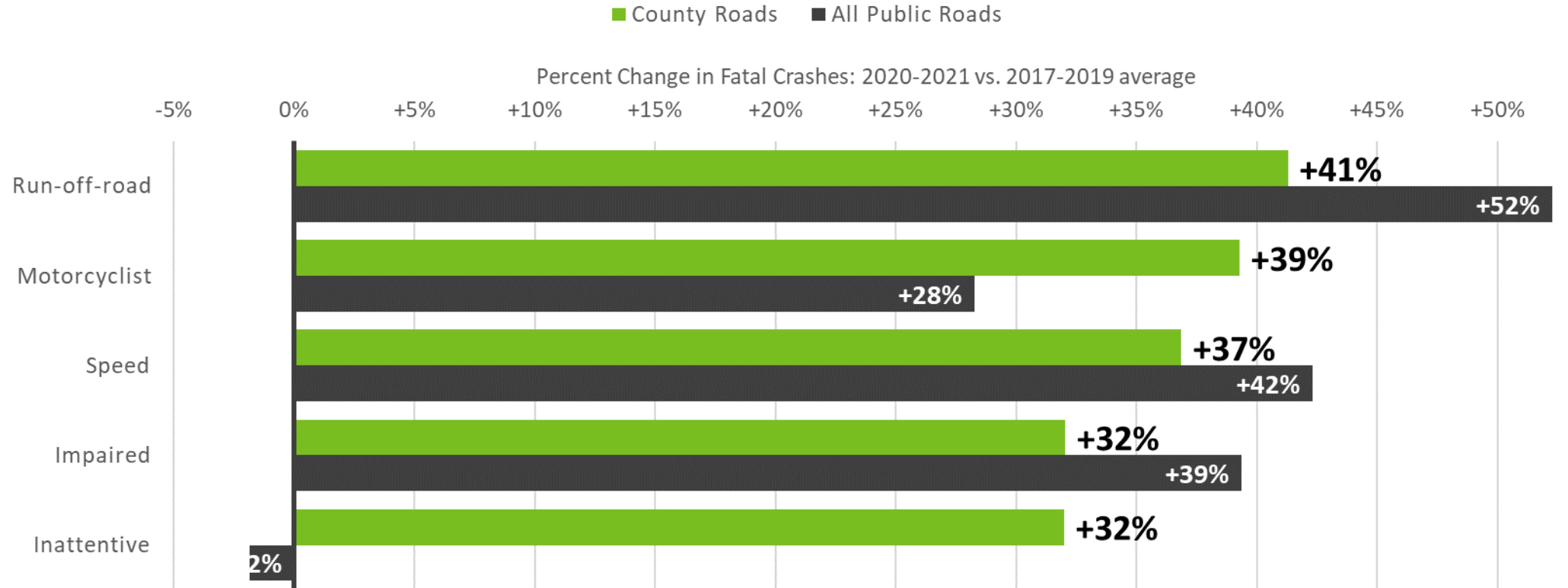
'17-'19	2020	2021	'17-'19	2020	2021	'17-'19	2020	2021
Metro			Statewide			Greater Minnesota		

Fatal Crashes on County System

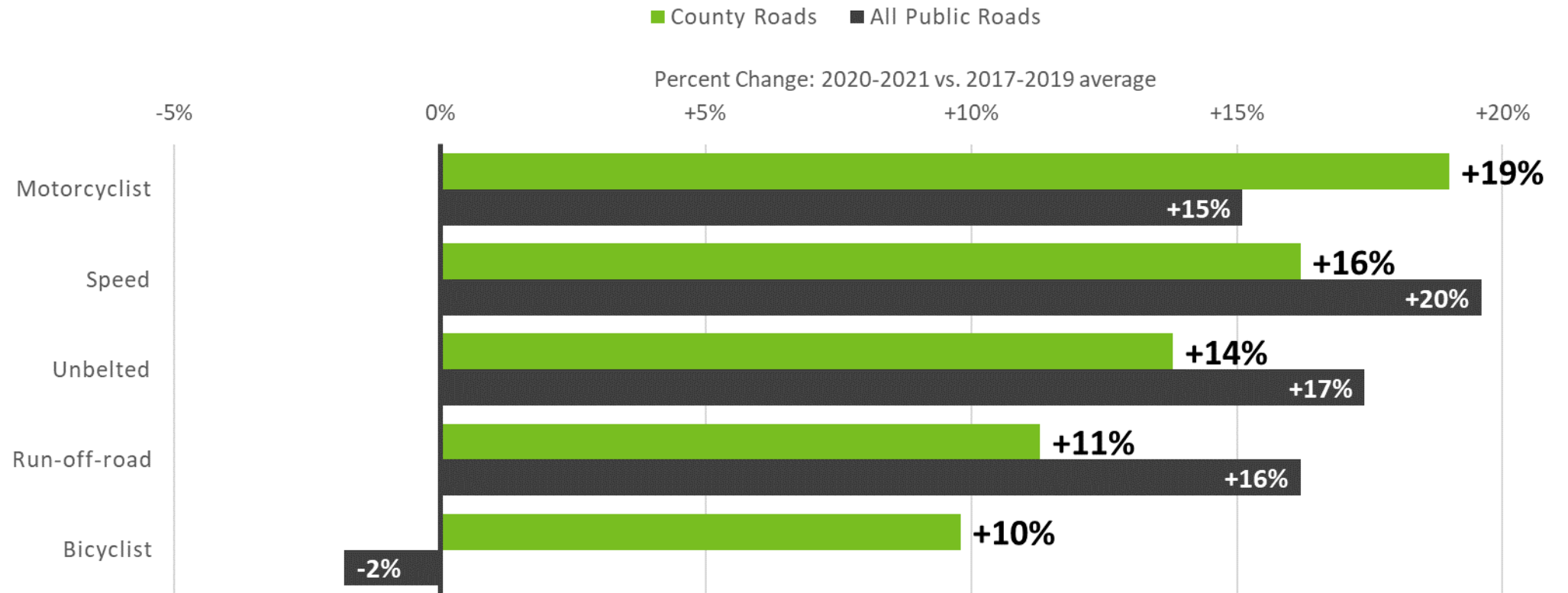
8-county Metro Greater Minnesota



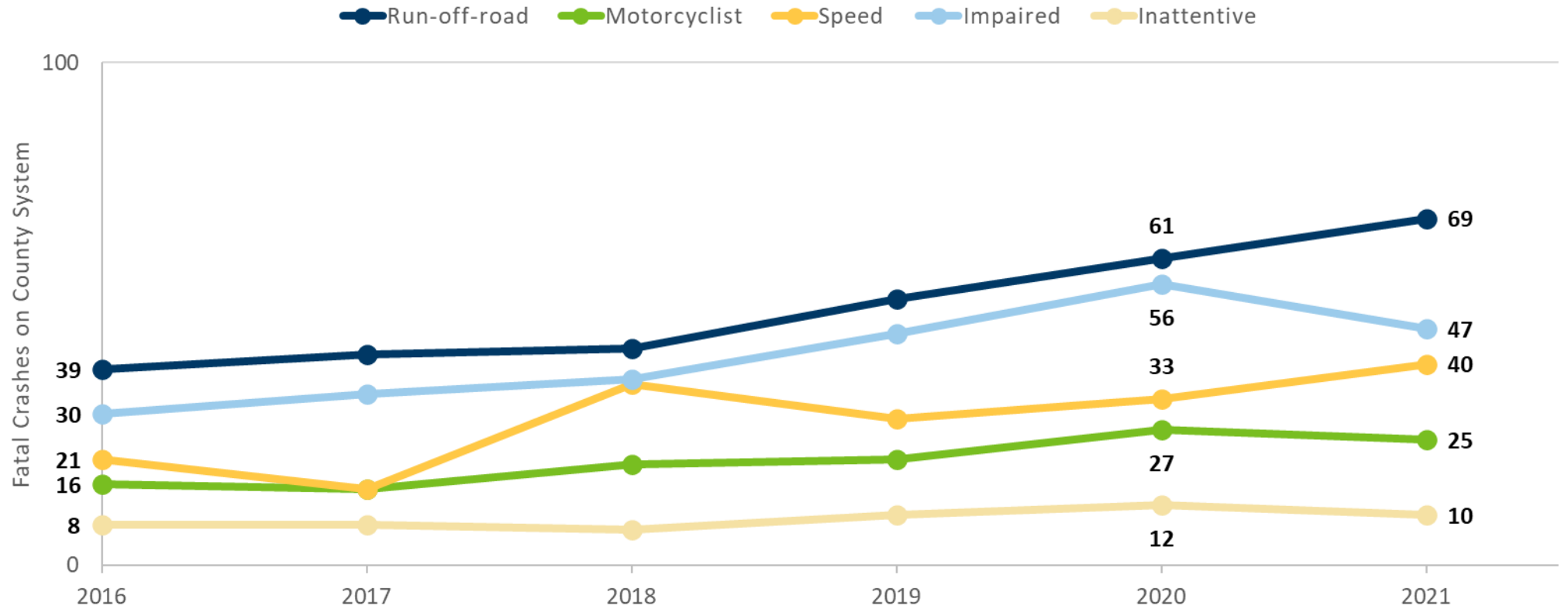
Strategic Highway Safety Plan Focus Areas: Top Five by Increase on County System



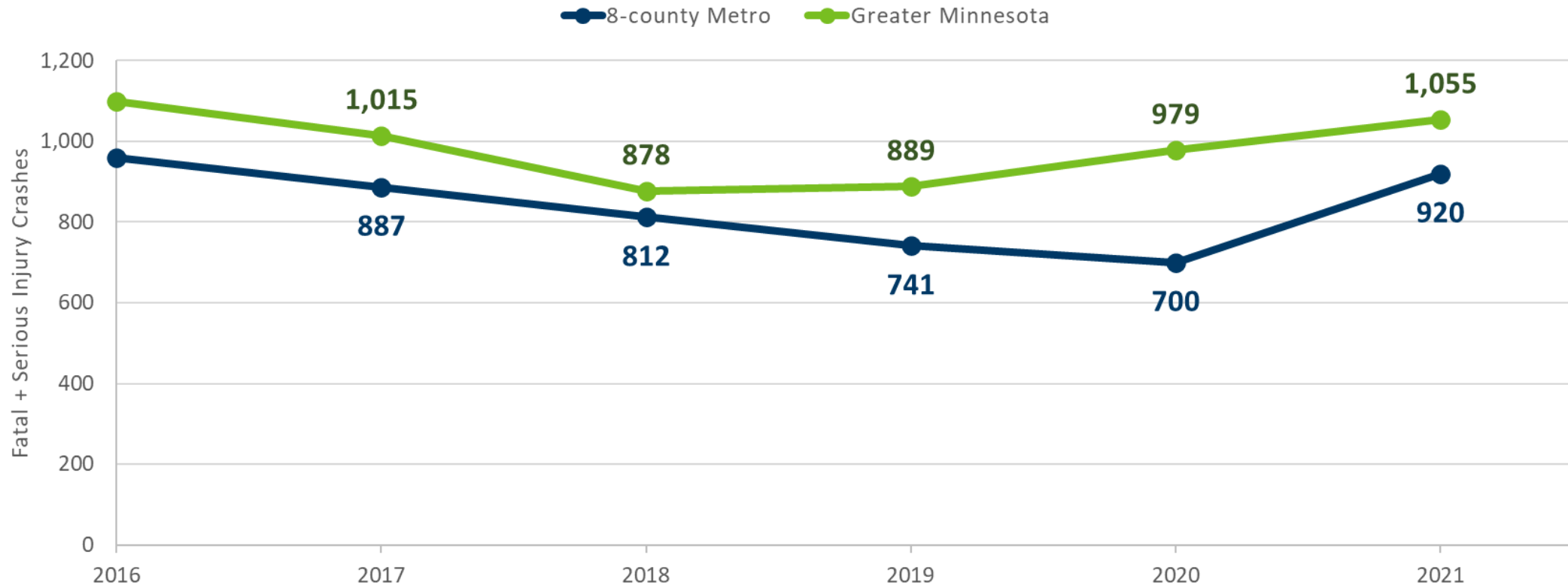
Strategic Highway Safety Plan Focus Areas: Top Five by Increase on County System



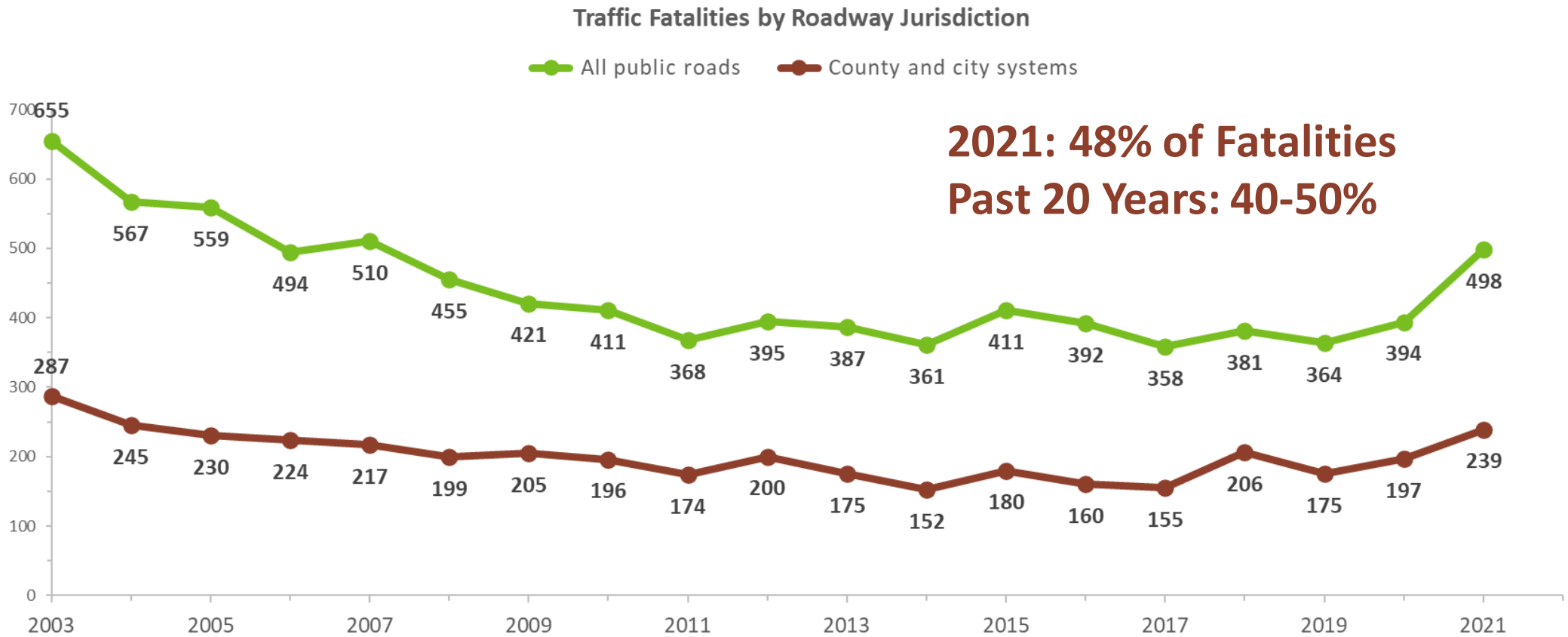
Strategic Highway Safety Plan Focus Areas: Top Five by Increase on County System



Fatal and Serious Injury Crashes on County System



County and City System Fatalities



Serious injury crash trends by system

Roadway system	2017-2019 average	2020	2020 % change	2021 (preliminary)	2021 % change
State	355.0	322	-9%	352	-1%
County	549.7	541	-2%	618	+12%
City	407.7	345	-15%	373	-9%
Township	66.3	78	+18%	60	-10%
Other*	21.0	24	+14%	108	+414%
Total	1,399.7	1,310	-6%	1,511	+8%

* Preliminary “other” includes ramps and connectors which will be adjusted to corresponding networks

Strategic Highway Safety Plan Focus Areas: Top Five by Increase on County System

