

APPENDIX A

Safe Speed Projects Evaluation

Understanding the Data

What is StreetLight?

The City of Madison used a transportation data platform called StreetLight to evaluate the effectiveness of the Vision Zero speed management program. StreetLight operates by gathering large amounts of data on how vehicles travel including data on the vehicle's speed, the route the vehicle took, or how long the trip took. One advantage of StreetLight is that data has been collected and stored since 2016 and can be sorted by time of day. This is different from a physical automatic counter that can only collect data for the time period that it was physically at the location, which limits data collection to a short period of time.

How StreetLight got their data?

StreetLight collects their data anonymously by using Location-Based Services (LBS) or Connected Vehicle Data (CVD). Location-Based Services gathers data from smartphone apps that use opt-in location-based services. Connected Vehicle Data gathers data from vehicles with location technology. Location-Based Services data is available from January 2016 until April 2022 and Connected Vehicle Data is currently available from January 2022 to May 2023. StreetLight LBS data relied on mobile phone user applications (such as mapping software) while CVD data comes from the vehicle. CVD relies on the embedded communication modules in cars, which have been in vehicles for over a decade to support services such as OnStar and other connected roadside assistance services. Some data may also come via dedicated telematics units connected to the vehicle's communication network. The data is collected in real time by the Original Equipment Manufacturers (OEM) and then processed to ensure privacy and safety guidelines. It is then made available to the OEM's data partners like StreetLight.

Methodology

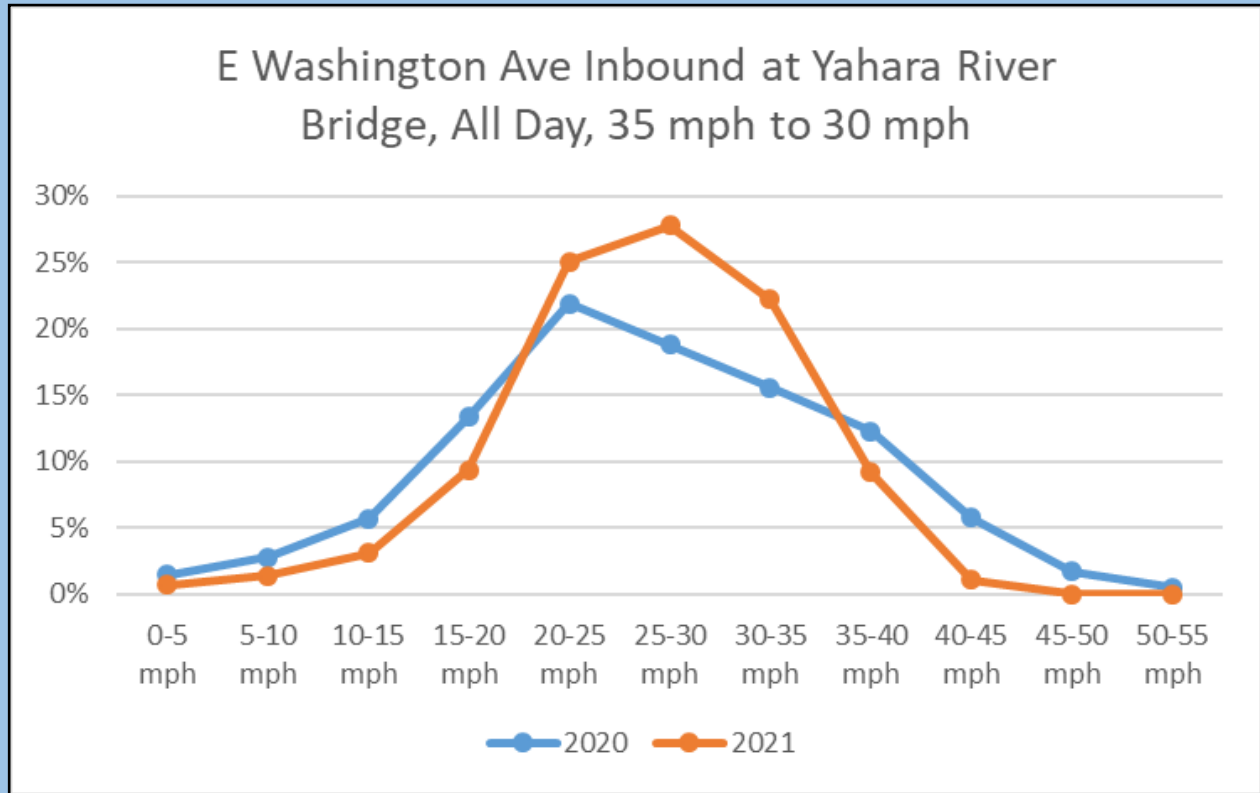
There are many different factors that can affect vehicle speeds such as weather or time of day. The goal for evaluating the effectiveness of the speed management program in Madison was to eliminate as many outside factors as possible. Almost all of the changes to the speed limit through the speed management program occurred in the fall so speeds were studied for approximately 6 months before and 6 months after the changes to the speed limit. The month of May was selected to stay consistent across analyses so the data from a given year shows the data from May of that year.

Since LBS data is only available until April of 2022, the speed reductions that took place in fall of 2021 compared data from May of 2021 to April of 2022. Speed management projects in 2022 use CVD data. StreetLights shift from LBS to CVD created a challenging for longer term evaluation of these projects, as StreetLight recommended that the LBS and CVD data not be compared to one another.

Notes:

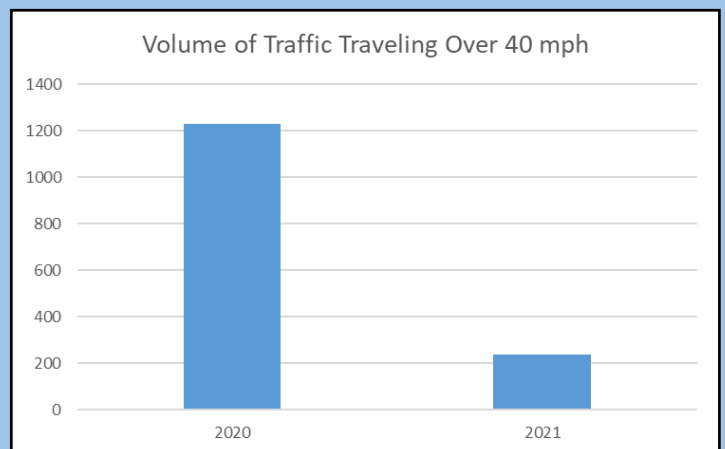
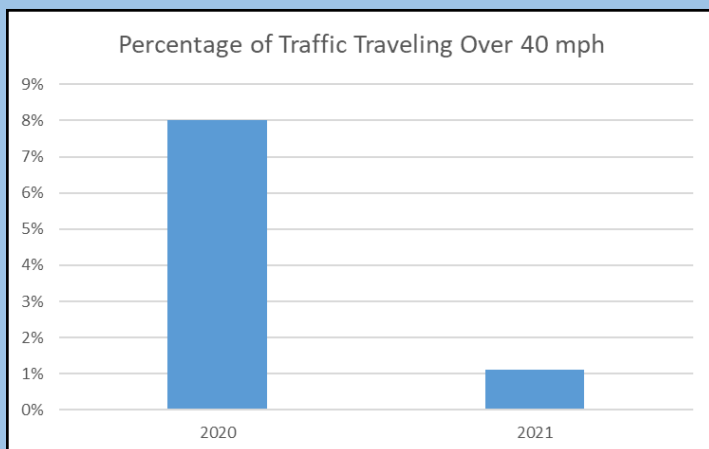
For the CVD+ vehicles on the road, StreetLight has conducted extensive comparisons between LBS and CVD results. Every data source has some bias and provides a varied viewpoint of similar activity. CVD has comparable coverage to LBS, with adequate spatial coverage. The differences in penetration and bigger demographic skew indicate the need for additional data science to 'normalize' and 'expand' the CVD sample, hence CVD+. Thus while some geospatial distributions may differ from historic LBS data, as any source will, due to the higher frequency of pings that are directly linked to road segments, we see improvements in critical mobility metrics like speed and trip duration.

2020 Safe Speed Projects

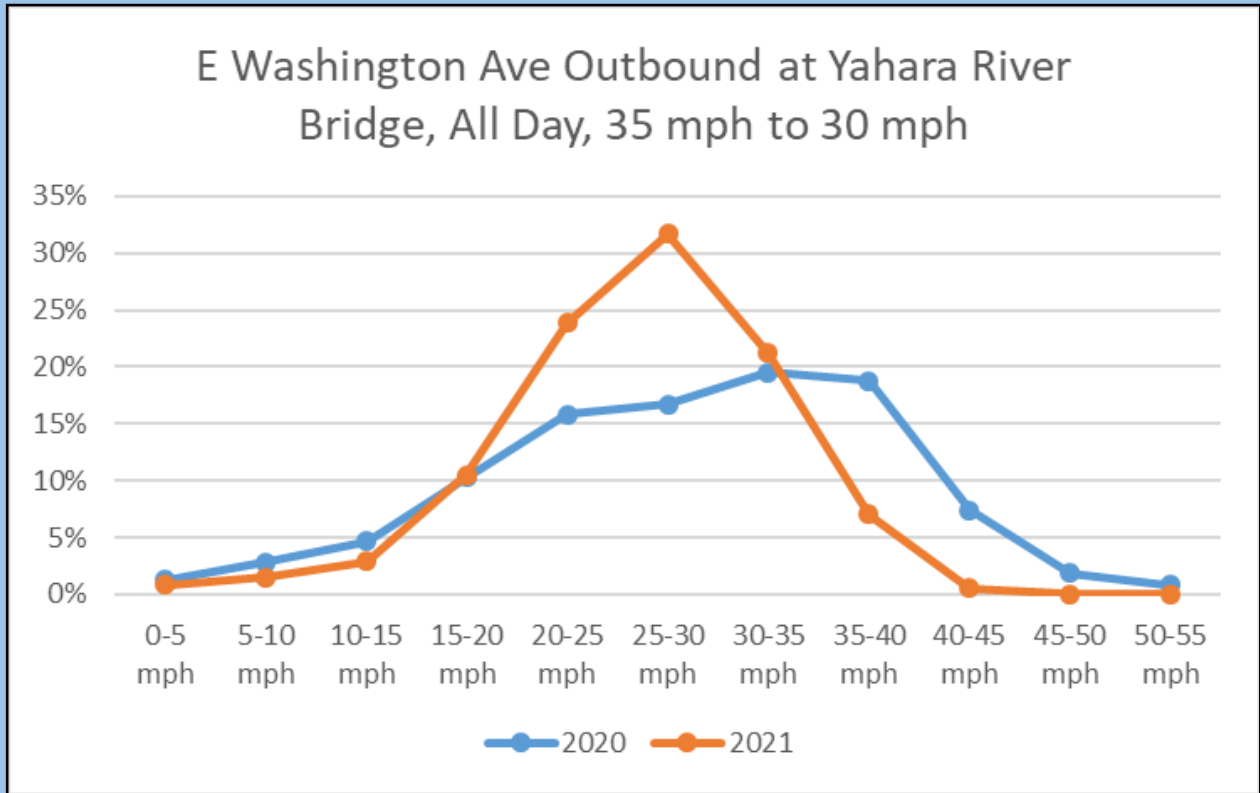


2020 E Washington Ave Speed limit reduced from 35 mph to 30 mph

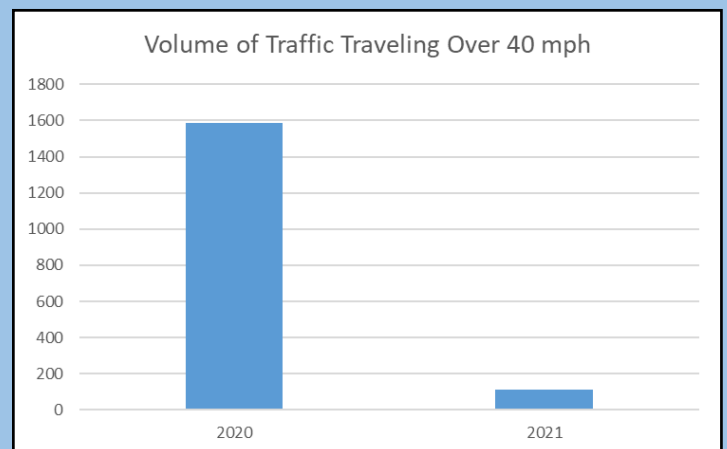
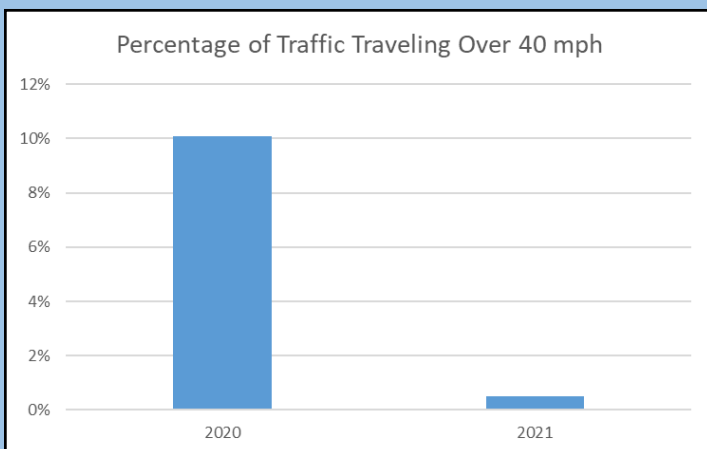
One of the City's first Vision Zero Speed Management projects was the reduction in speed limit on East Washington Ave between Pinckney St and Marquette St. On this 3-mile stretch of roadway, 2 people were killed and 41 people had been seriously injured between 2014 and 2019. There also was an increase in reports of dangerous driving behavior and speeding since early 2020. The speed limit was lowered and the traffic signal timing was adjusted to support the new speed limit. New high visibility crosswalks were added and temporary signboards alerted drivers to the new speed limits.



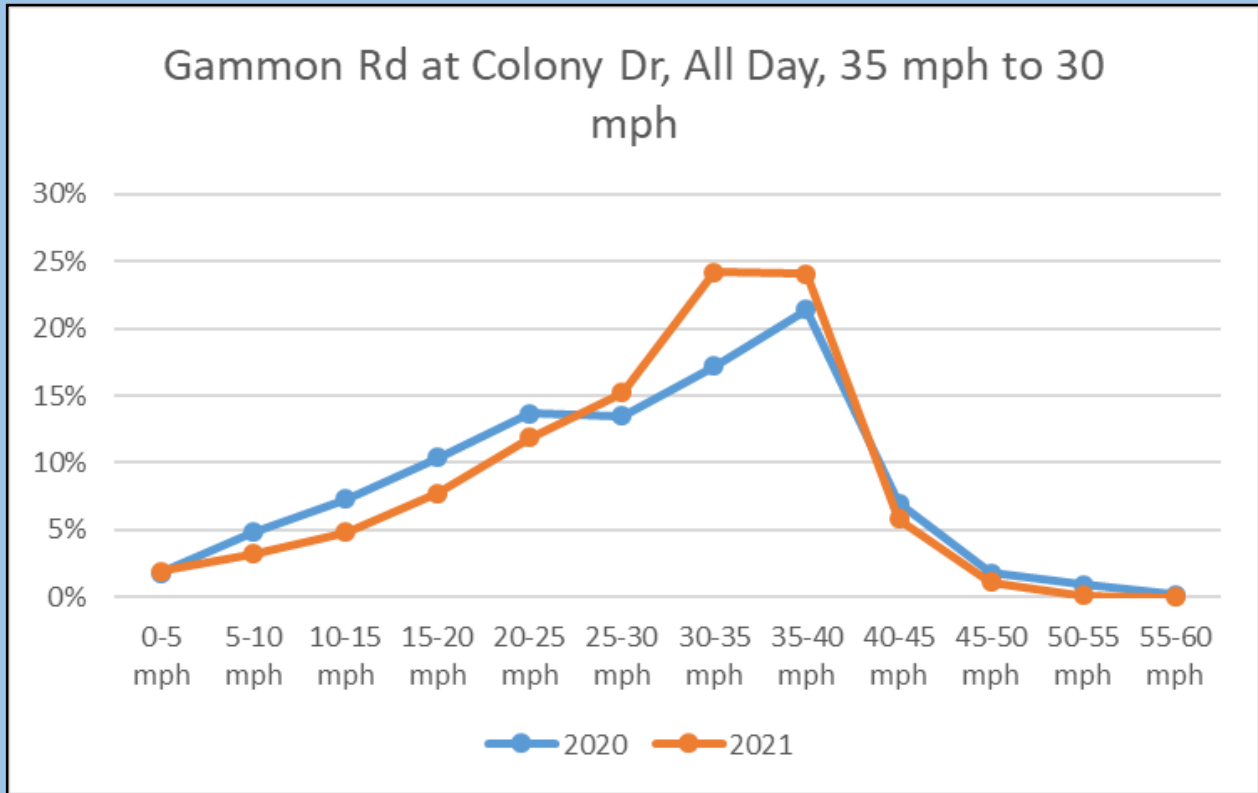
2020 Safe Speed Projects



2020 E Washington Ave Speed limit reduced from 35 mph to 30 mph



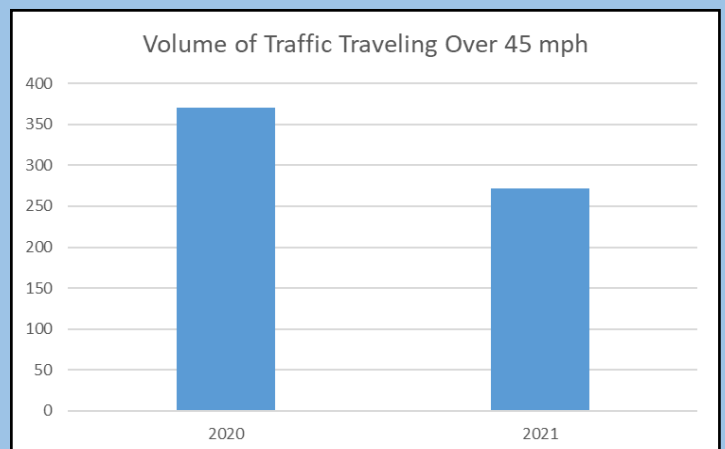
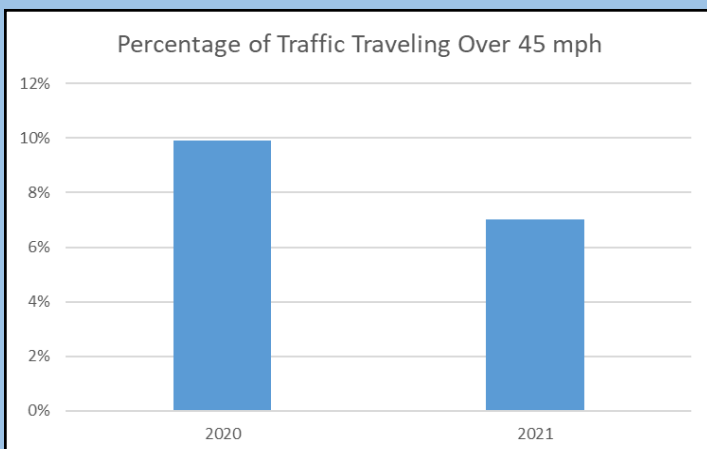
2020 Safe Speed Projects



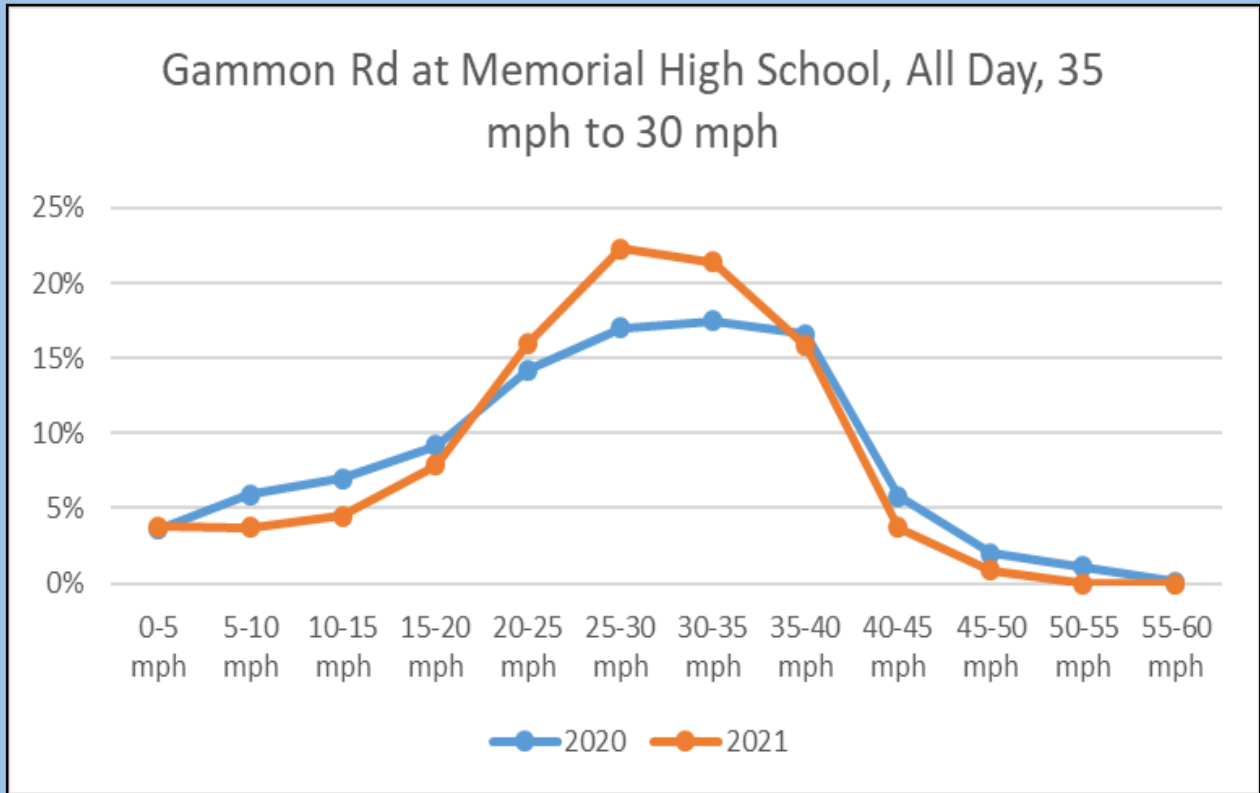
2020 Gammon Rd

Speed limit reduced from 35 mph to 30 mph

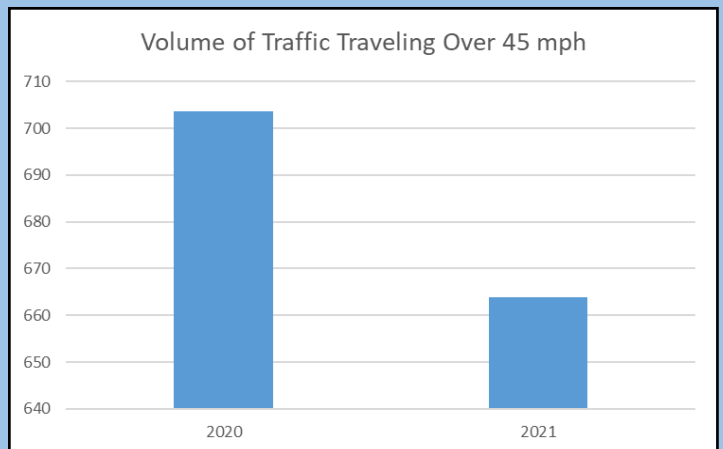
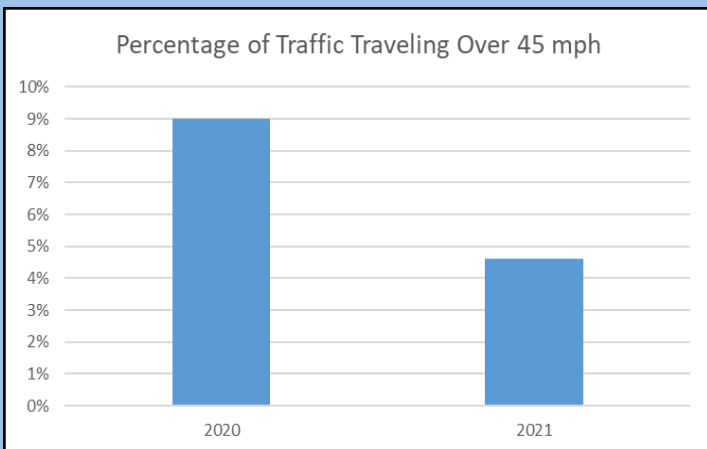
On December 7, 2020, the speed limit on Gammon Road, between Watts Rd and Colony Dr, was lowered. On this 1.3 mile stretch of Gammon Rd there were 20 injury crashes in just 2019. This area includes a middle and high school, a community center and numerous shopping areas.



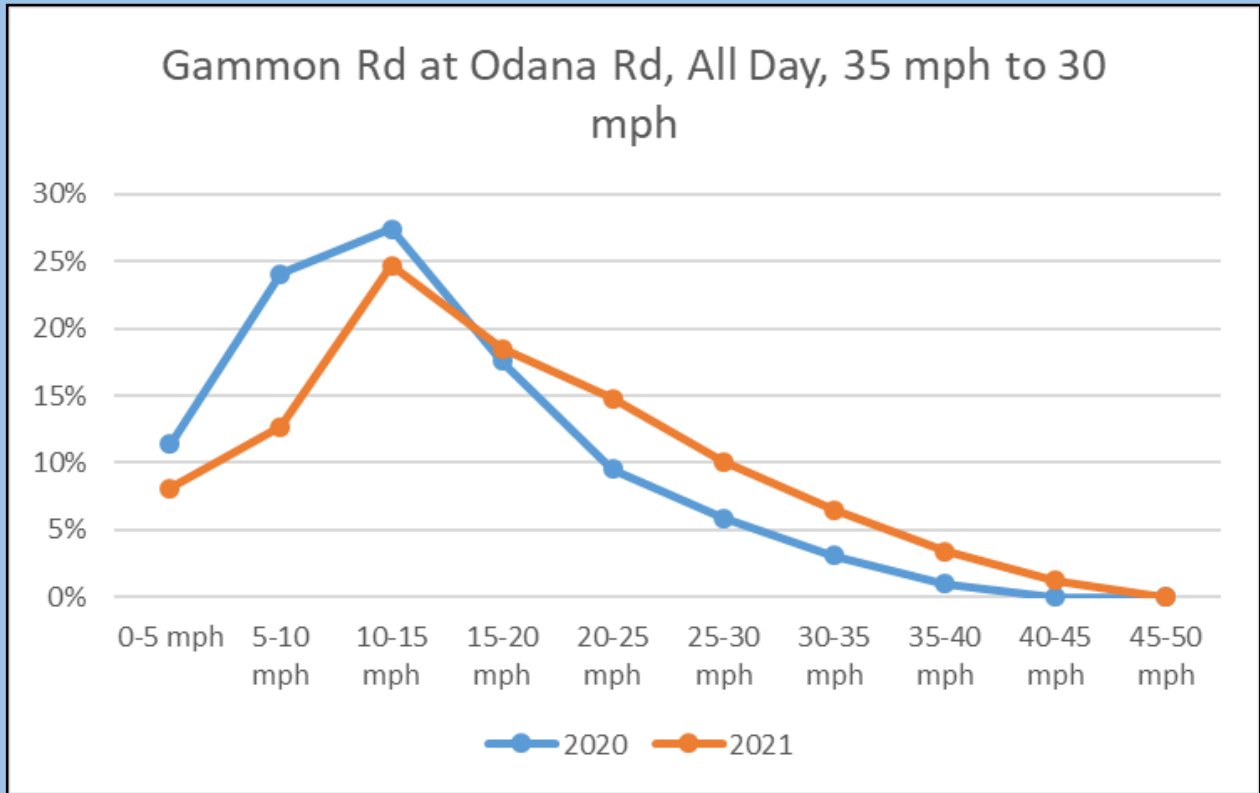
2020 Safe Speed Projects



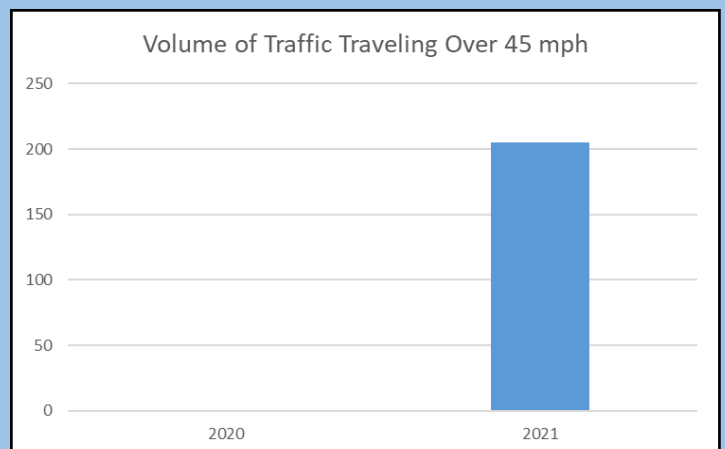
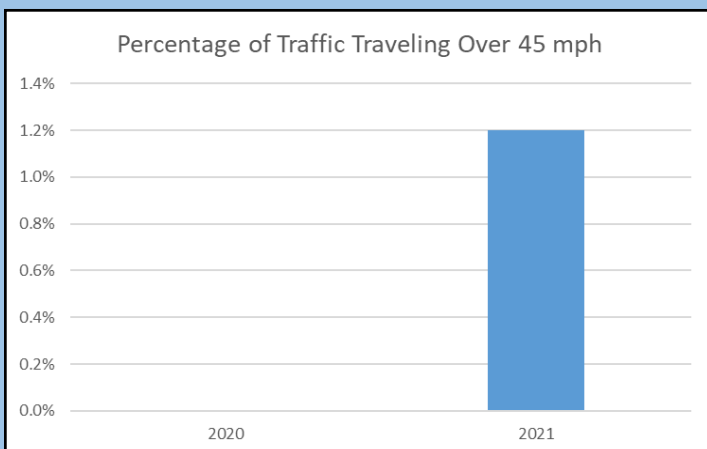
2020 Gammon Rd Speed limit reduced from 35 mph to 30 mph



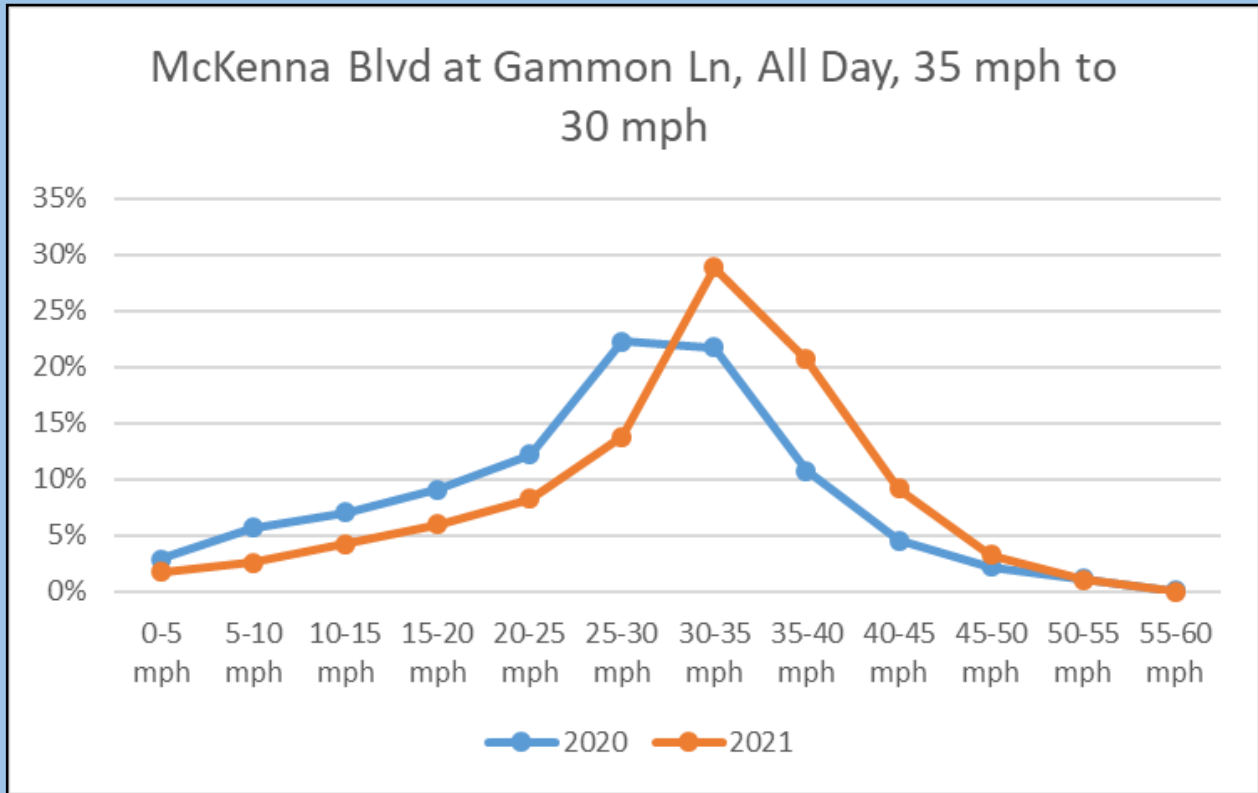
2020 Safe Speed Projects



2020 Gammon Rd Speed limit reduced from 35 mph to 30 mph

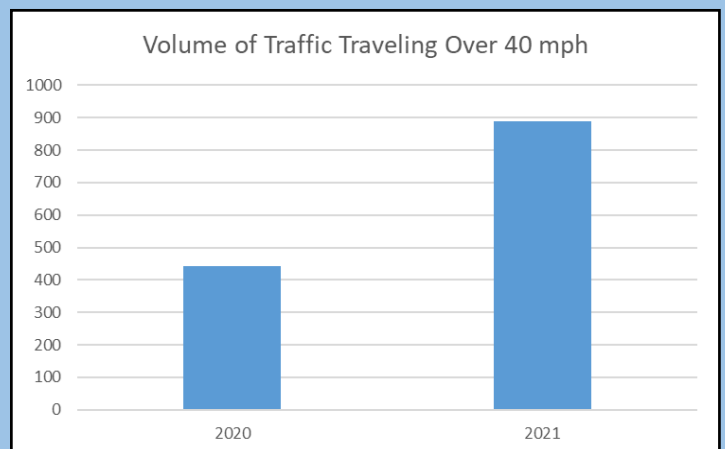
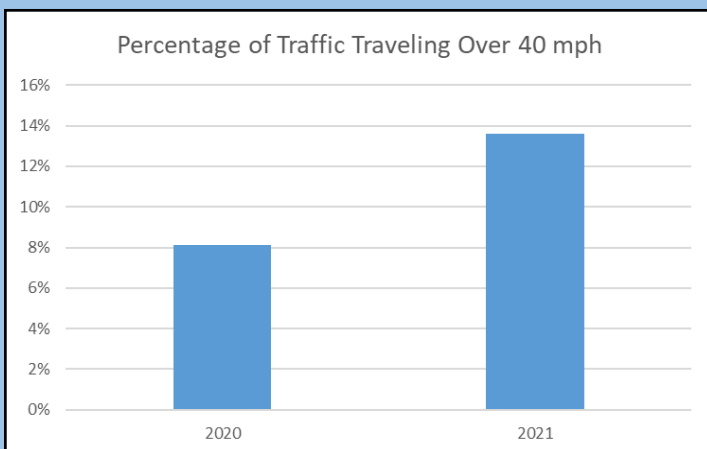


2020 Safe Speed Projects

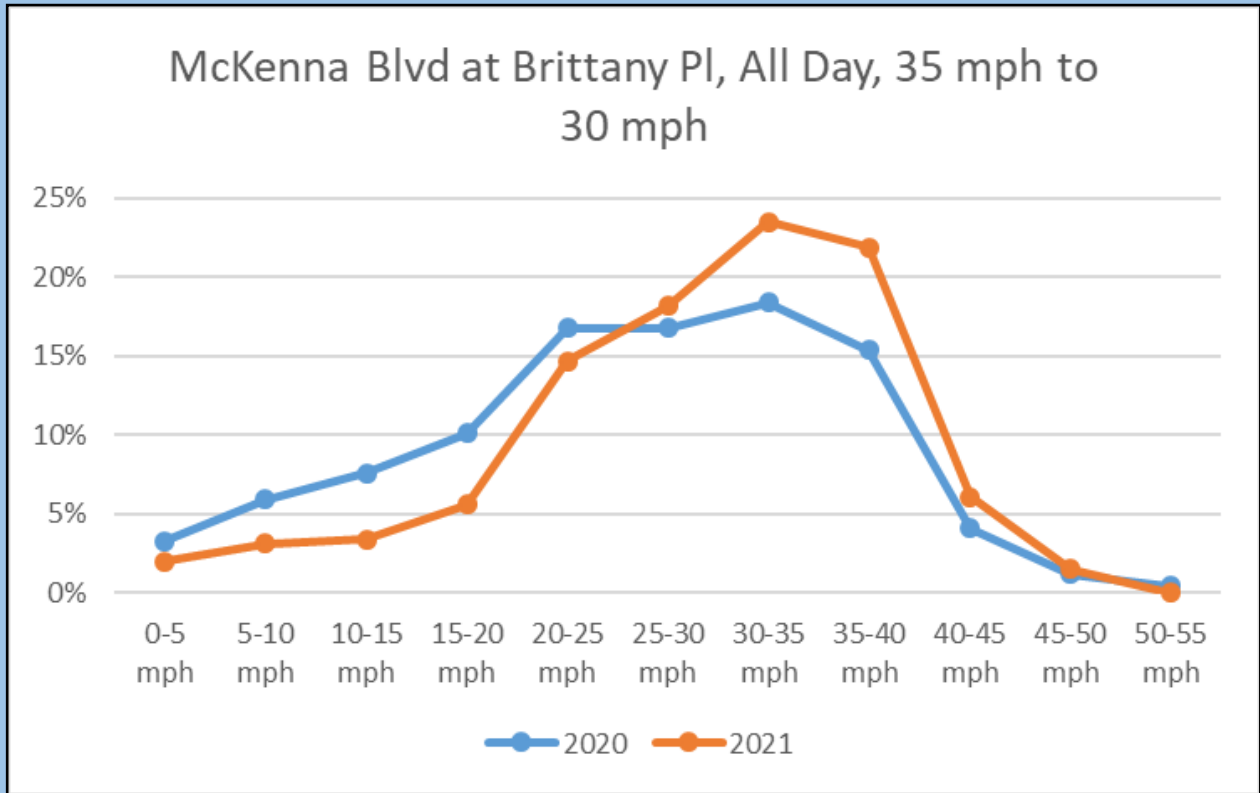


2020 McKenna Blvd Speed limit reduced from 35 mph to 30 mph

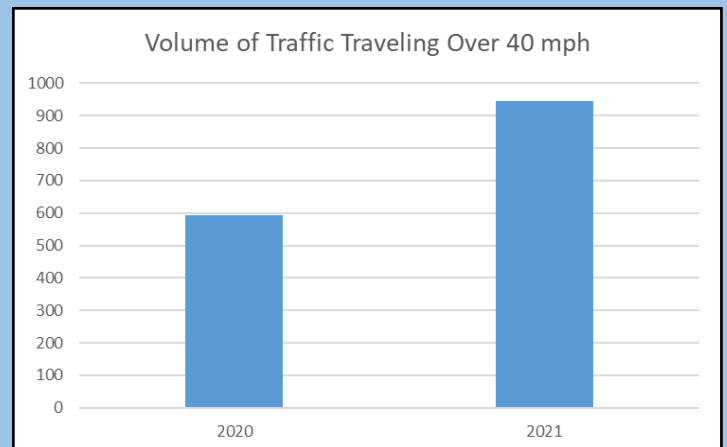
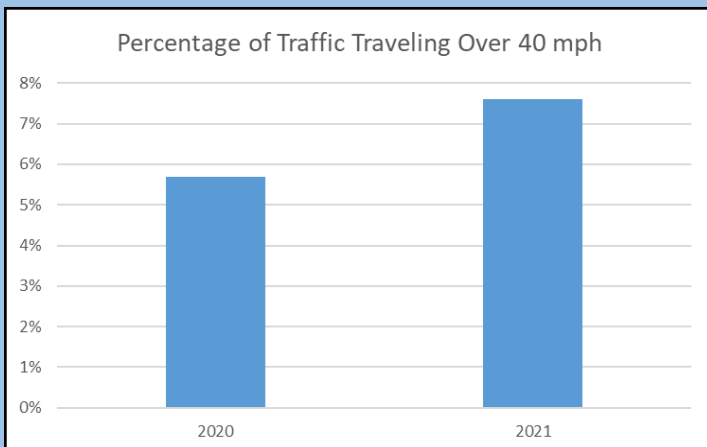
The speed limit on McKenna Blvd, between Raymond Rd and Watts Rd, was reduced to 30 mph in December 2020. This segment of McKenna Blvd had 30 injury crashes in 2019 and 7 of those crashes involved people walking or biking. This area includes residential housing, a busy park and a community center.



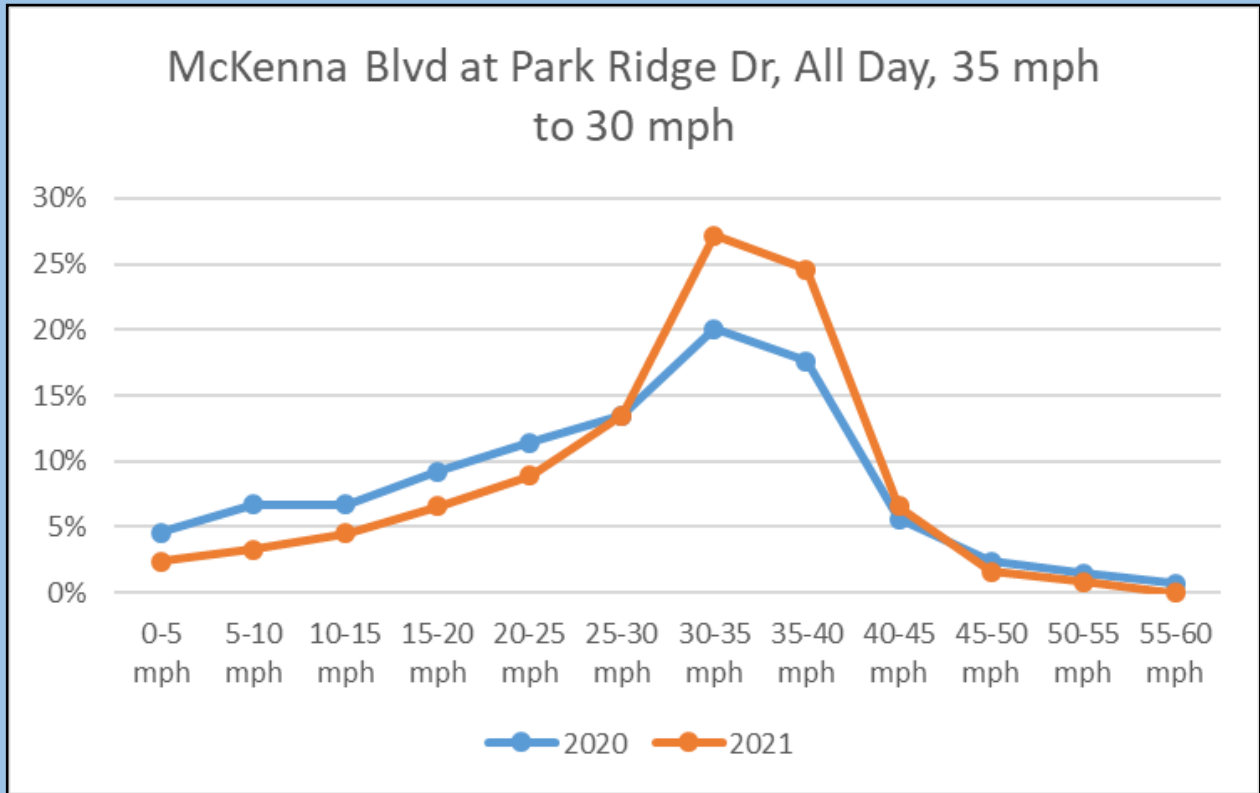
2020 Safe Speed Projects



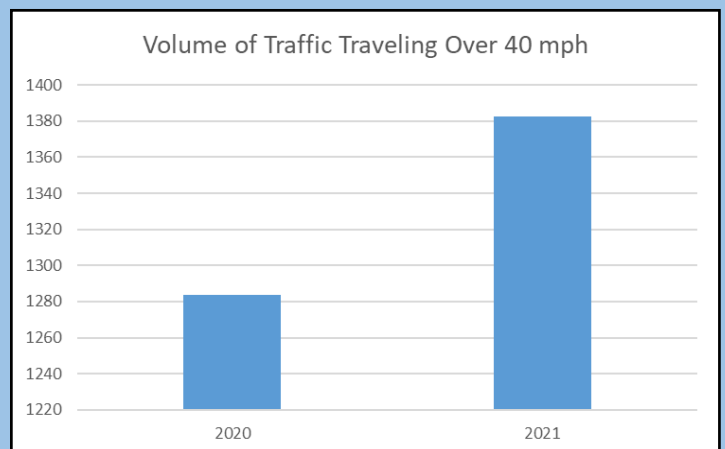
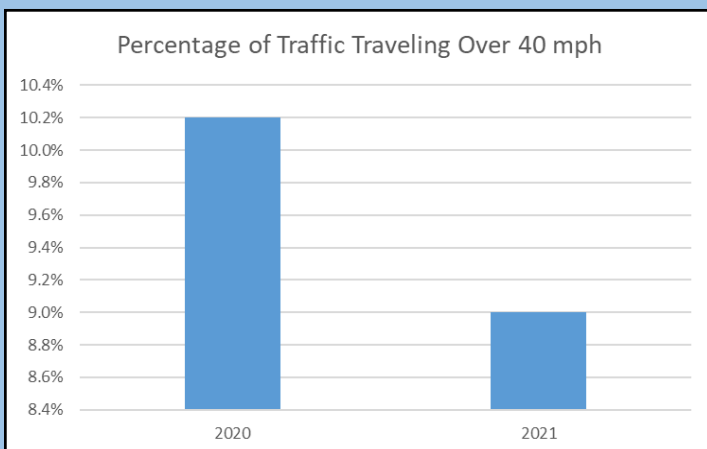
2020 McKenna Blvd Speed limit reduced from 35 mph to 30 mph



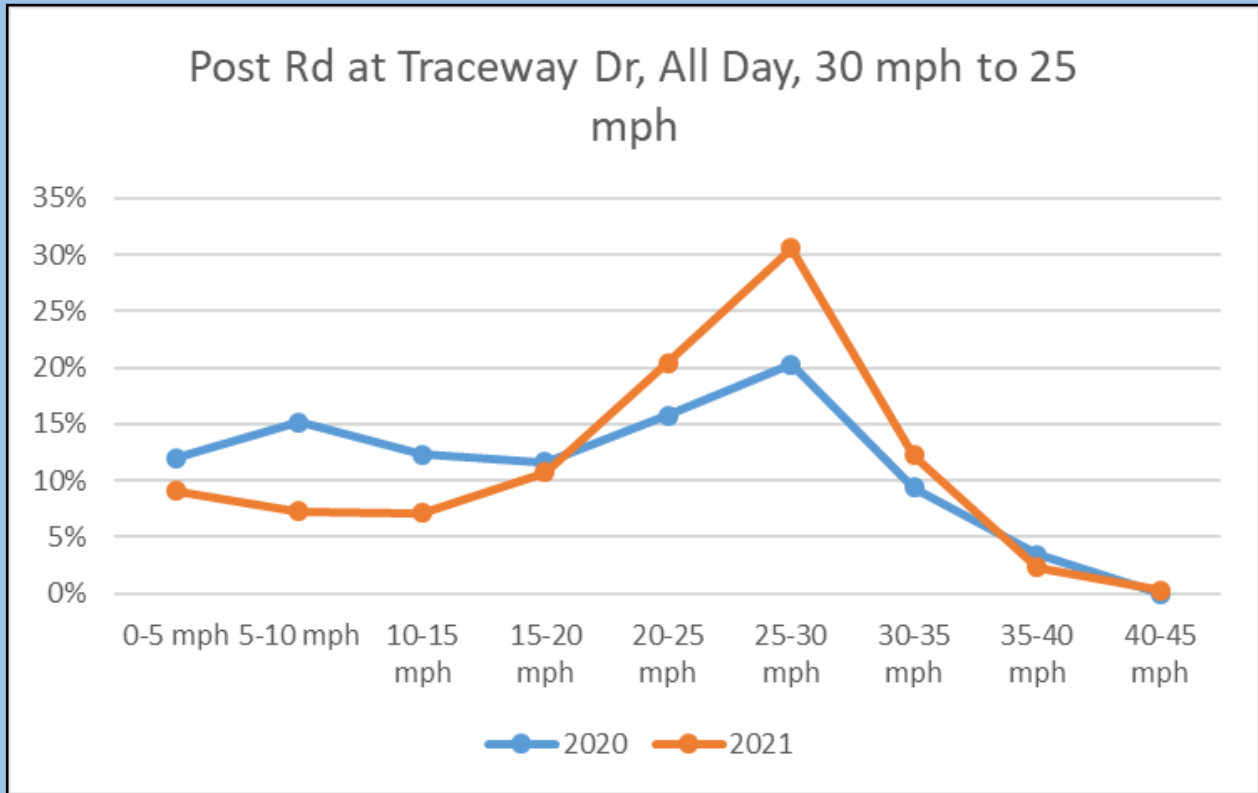
2020 Safe Speed Projects



2020 McKenna Blvd Speed limit reduced from 35 mph to 30 mph



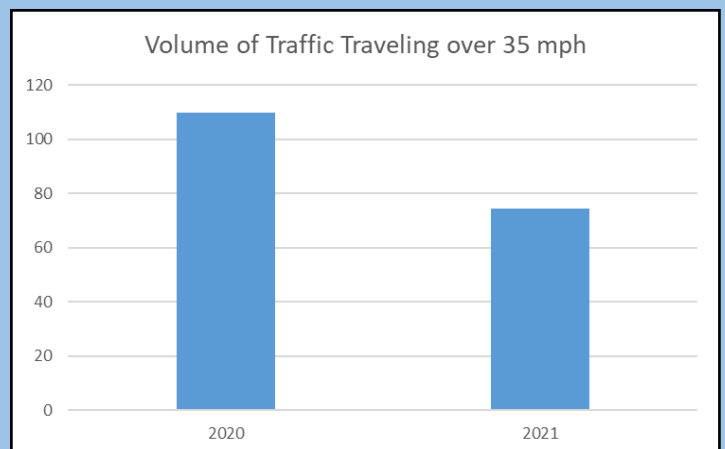
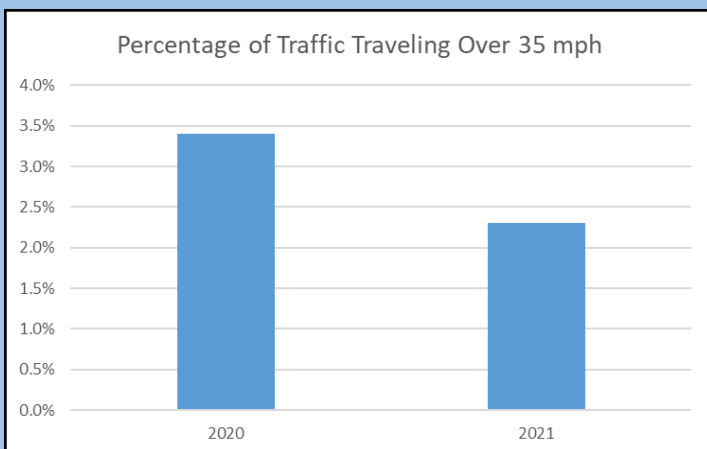
2020 Safe Speed Projects



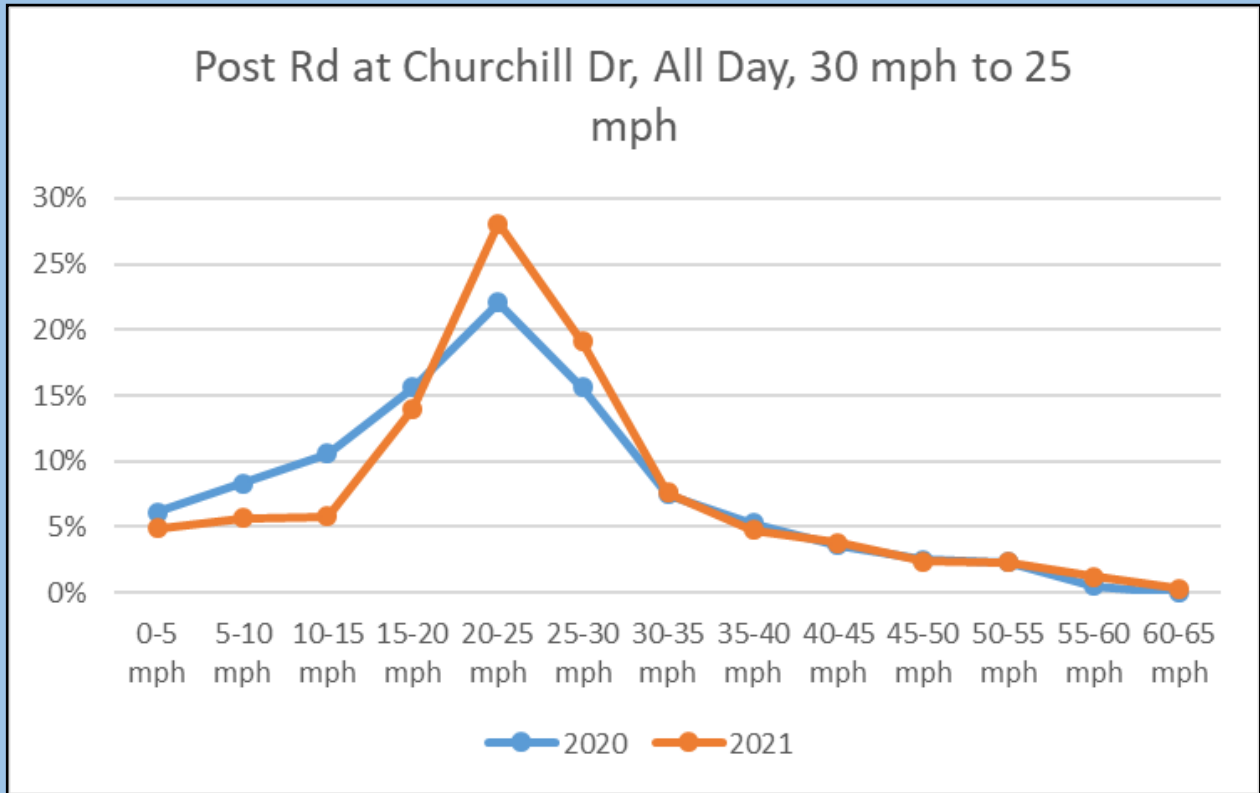
2020 Post Rd

Speed limit reduced from 30 mph to 25 mph

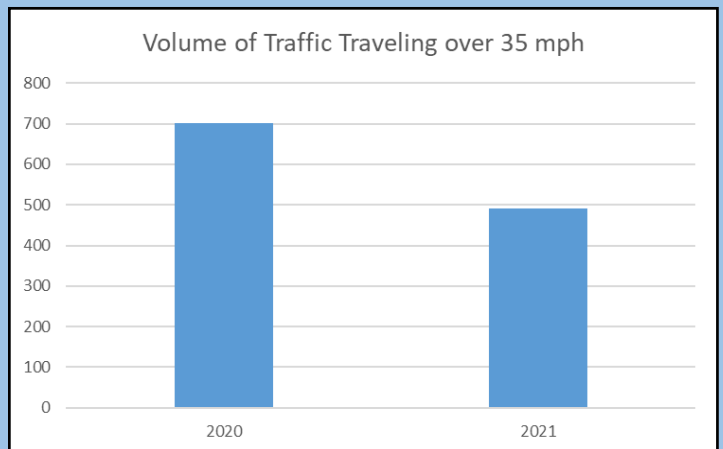
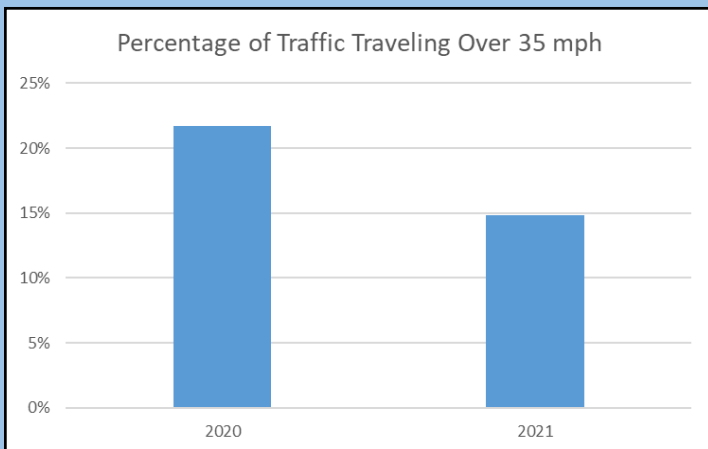
The speed limit on Post Rd was reduced to 25 mph. This project took place on a busy street that includes an Leopold Elementary School, the crossing of the Cannonball Path, transit stops and residential housing.



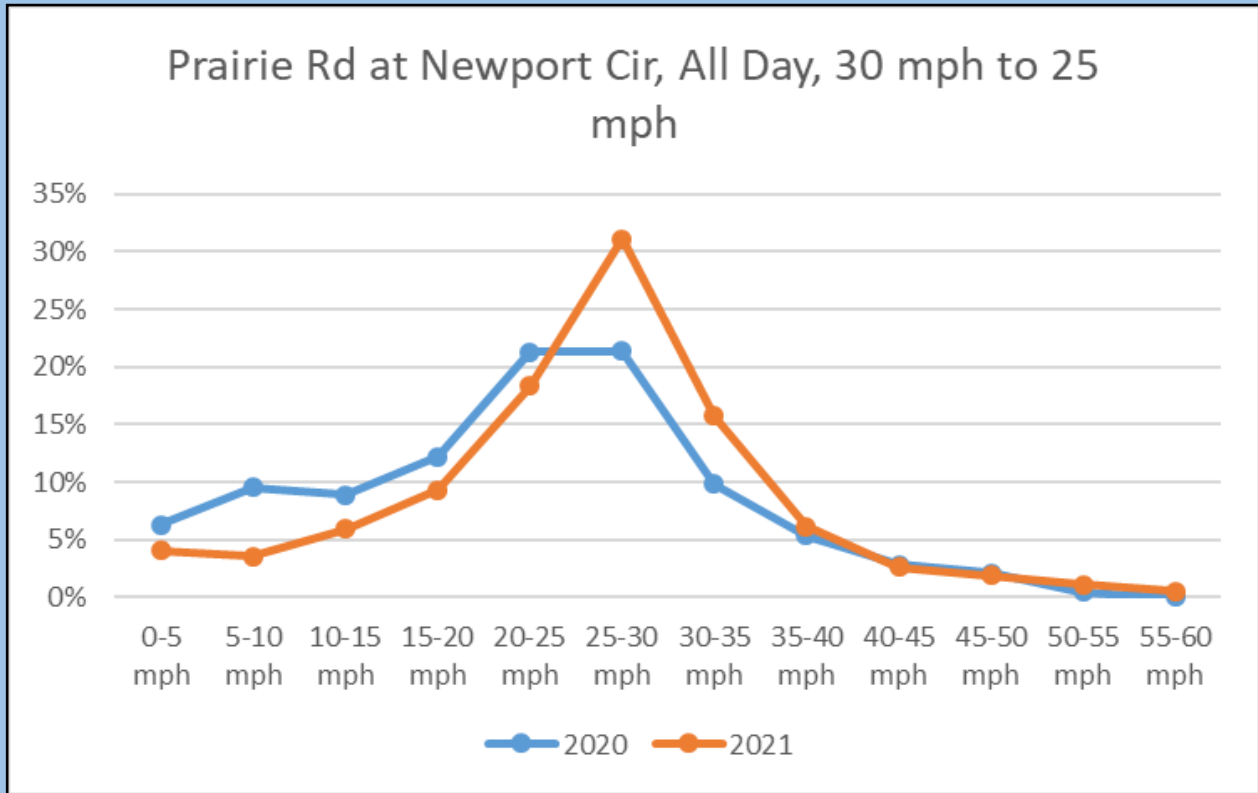
2020 Safe Speed Projects



2020 Post Rd Speed limit reduced from 30 mph to 25 mph



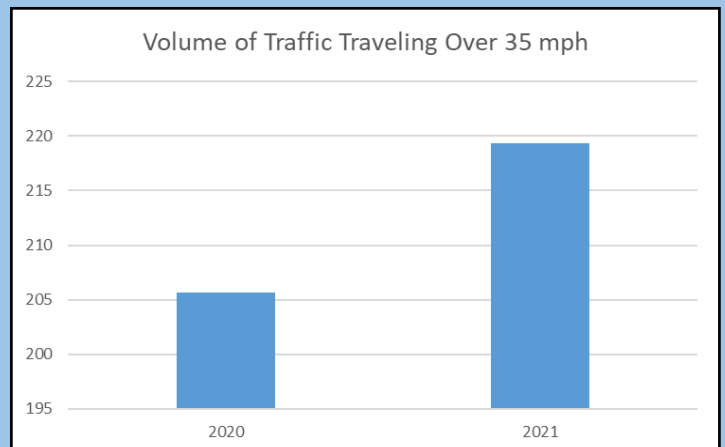
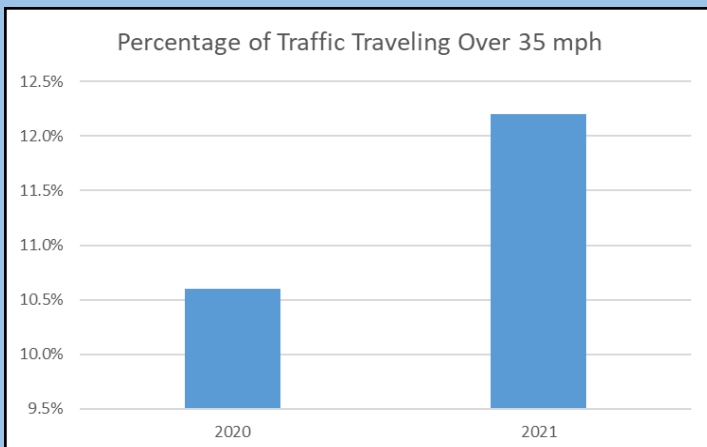
2020 Safe Speed Projects



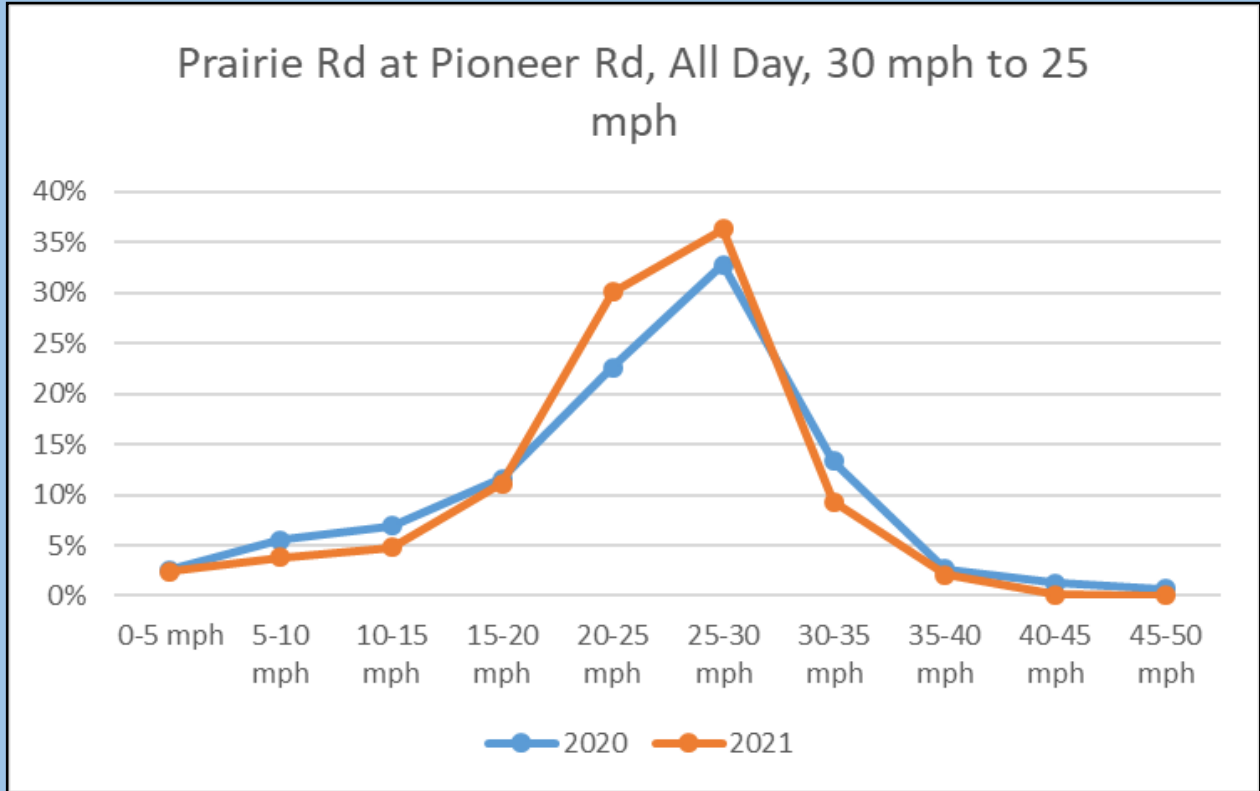
2020 Prairie Rd

Speed limit reduced from 30 mph to 25 mph

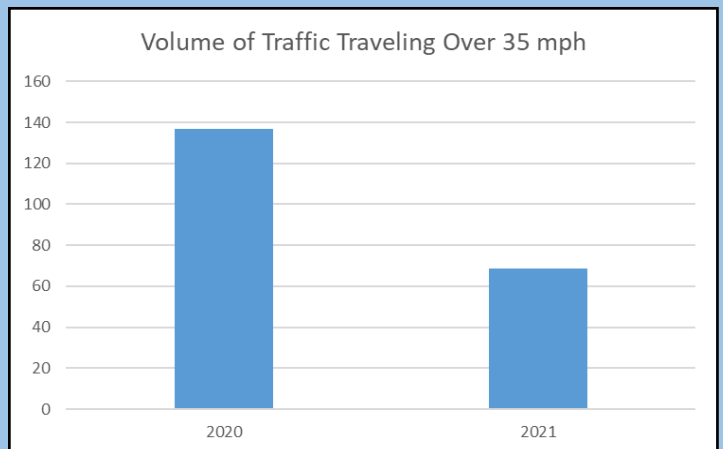
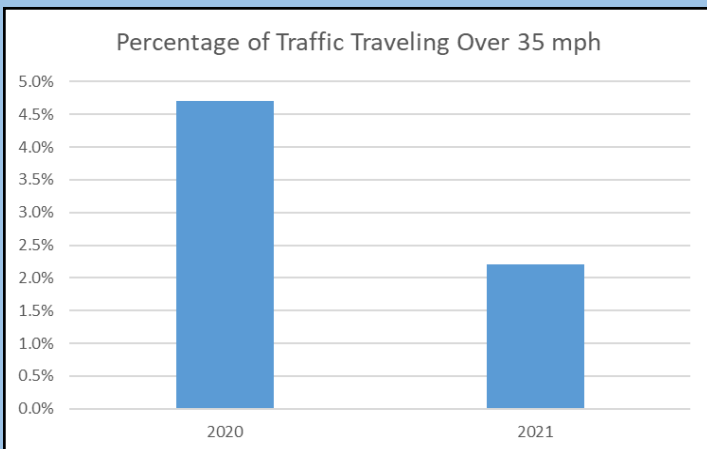
In late October the speed limit on Prairie Rd was reduced to 25 mph. Prairie Rd is a residential street with an elementary school and a large neighborhood park. Lowering the speed limit even 5 mph helps ensure the safety of all who use our city streets especially children and people walking or biking.



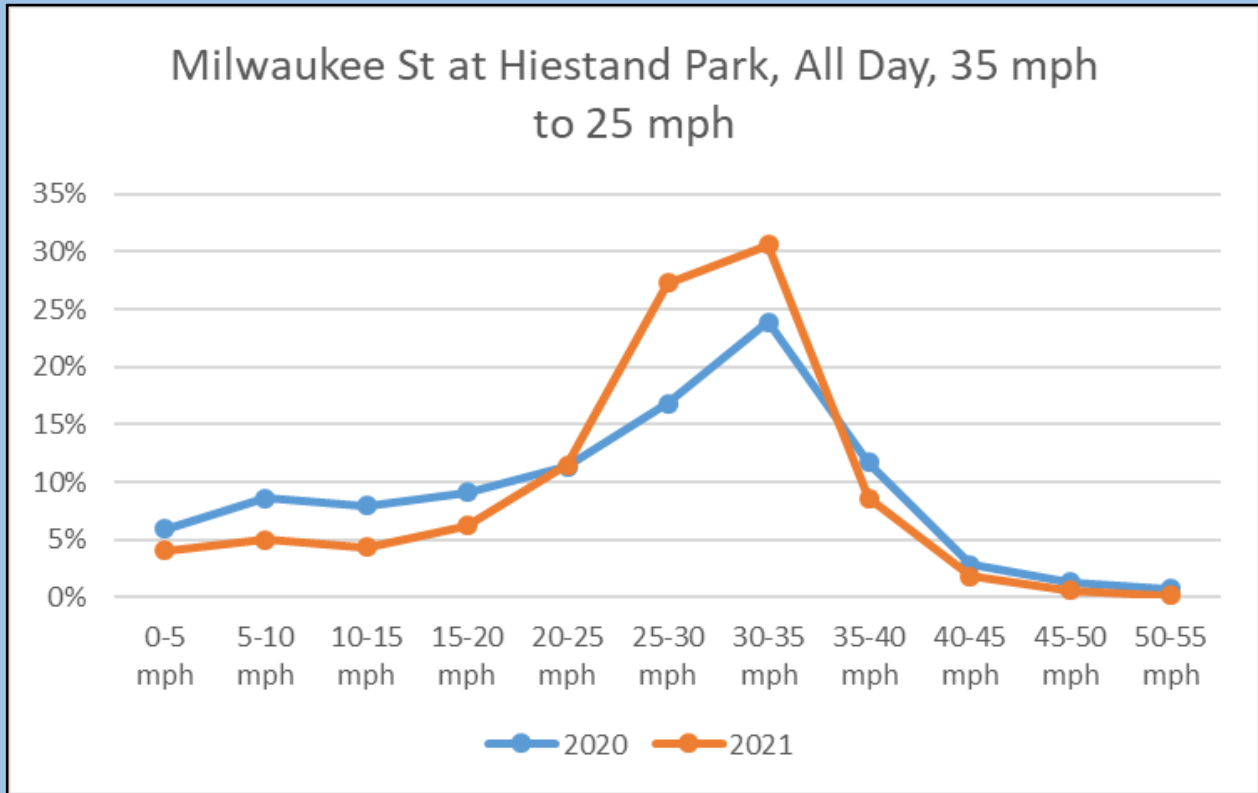
2020 Safe Speed Projects



2020 Prairie Rd Speed limit reduced from 30 mph to 25 mph

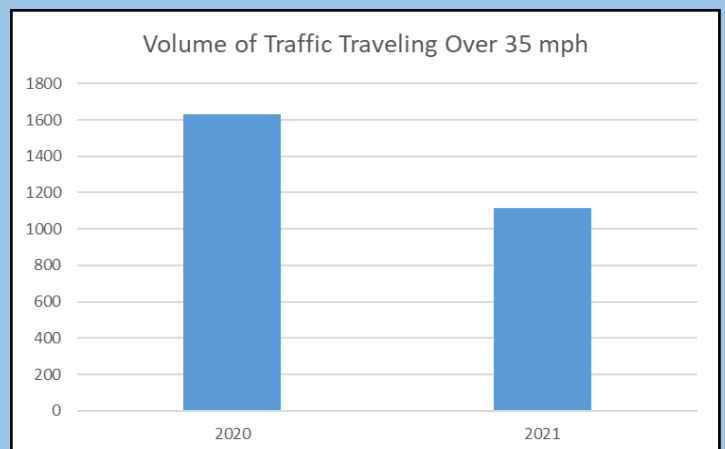
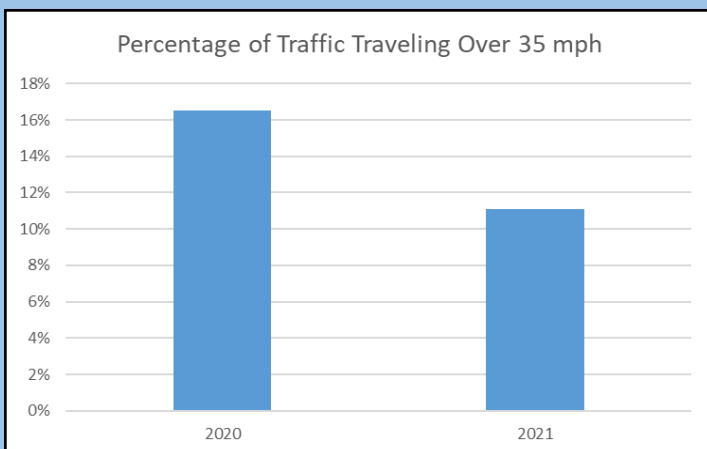


2020 Safe Speed Projects

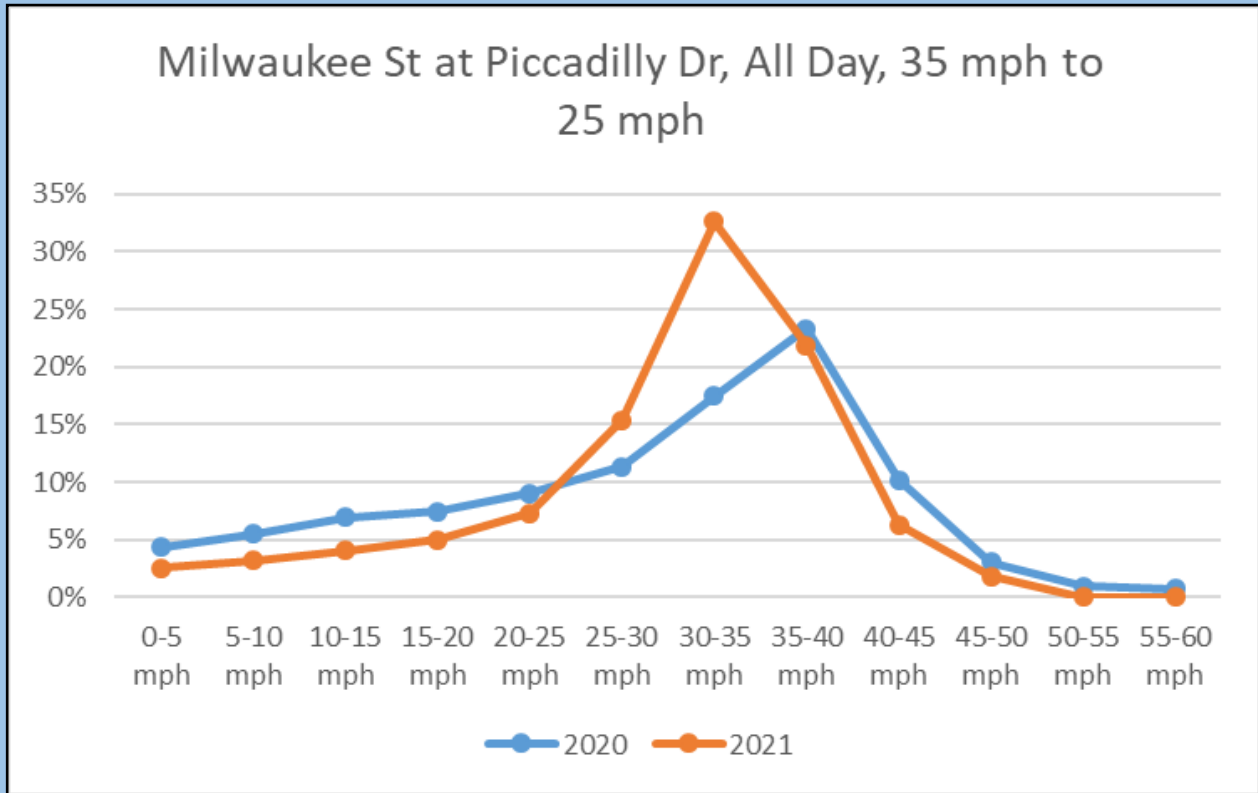


2020 Milwaukee St Speed limit reduced from 35 mph to 25 mph

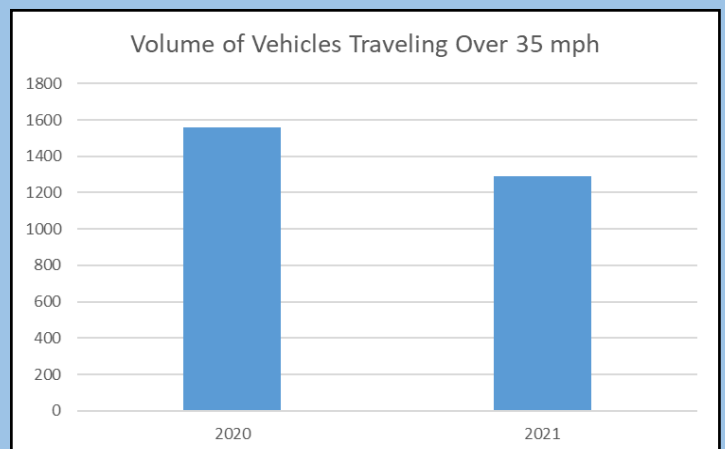
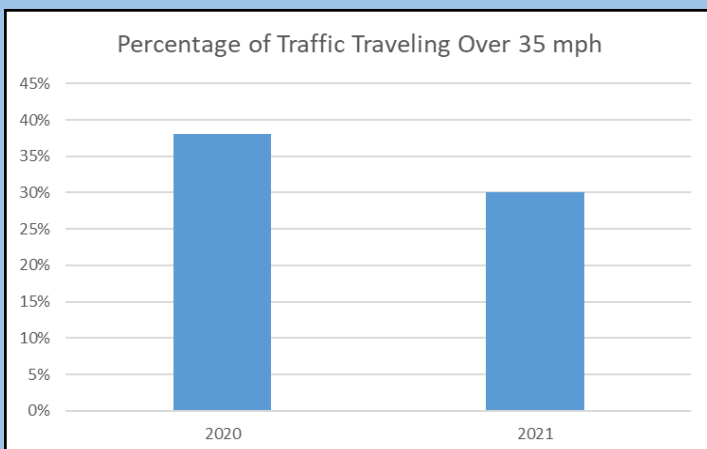
In October, the speed limit on Milwaukee St from just east of Fair Oaks Ave to Thompson Dr was lowered to 25 mph. In the five years previous, there were 9 people serious injured in traffic crashes on Milwaukee St. Two of the people seriously injured were walking across Milwaukee St. Lower the speed that people are driving is a key factor in changing the severity of the outcome of a crash.



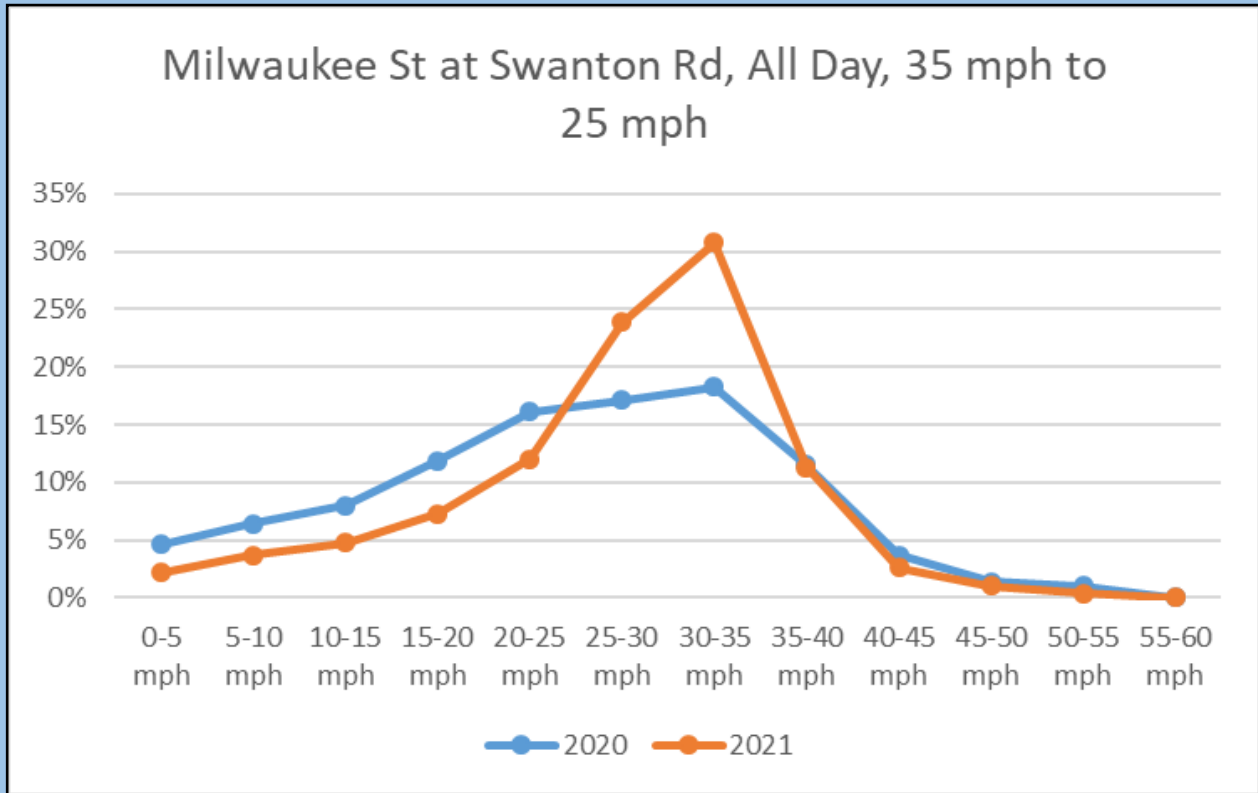
2020 Safe Speed Projects



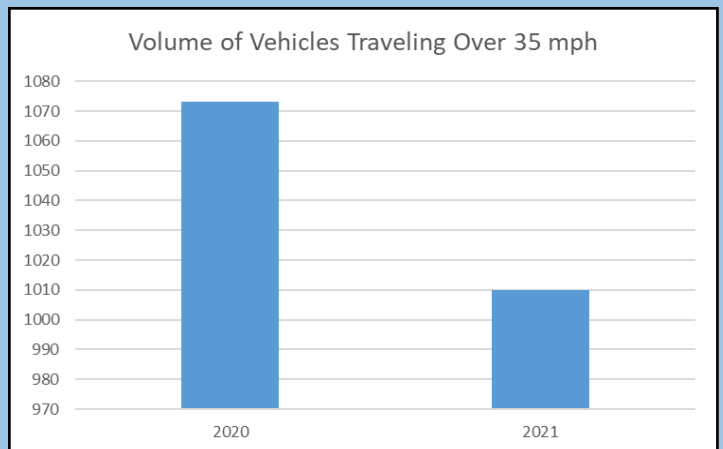
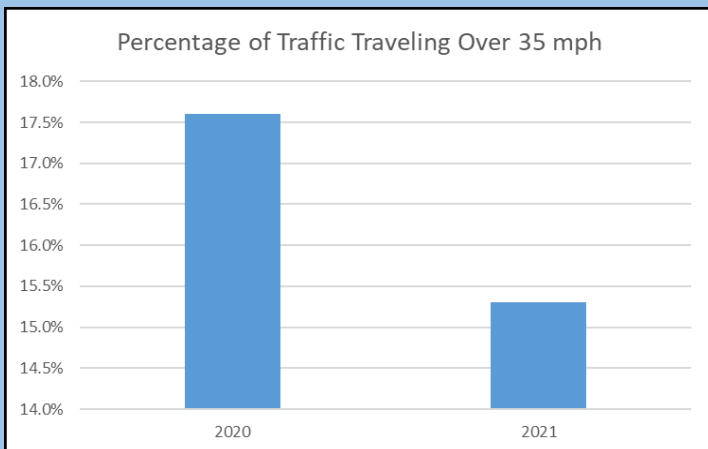
2020 Milwaukee St Speed limit reduced from 35 mph to 25 mph



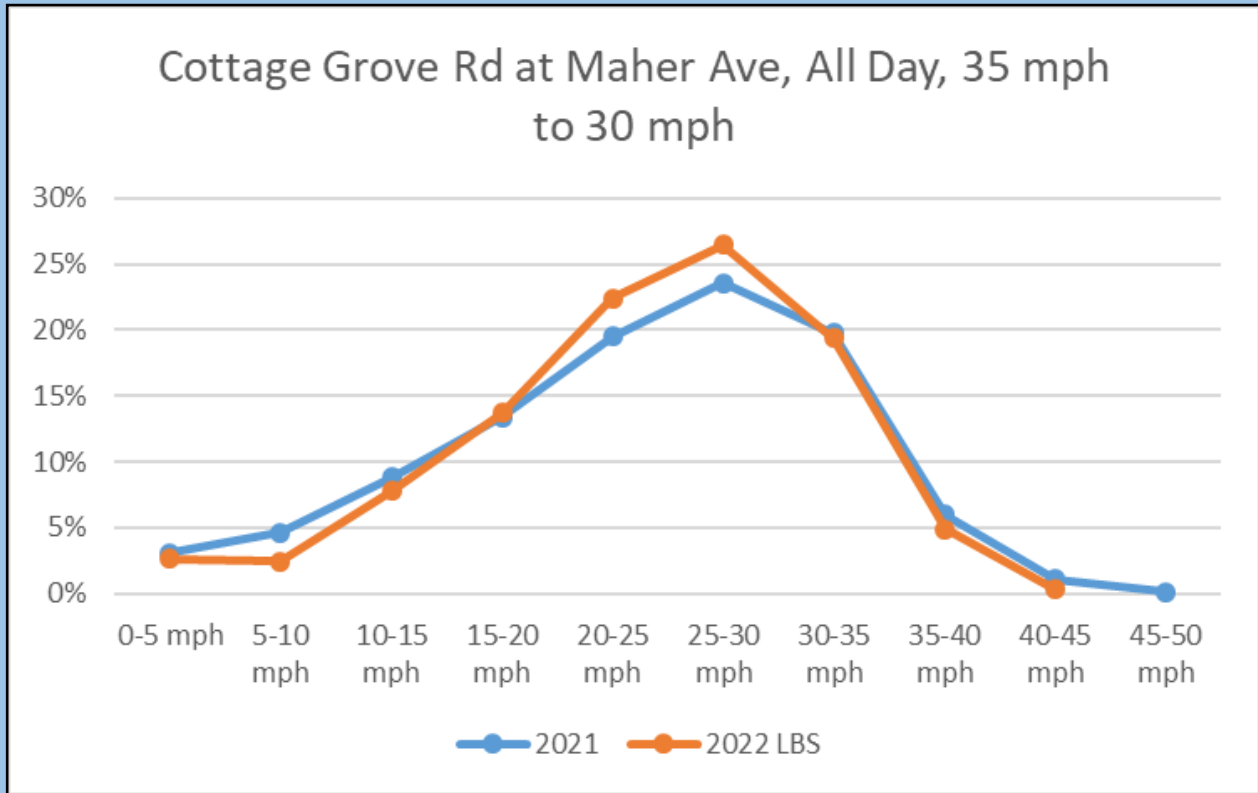
2020 Safe Speed Projects



2020 Milwaukee St Speed limit reduced from 35 mph to 25 mph

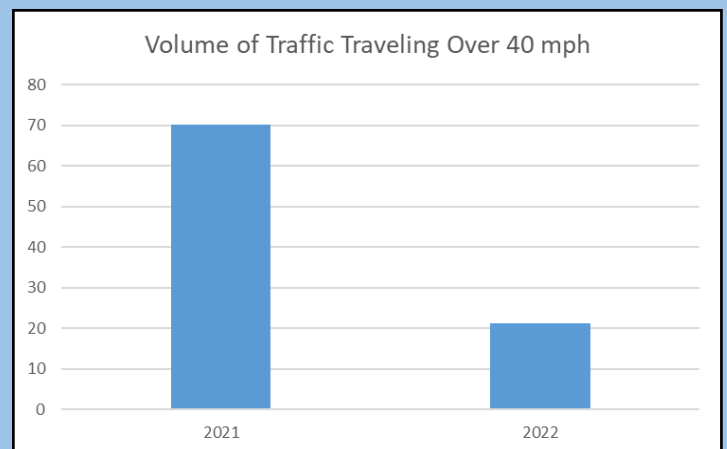
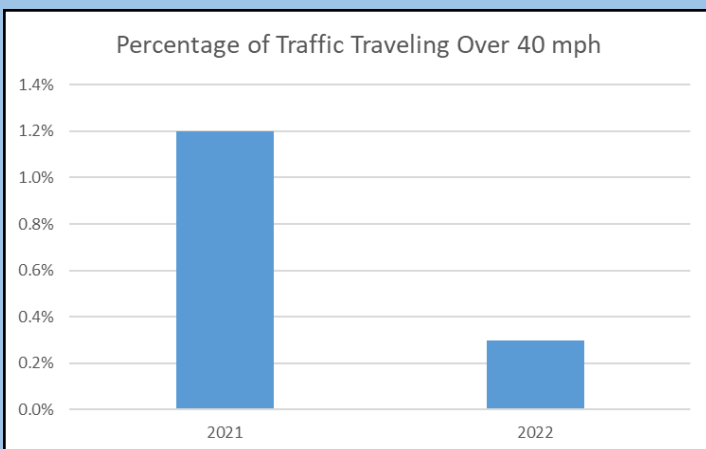


2021 Safe Speed Projects

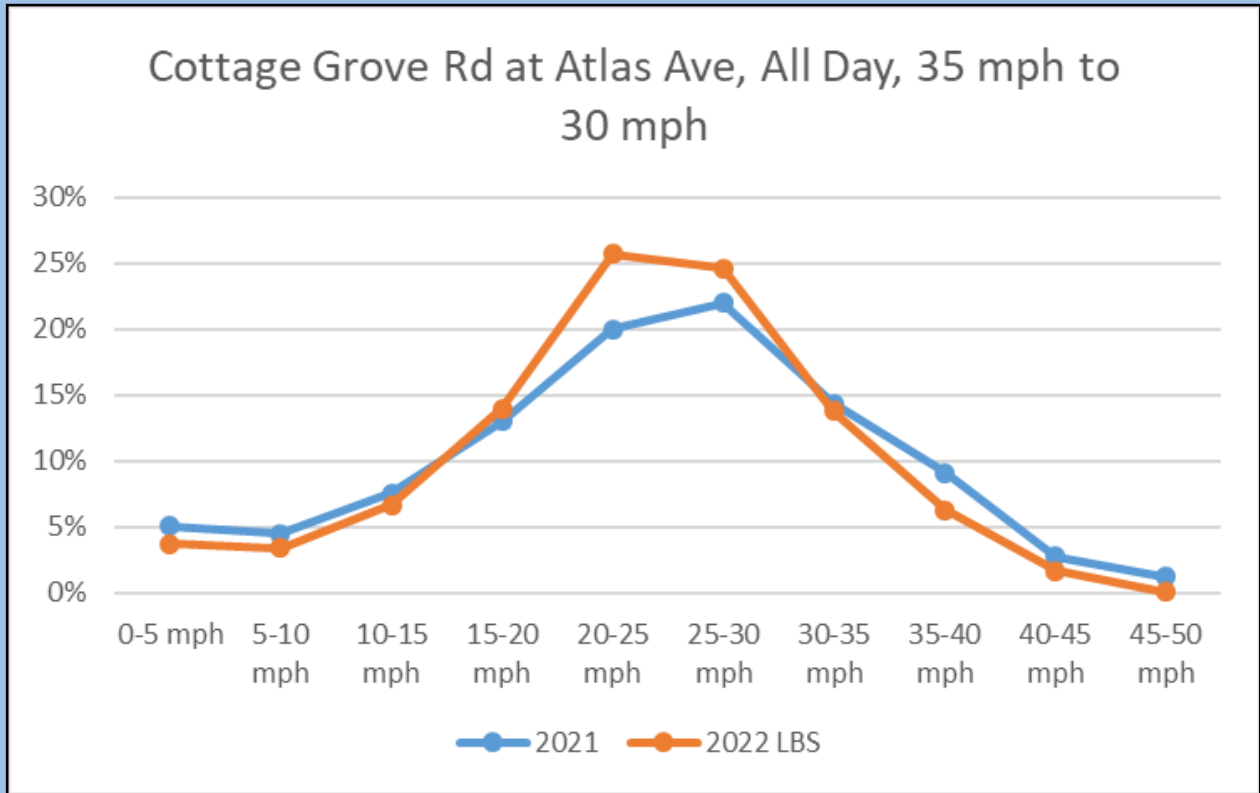


2021 Cottage Grove Rd Speed limit reduced from 35 mph to 30 mph

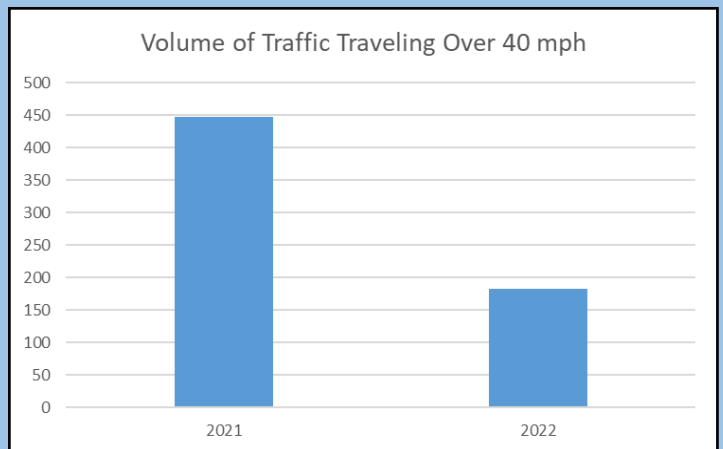
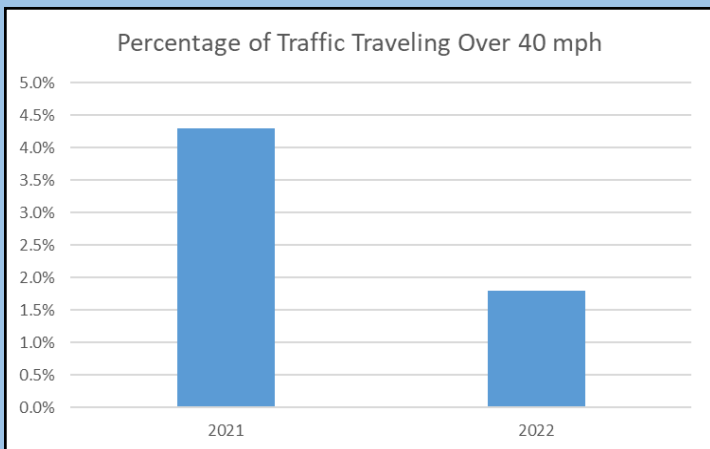
In October, the speed limit on Cottage Grove Rd was reduced to 30 mph between US Highway 51 and Flora Ln. This is an area with a many important neighborhood businesses and a Fire Station. On the 1.3 mile stretch from Drexel Ave to Flora Ln, two people were killed and two people suffered serious injuries in traffic crashes between 2015-2021.



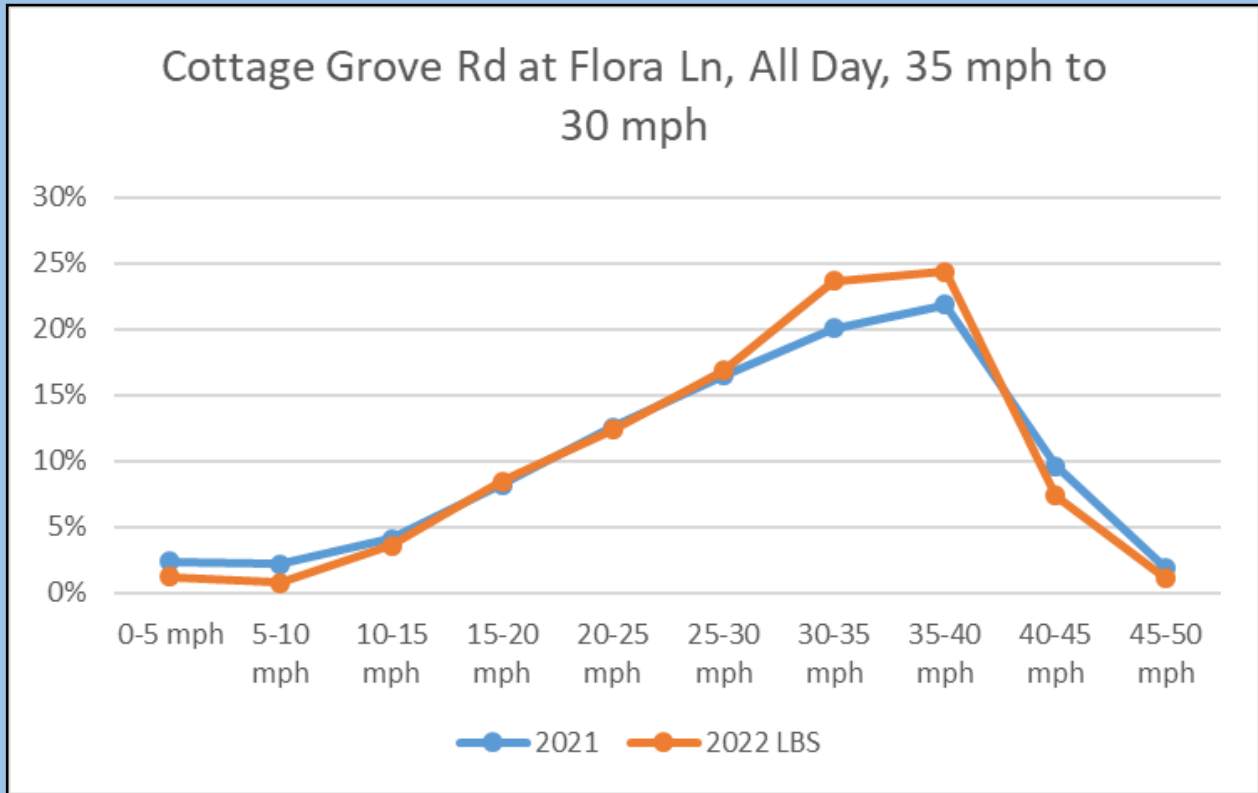
2021 Safe Speed Projects



2021 Cottage Grove Rd Speed limit reduced from 35 mph to 30 mph

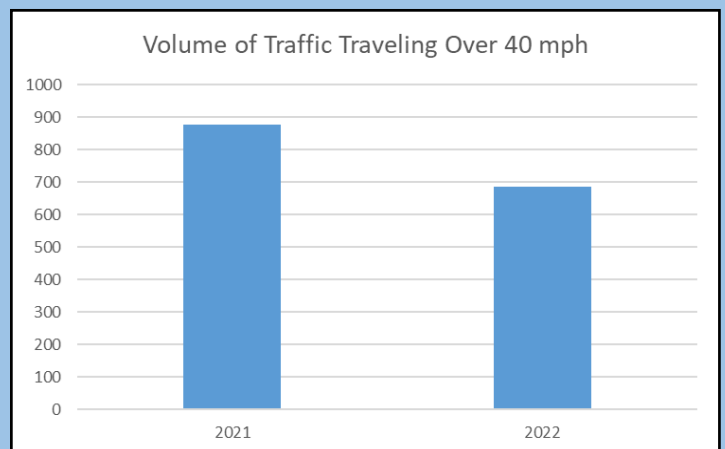
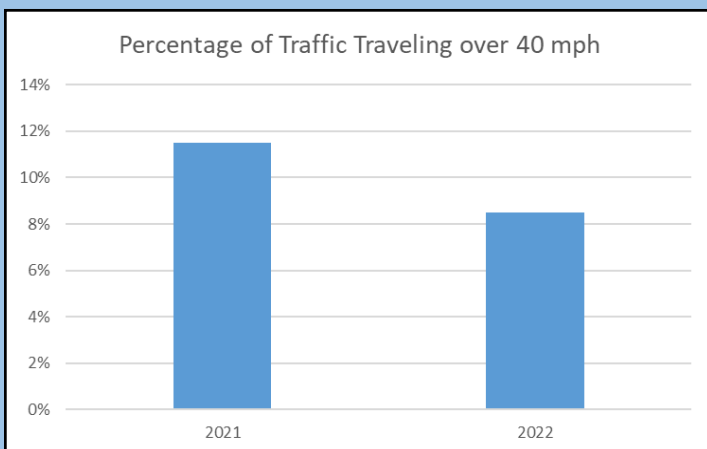


2021 Safe Speed Projects

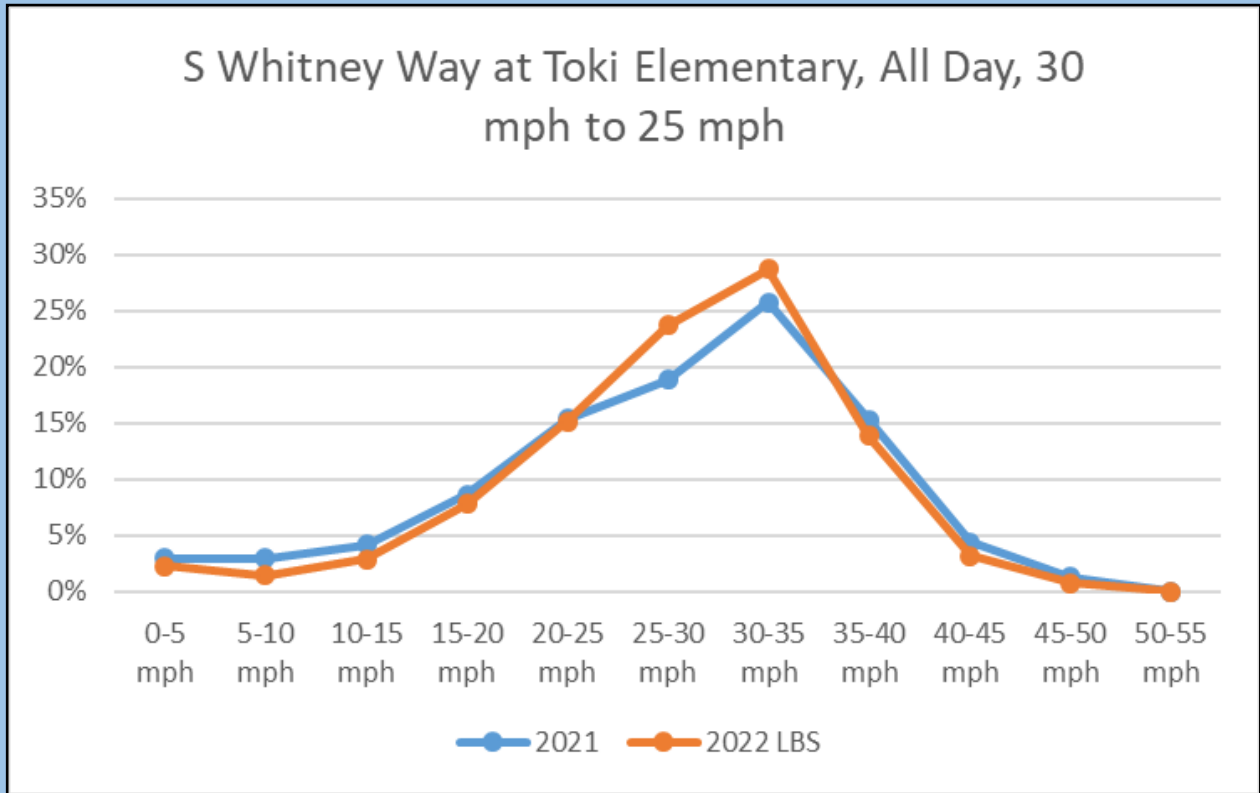


2021 Cottage Grove Rd Speed limit reduced from 35 mph to 30 mph

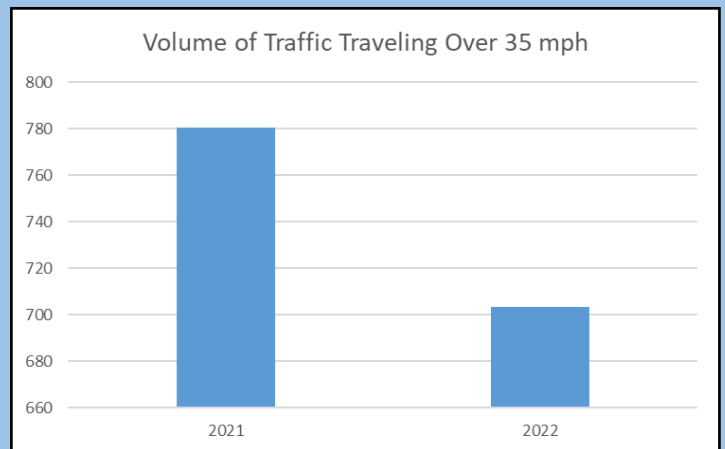
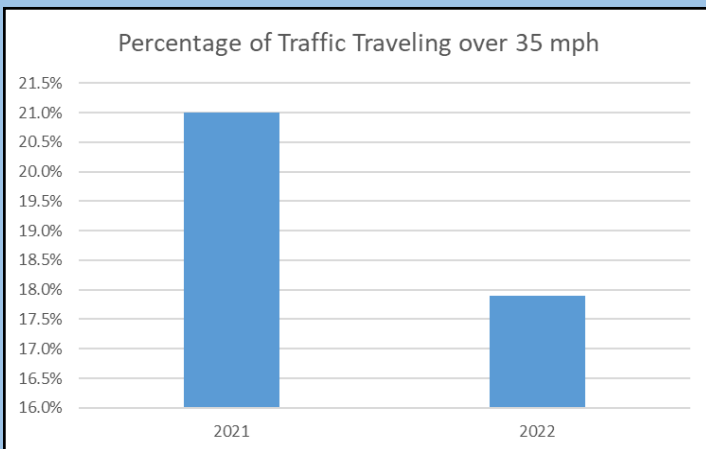
In October, the speed limit on Cottage Grove Rd from US Highway . This is an area with a YMCA, a library and many important neighborhood businesses. The Capital City Path also ends here and the bike facility transitions to on street lanes. Slower speeds provide greater safety by shortening stopping distances and lessening the severity of impacts.



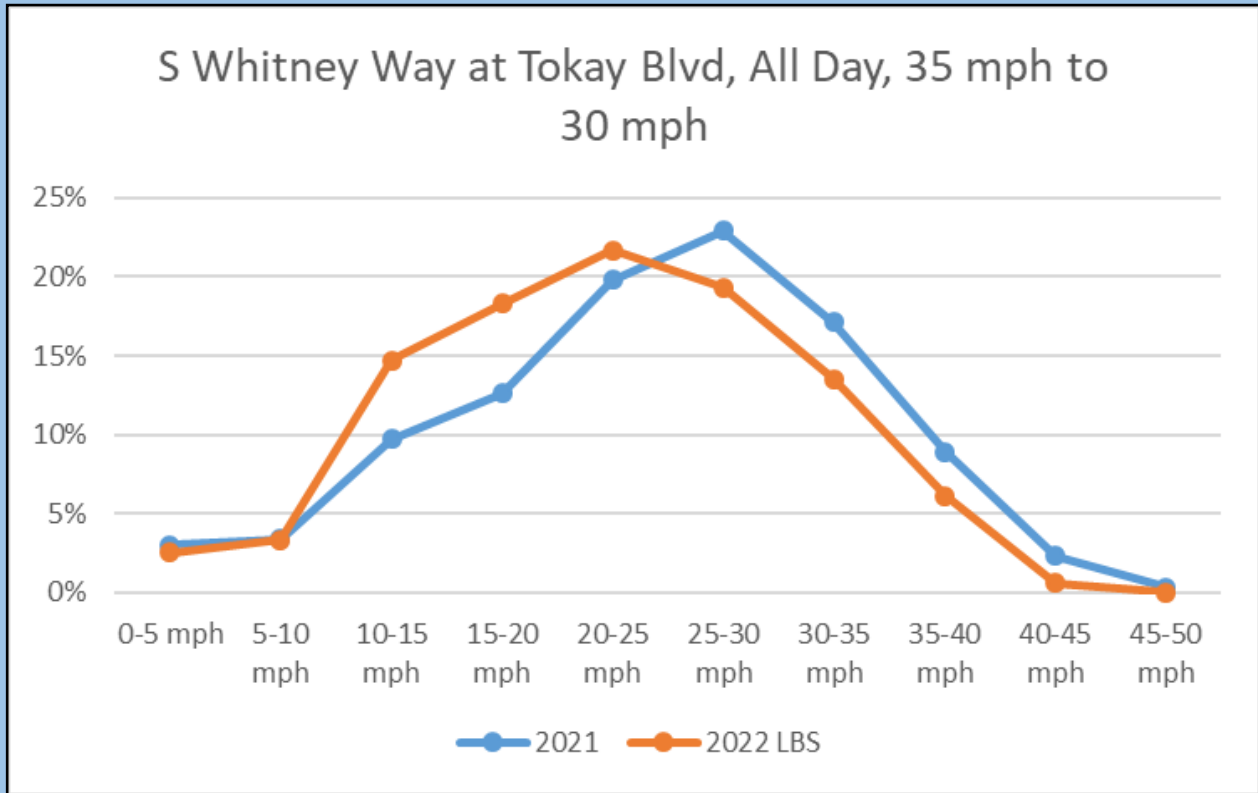
2021 Safe Speed Projects



2021 Cottage Grove Rd Speed limit reduced from 30 mph to 25 mph

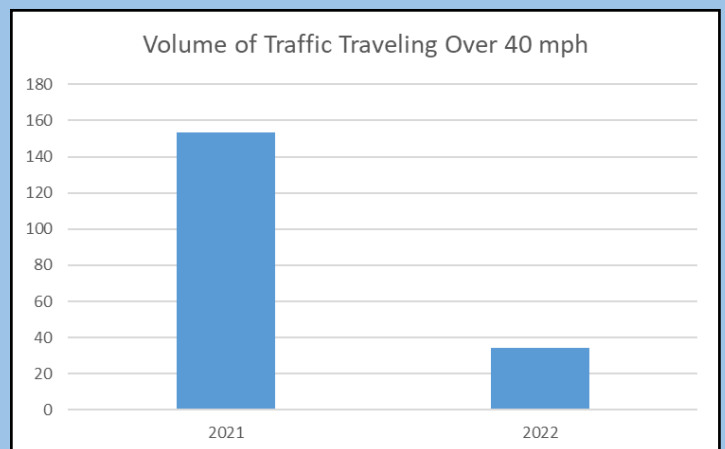
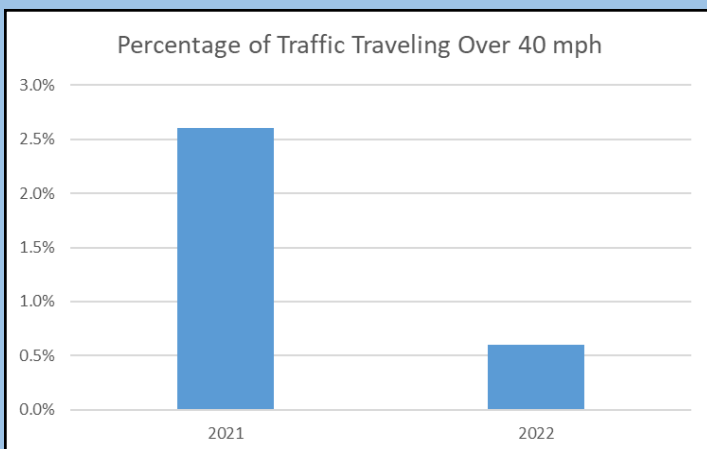


2021 Safe Speed Projects

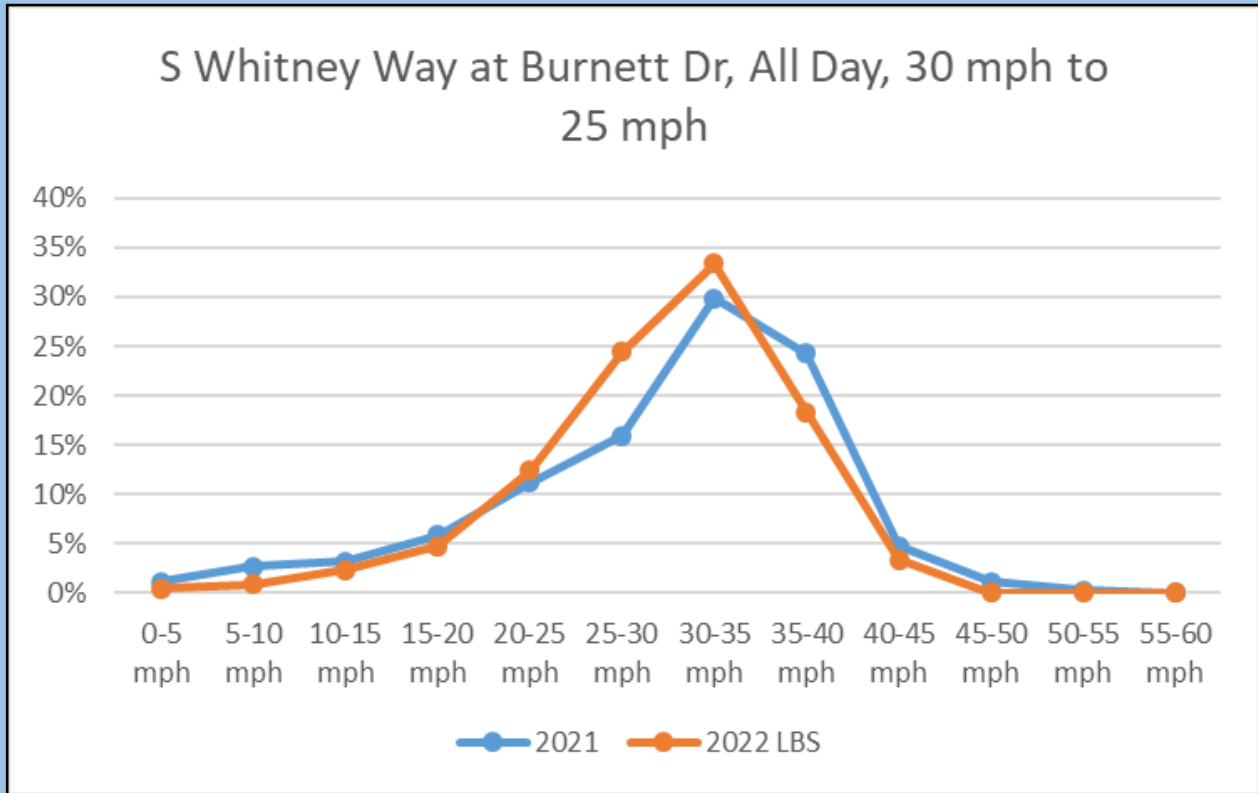


2021 S Whitney Way Speed limit reduced from 35 mph to 30 mph

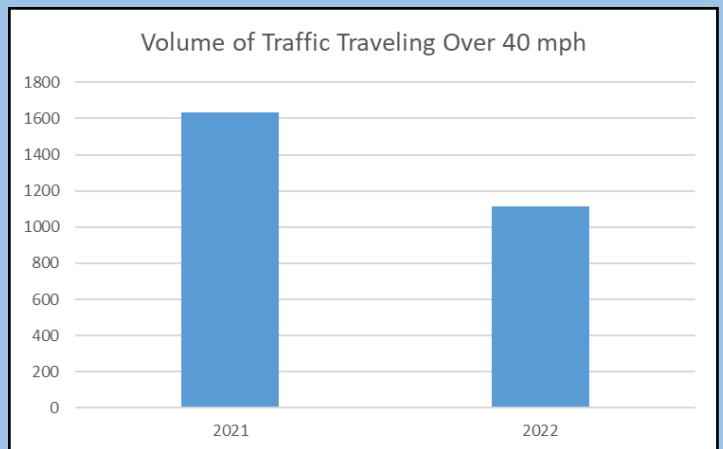
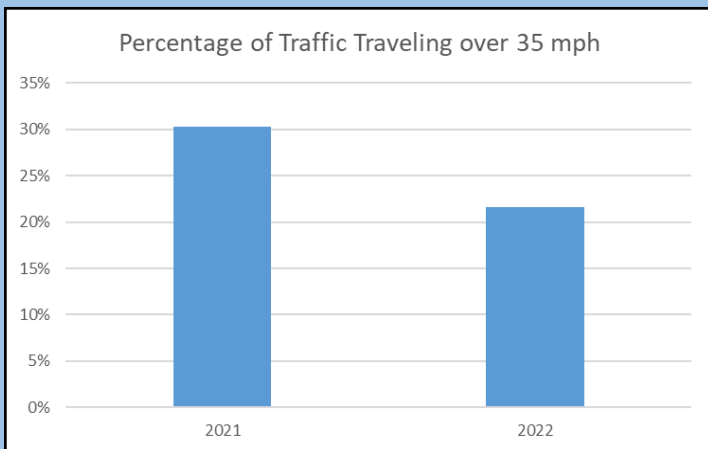
In early October, the speed limit on S Whitney Way between Sheboygan Ave and Tokay Blvd was reduced to 30 mph. S Whitney Way is a residential streets with parks, shopping centers and schools nearby. The speed reductions changed the travel time of this 1.8 mile stretch by less than 30 seconds while lowering the speed limit, even 5pm, helps ensure the safety of the street.



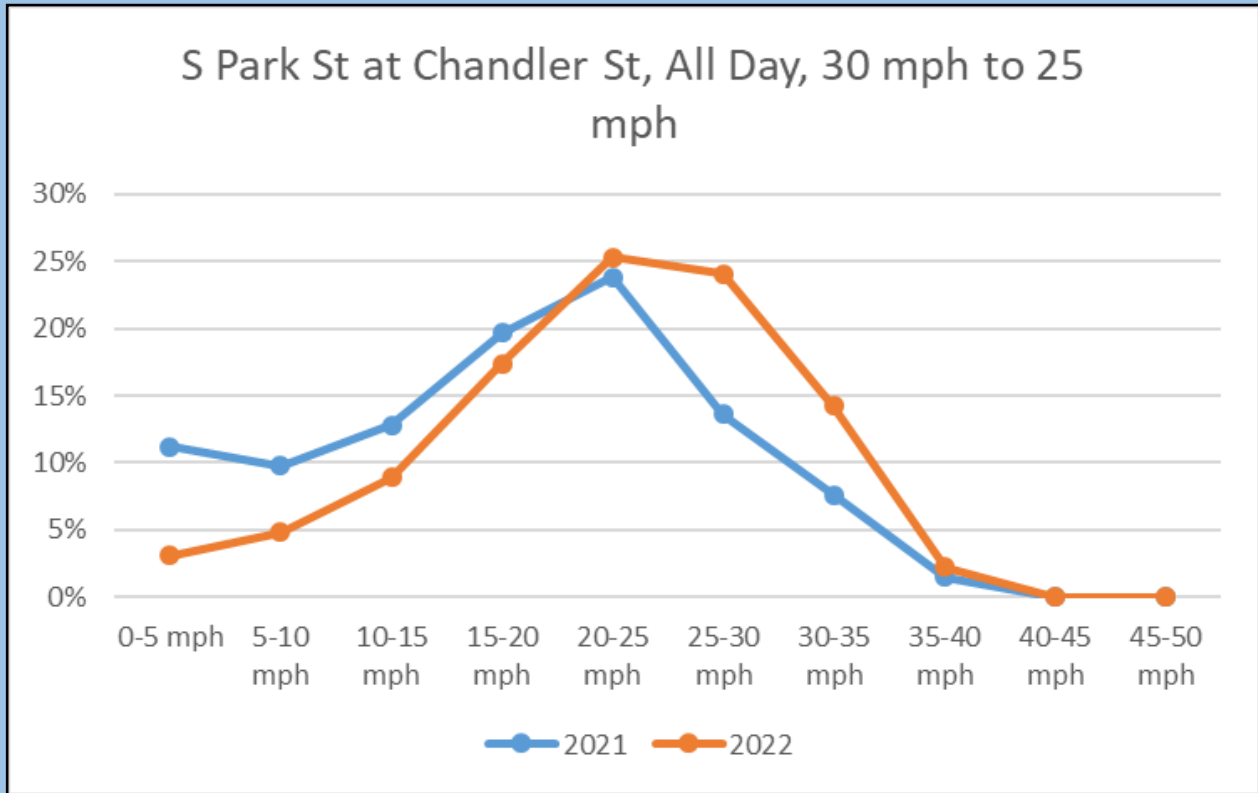
2021 Safe Speed Projects



2021 S Whitney Way Speed limit reduced from 30 mph to 25 mph



2021 Safe Speed Projects

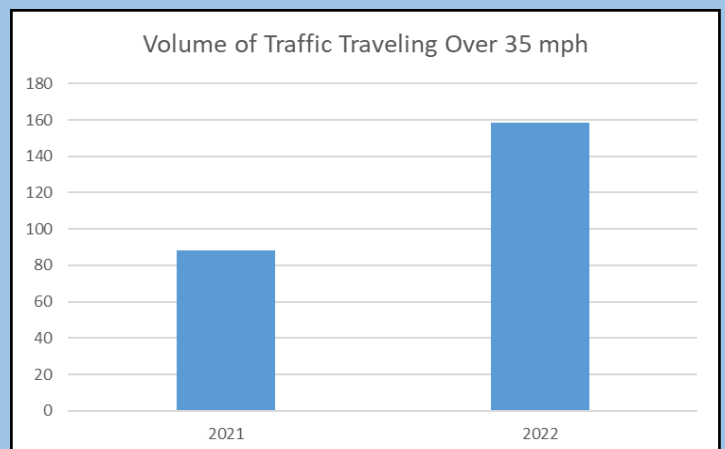
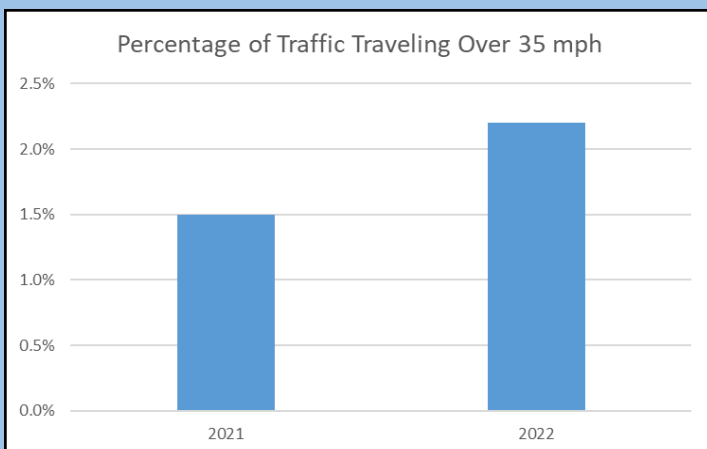


2021 S Park St

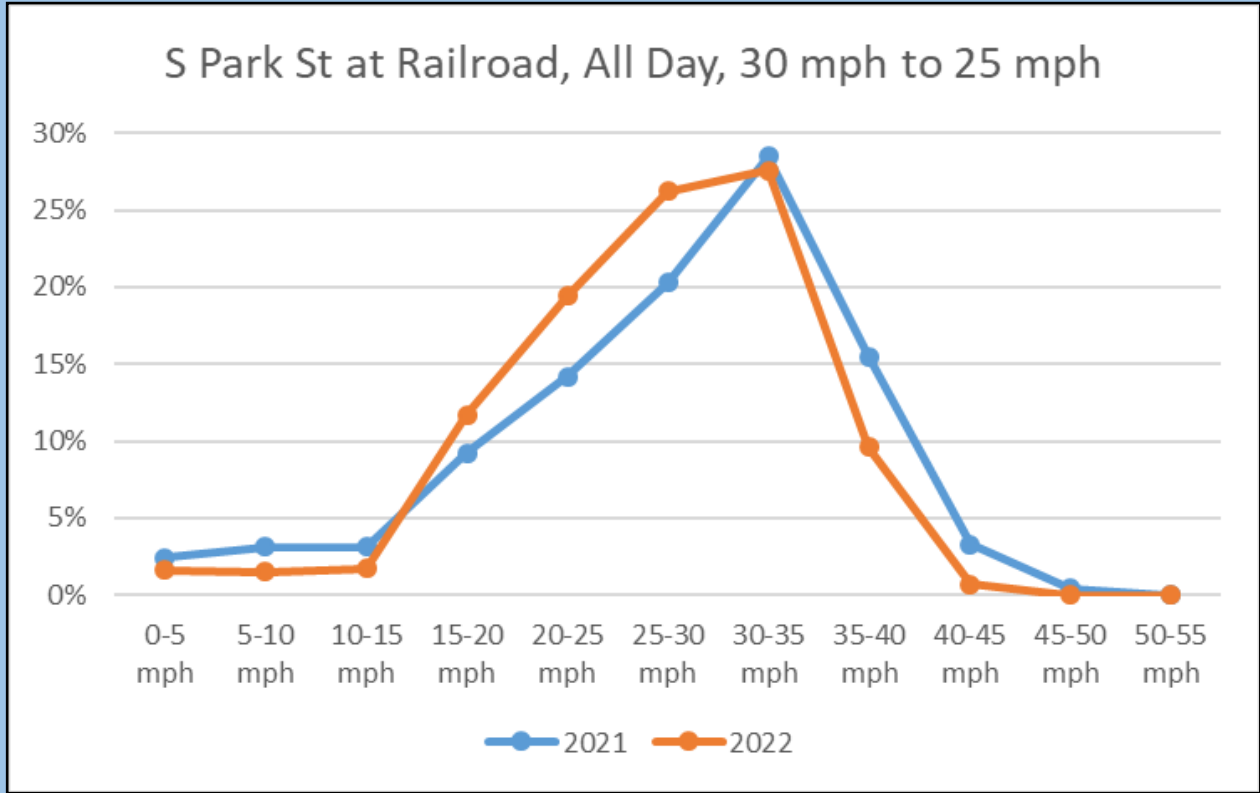
Speed limit reduced from 30 mph to 25 mph

In August, S Park St between Regent St and Badger Rd was lowered to 25 mph. Data shows that between the years 2015-2019, seven-teen people suffered serious injury and two pedestrians died in traffic crashes on S Park St. In 2020, enhanced crosswalks were added at Badger Rd and Buick St and a new crosswalk was added for the bus stops near the railroad crossing.

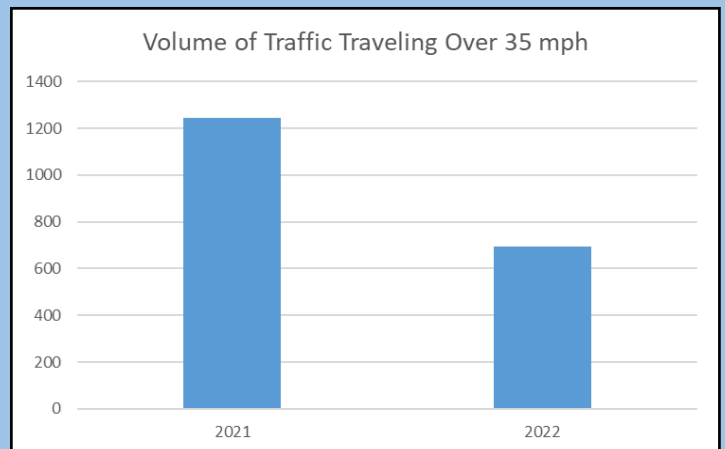
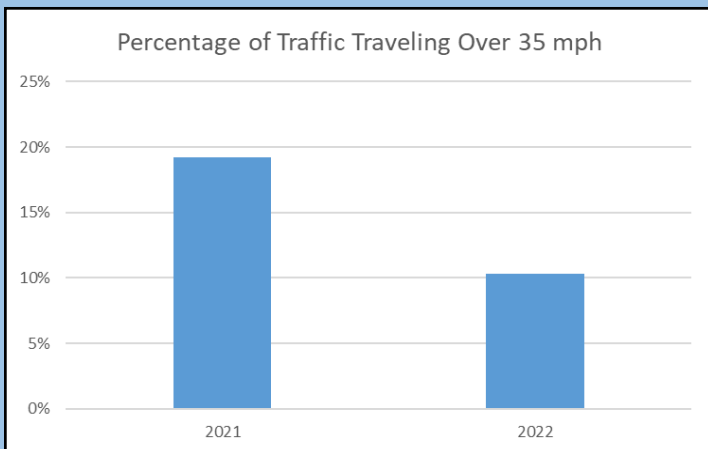
NOTE: Traffic volumes decreased significantly on S Park St in 2020 due to the pandemic. In 2021, the overall traffic volume went back up. While the percentage of vehicles traveling over 35 mph decreased between 2021 and 2022, the total number of cars going 10 mph over the speed limit increased. This situation can be seen in the evaluations both at Chandler St and at Dane St.



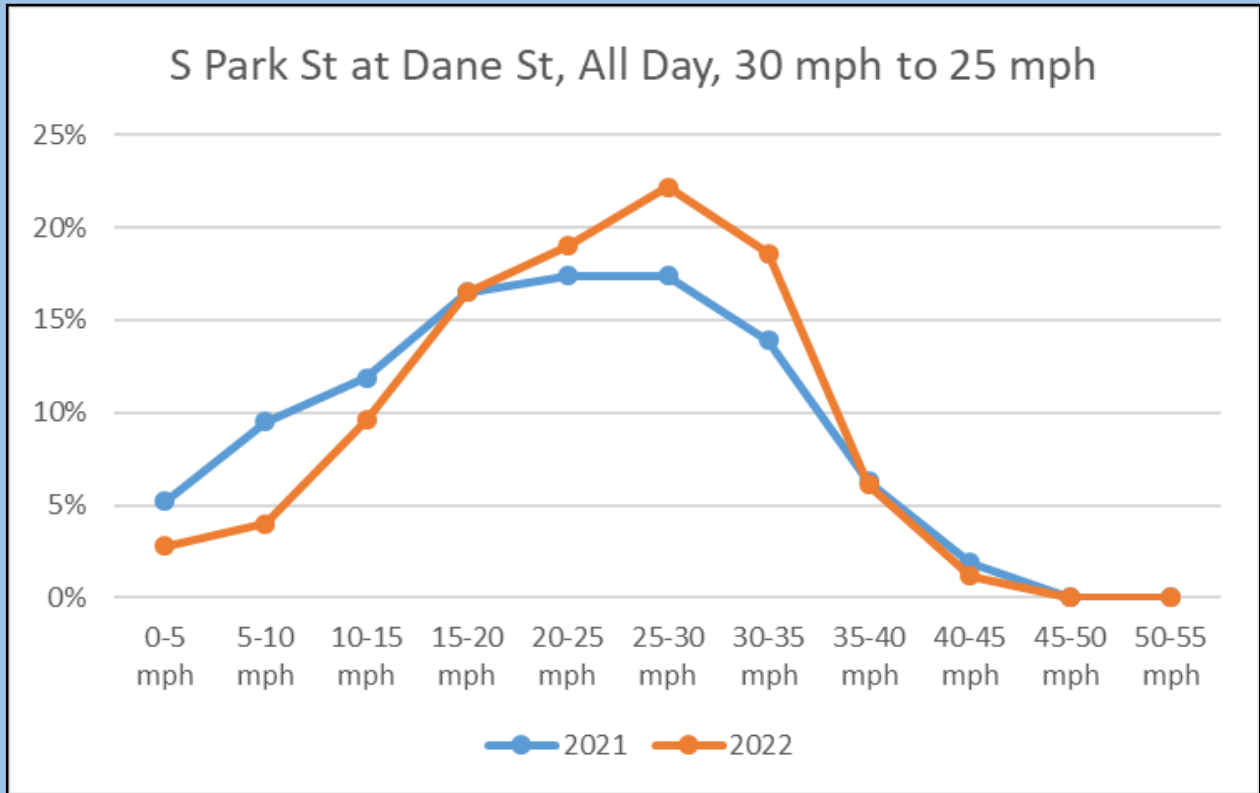
2021 Safe Speed Projects



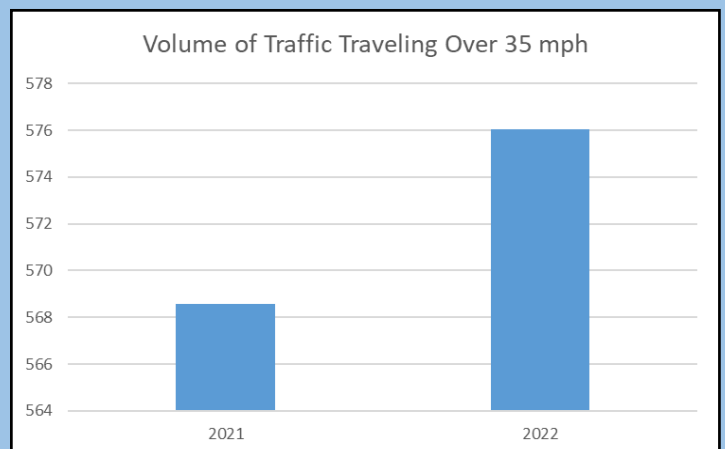
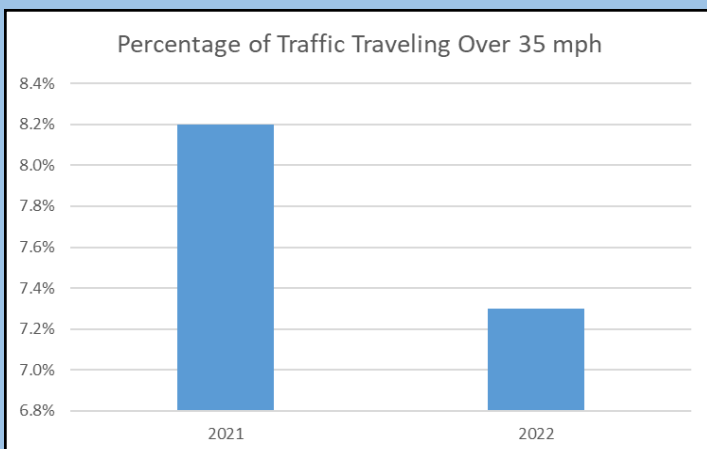
2021 S Park St Speed limit reduced from 30 mph to 25 mph



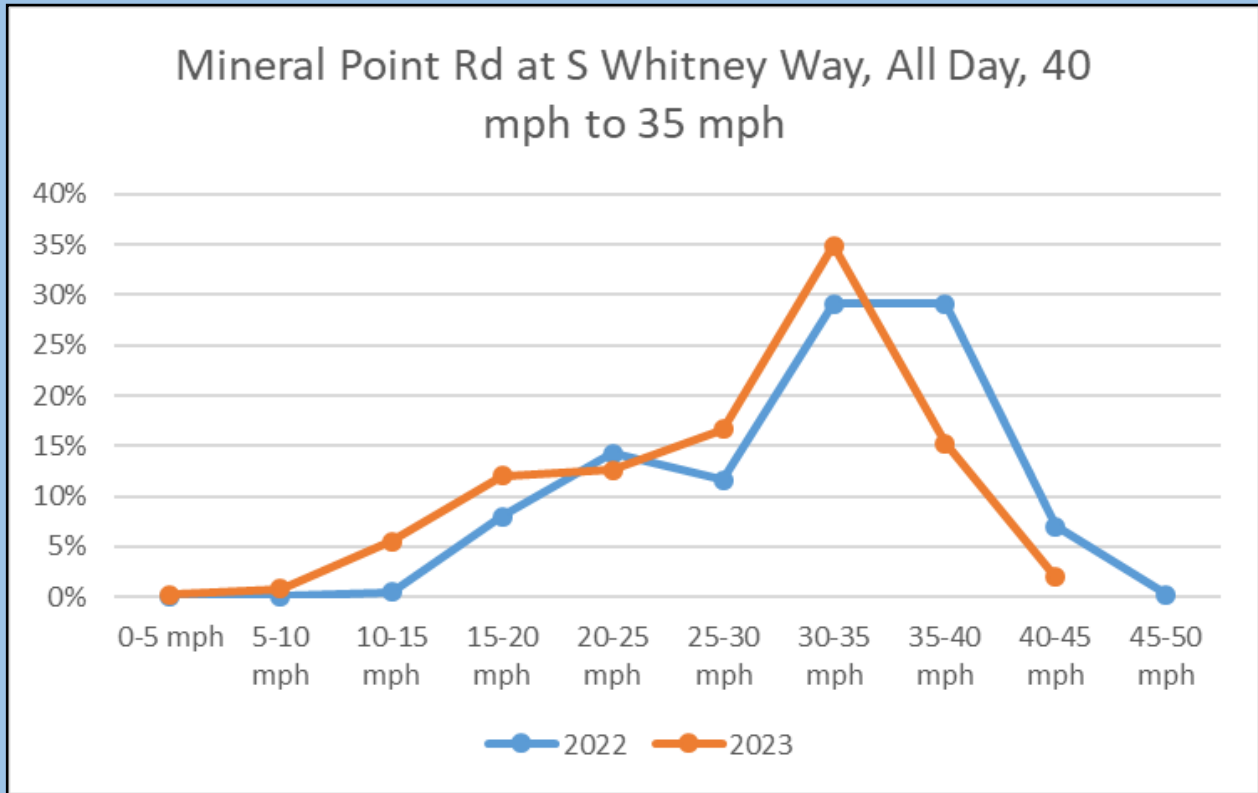
2021 Safe Speed Projects



2021 S Park St Speed limit reduced from 30 mph to 25 mph

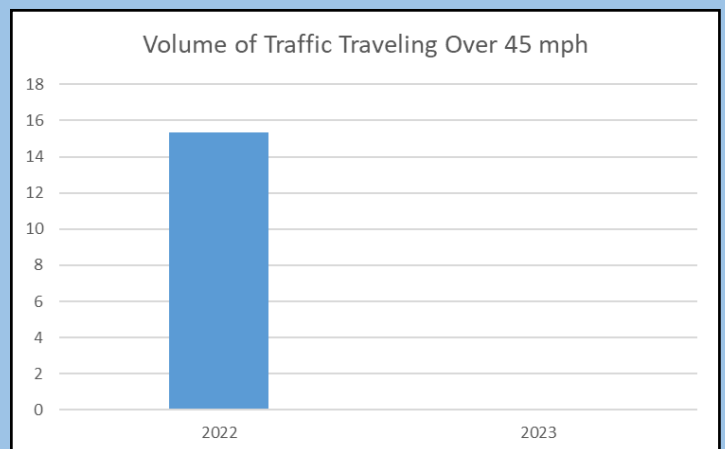
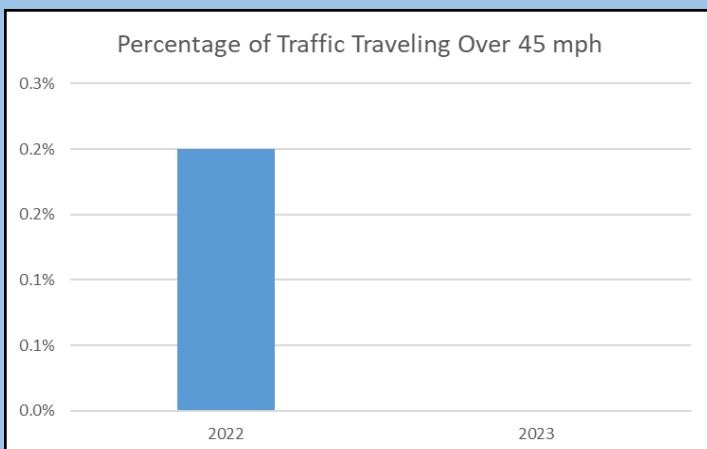


2022 Safe Speed Projects

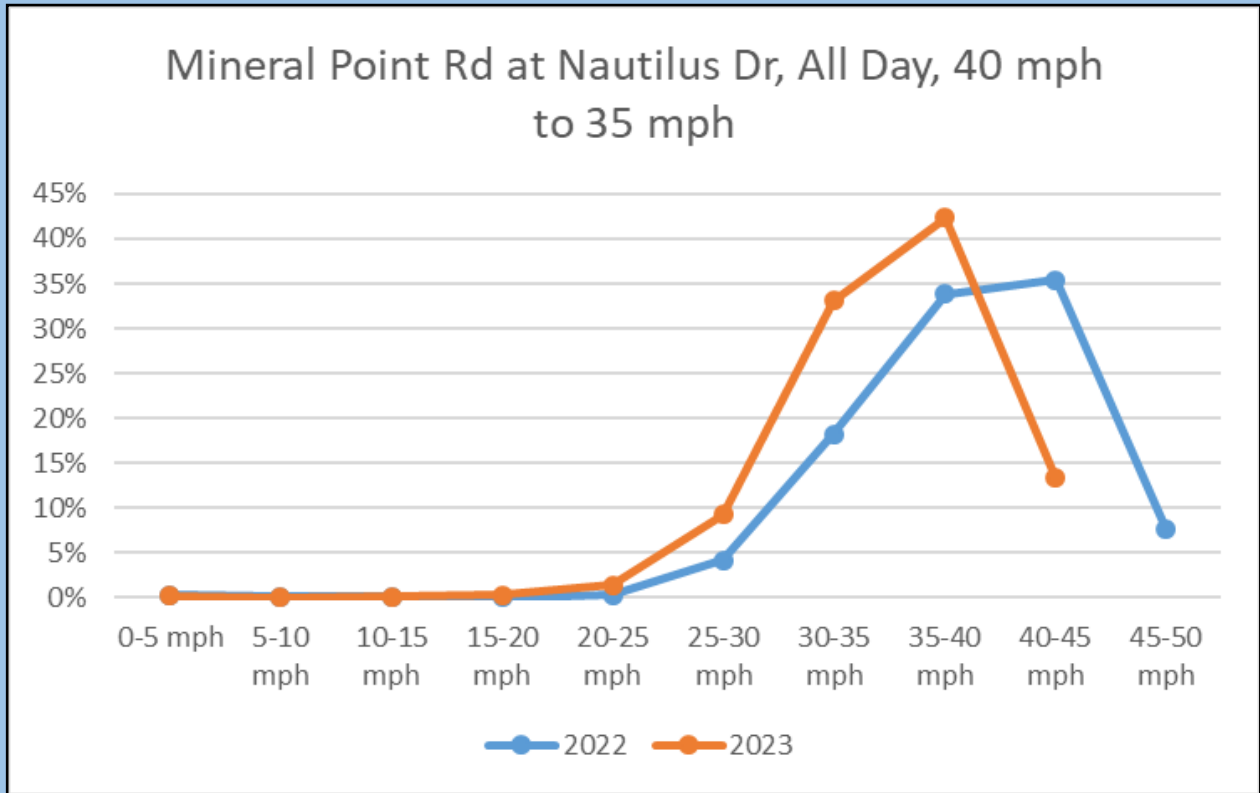


2022 Mineral Point Rd Speed limit reduced from 40 mph to 35 mph

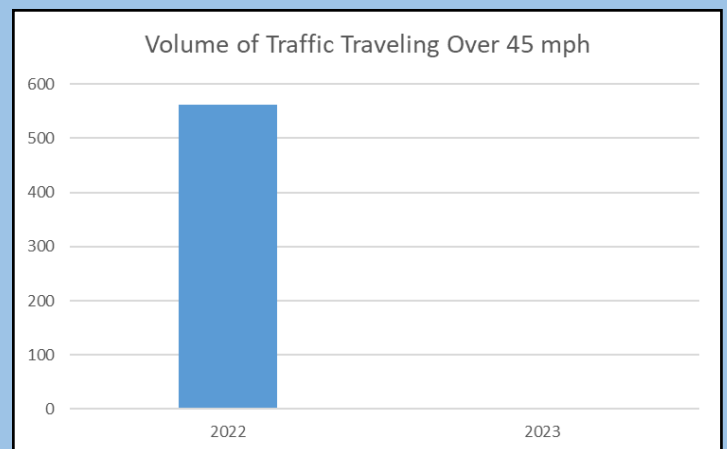
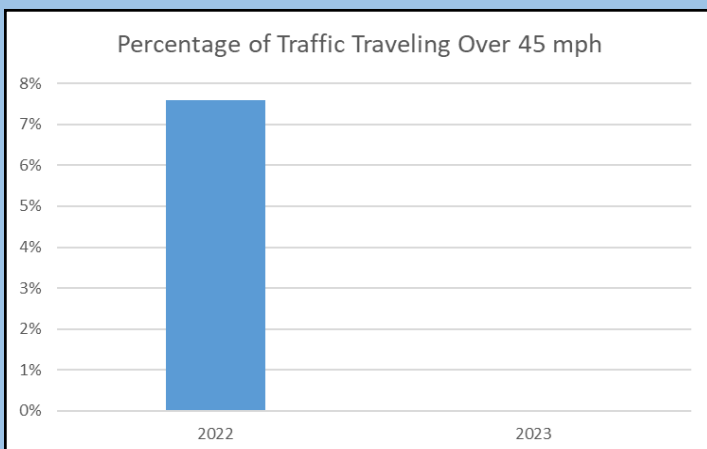
In October, the speed limit on Mineral Point Rd between Whitney Way and Science Dr was reduced to 35 mph. This location is close to an important business park and near a large City park. The intersection of Whitney Way and Mineral Point Rd is a transit stop and is where bike facilities intersect.



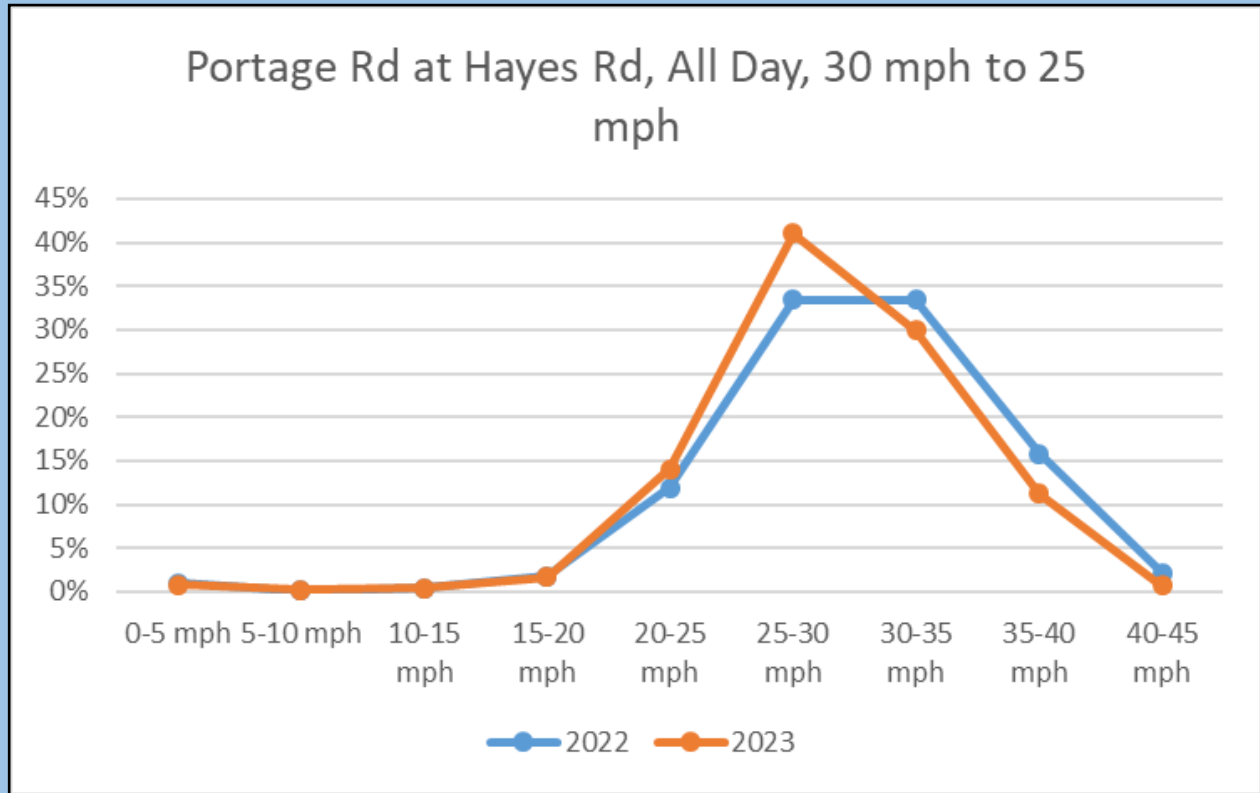
2022 Safe Speed Projects



2022 Mineral Point Rd Speed limit reduced from 40 mph to 35 mph



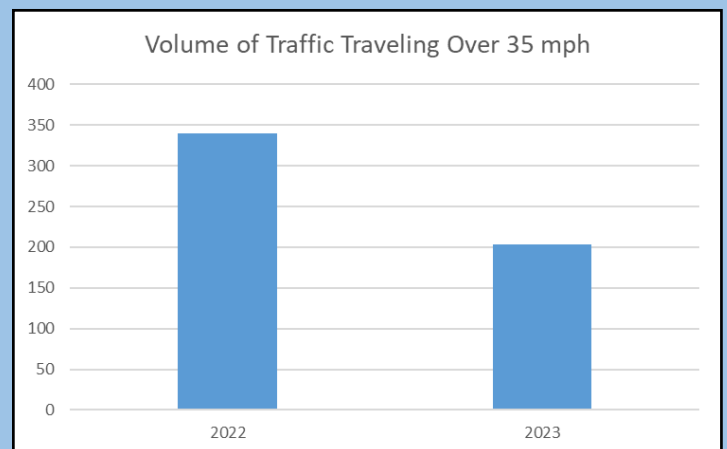
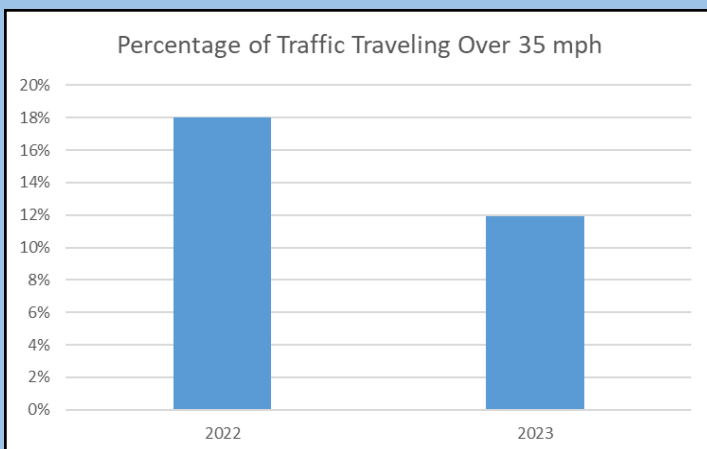
2022 Safe Speed Projects



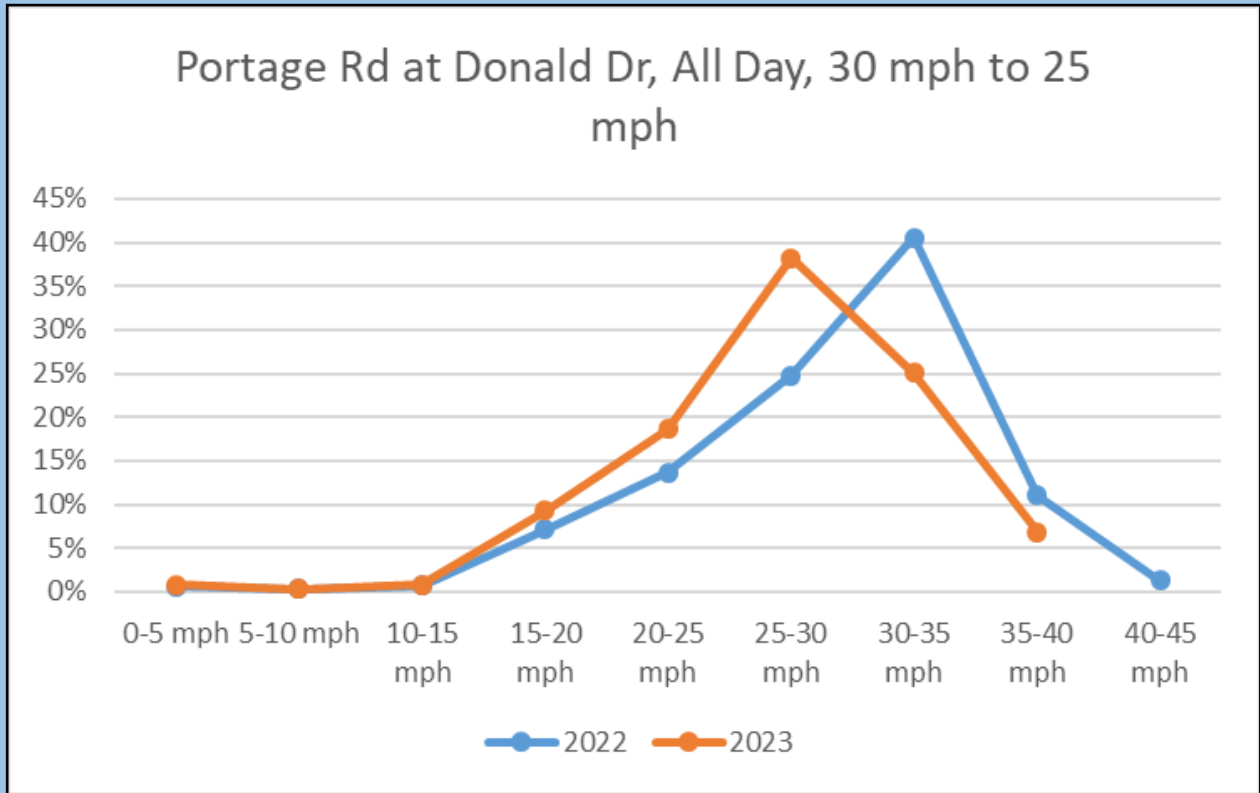
2022 Portage Rd

Speed limit reduced from 30 mph to 25 mph

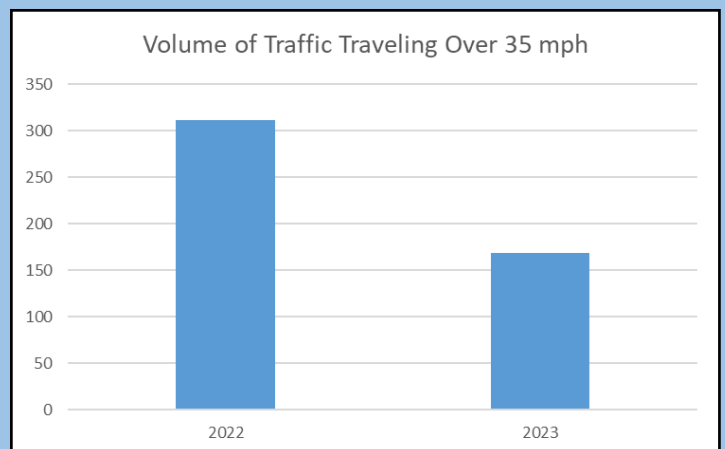
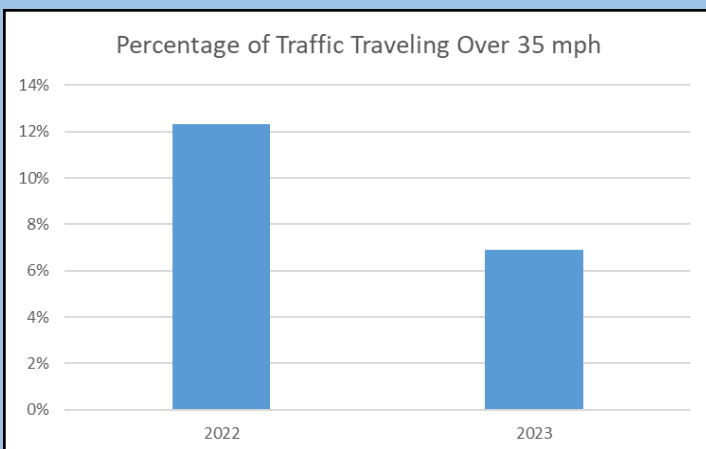
In September, the speed limit was reduced to 25 mph on Portage Rd from East Washington Ave to Churchill Heights Park. Portage Rd is a residential street that includes many apartment building and homes, a school and a large City park.



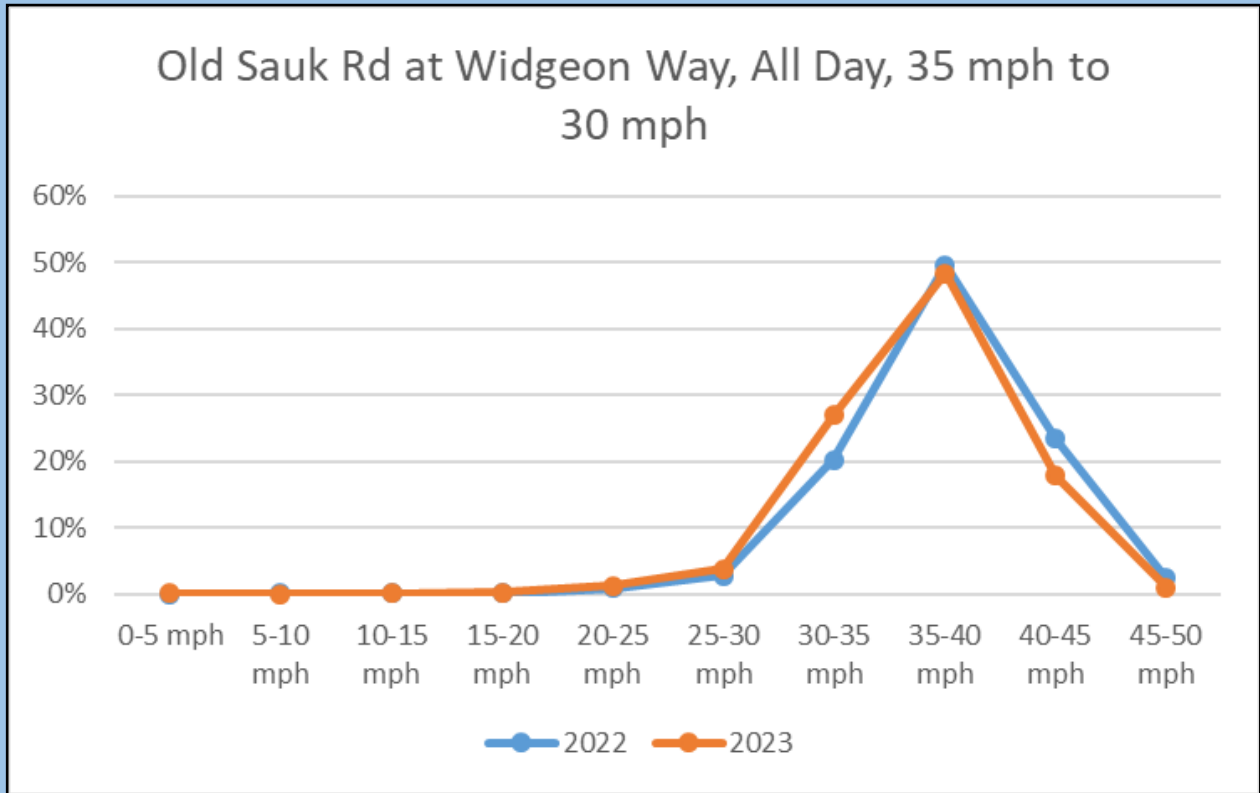
2022 Safe Speed Projects



2022 Portage Rd Speed limit reduced from 30 mph to 25 mph



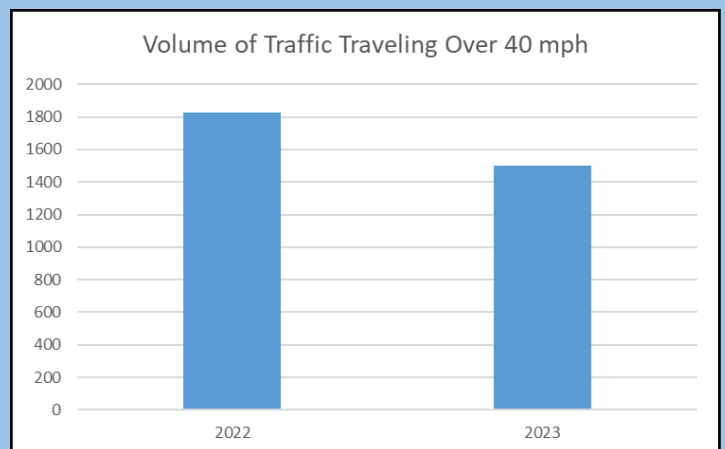
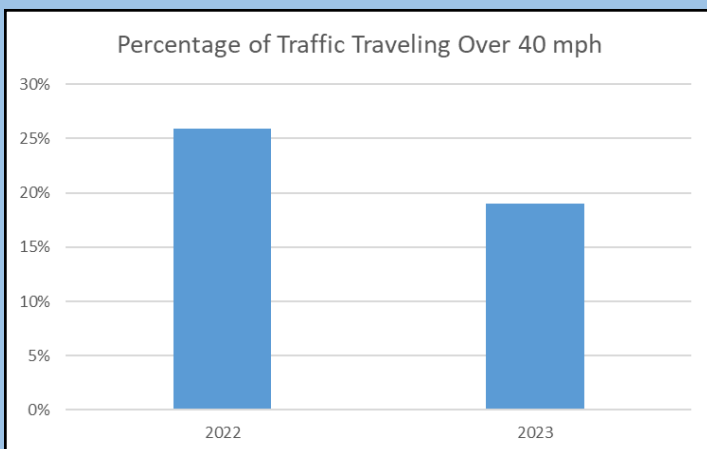
2022 Safe Speed Projects



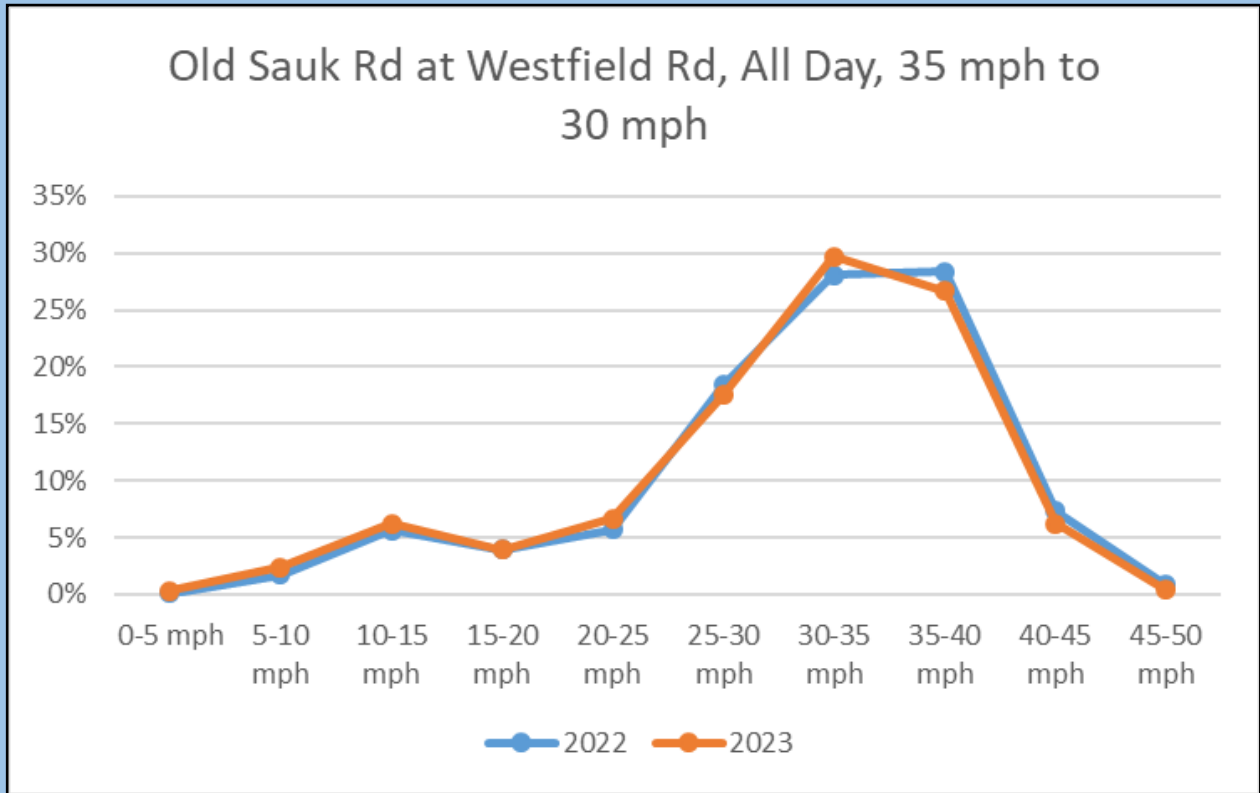
2022 Old Sauk Rd

Speed limit reduced from 35 mph to 30 mph

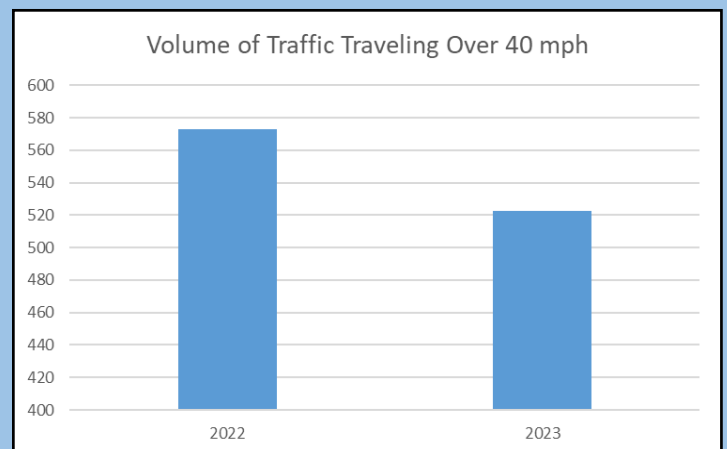
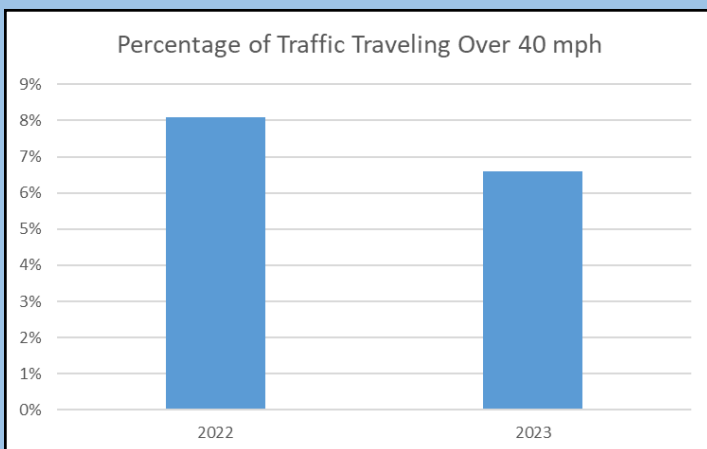
In September, the speed limit was reduced to 30 mph on Old Sauk Rd from Westfield Rd to the Beltline. This roadway is a common access road leading to the Beltline from west side neighborhoods, has a growing number of shops and restaurants, and serves as a route into the Middleton area’s commercial shops and restaurants.



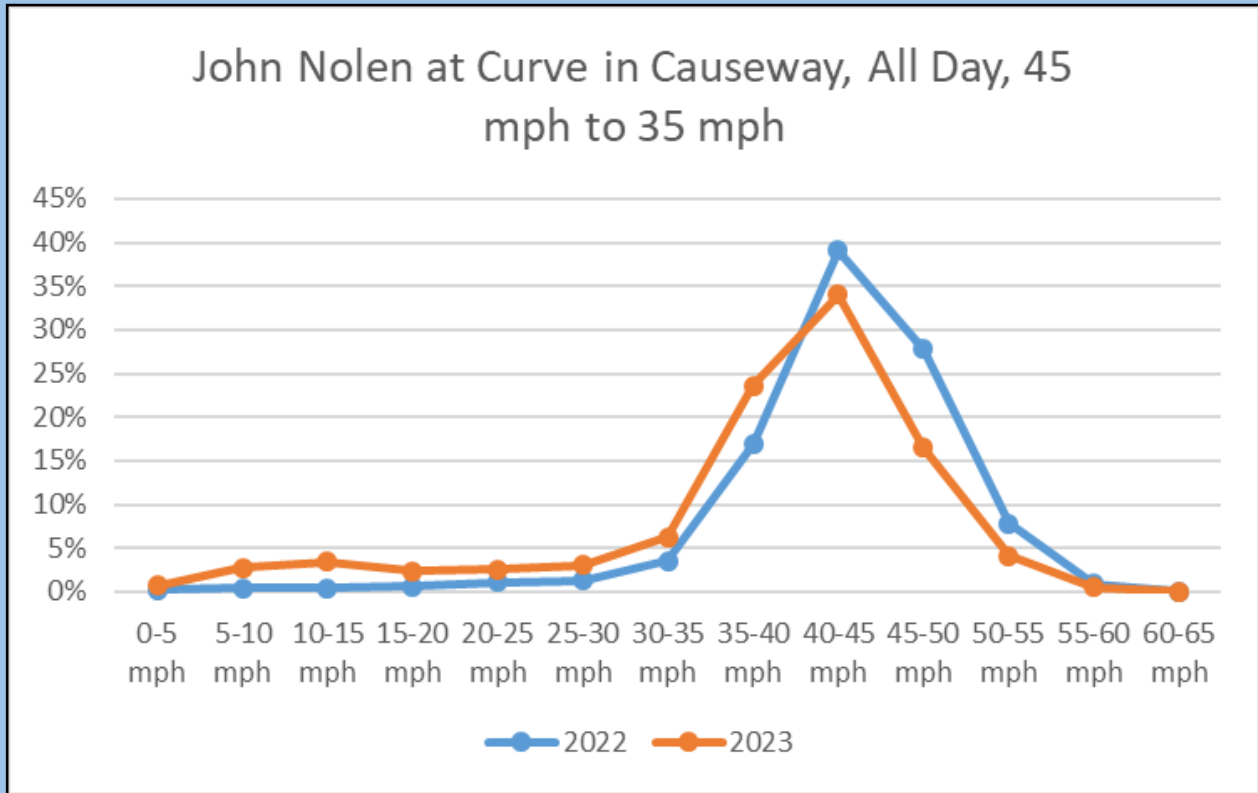
2022 Safe Speed Projects



2022 Old Sauk Rd Speed limit reduced from 35 mph to 30 mph

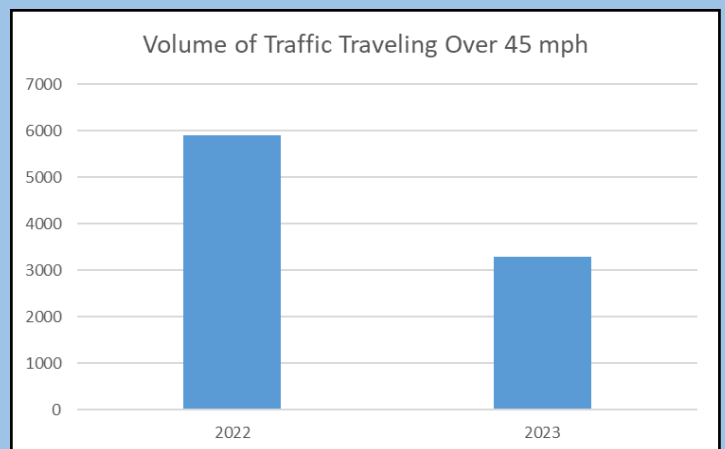
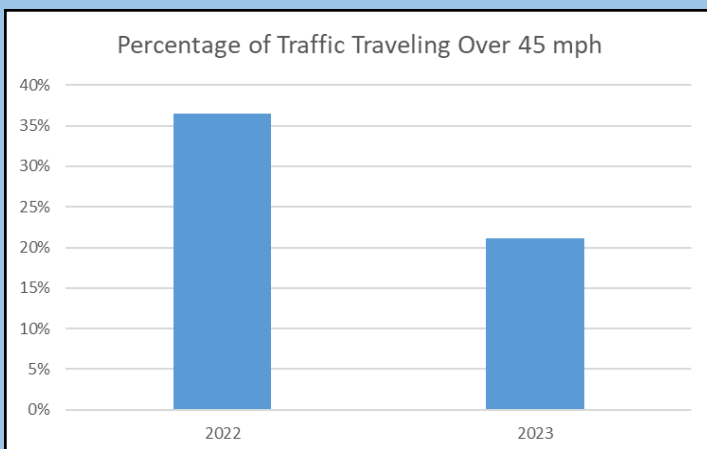


2022 Safe Speed Projects

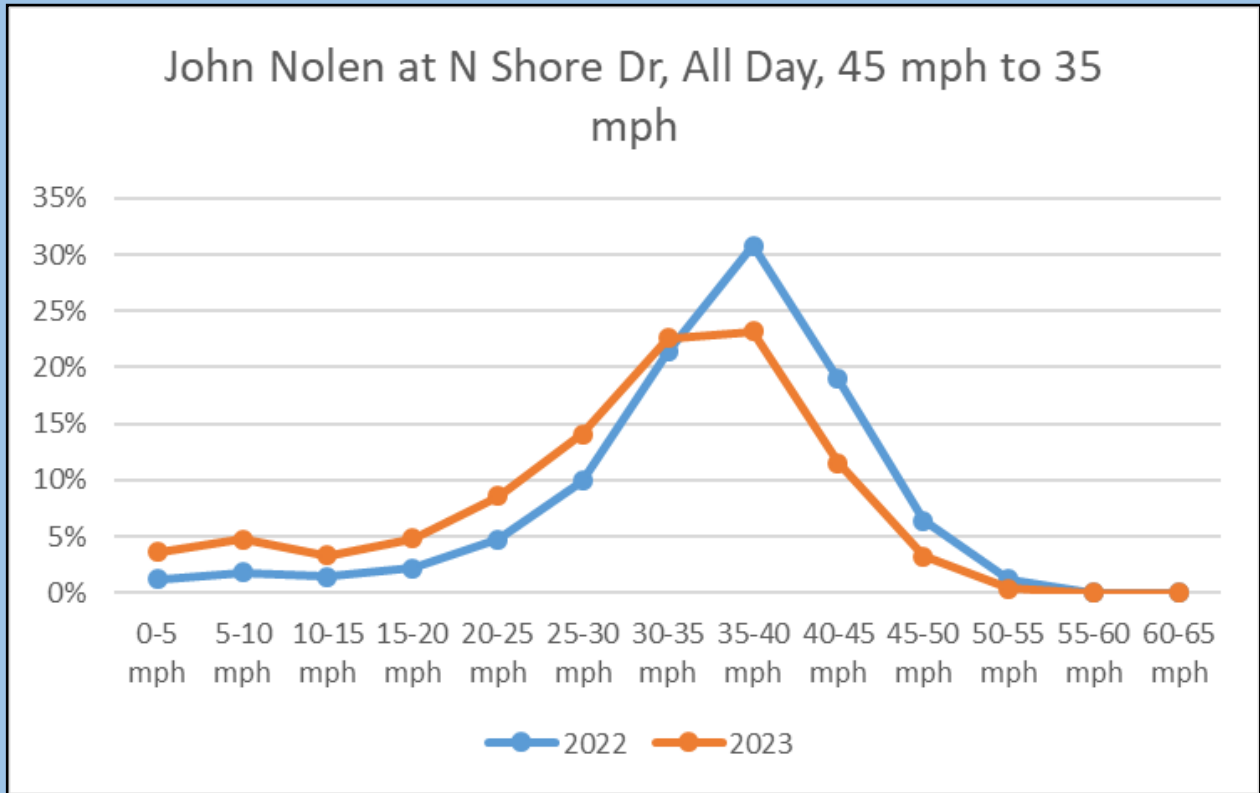


2022 John Nolen Dr Speed limit reduced from 45 mph to 35 mph

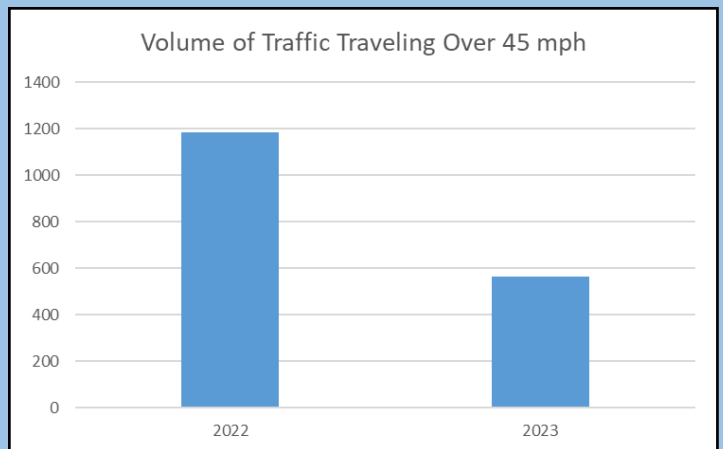
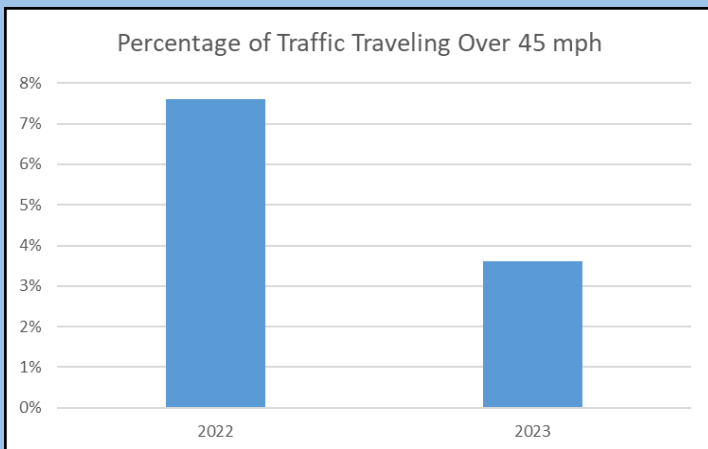
In August 2022 the speed limit on John Nolen Dr from North Shore Dr to E Lakeside St was reduced to 35 mph. Between 2016-August 2022, five people suffered serious injuries along the John Nolen Dr causeway and an additional fifteen people suffered minor injuries in crashes on this segment. Driving at higher speeds increases the needed time to stop and at lower speeds drivers have a wider field of vision. Reaction times also increase at lower speeds, which makes avoiding a collision easier.



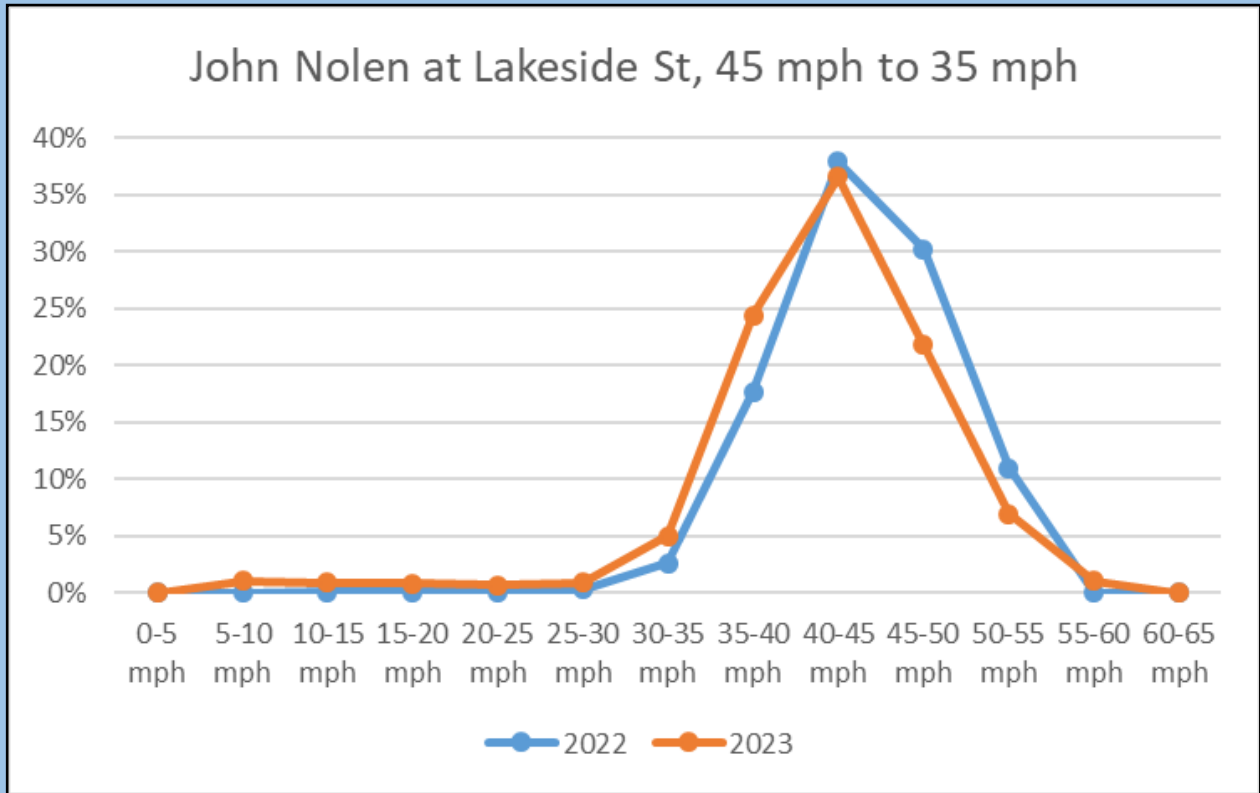
2022 Safe Speed Projects



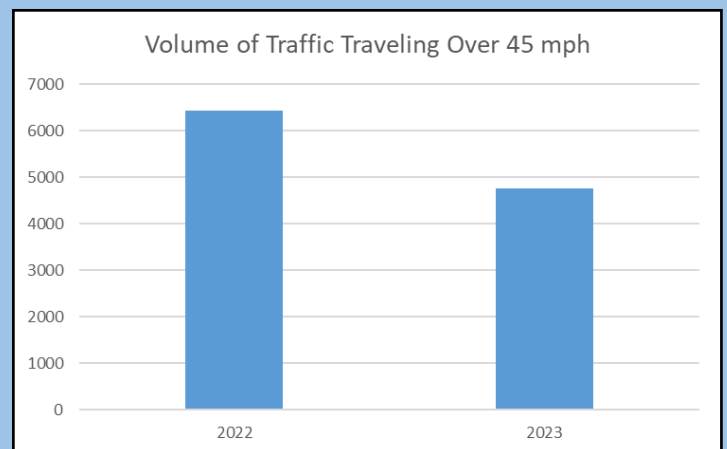
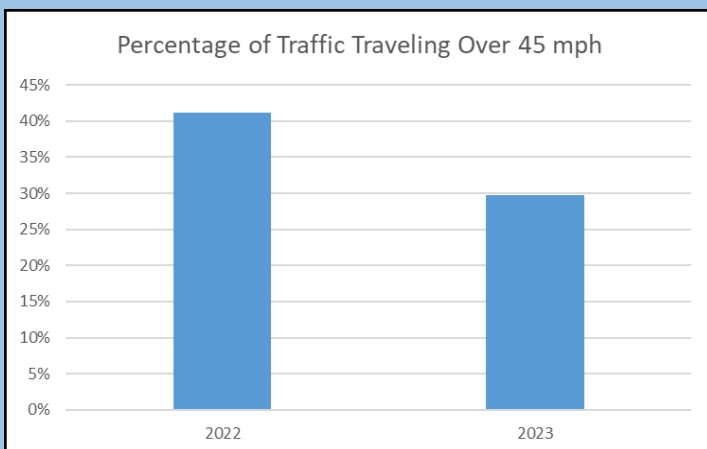
2022 John Nolen Dr Speed limit reduced from 45 mph to 35 mph



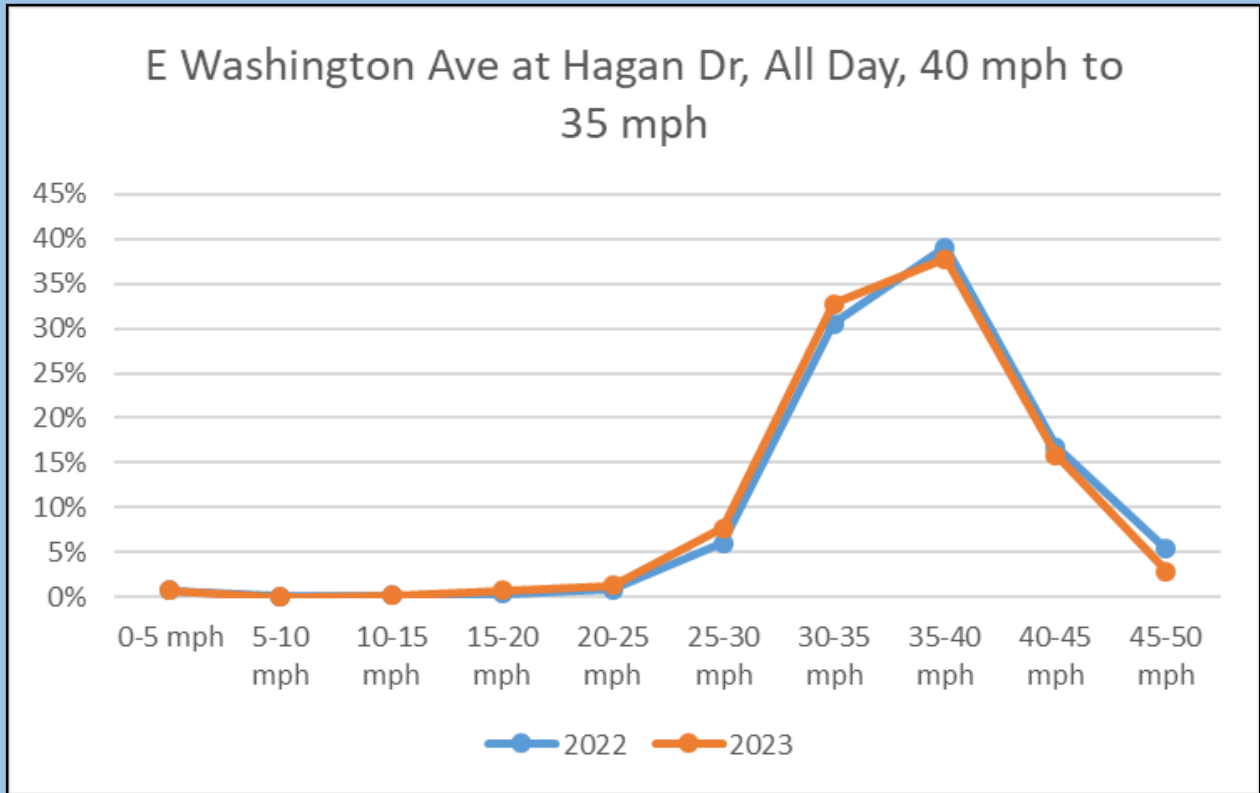
2022 Safe Speed Projects



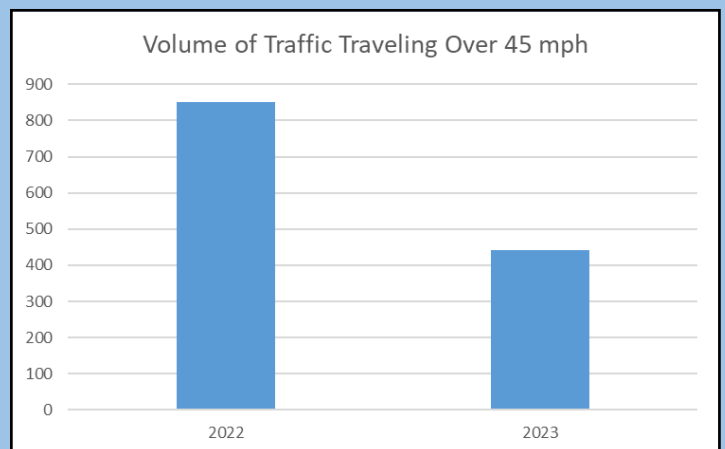
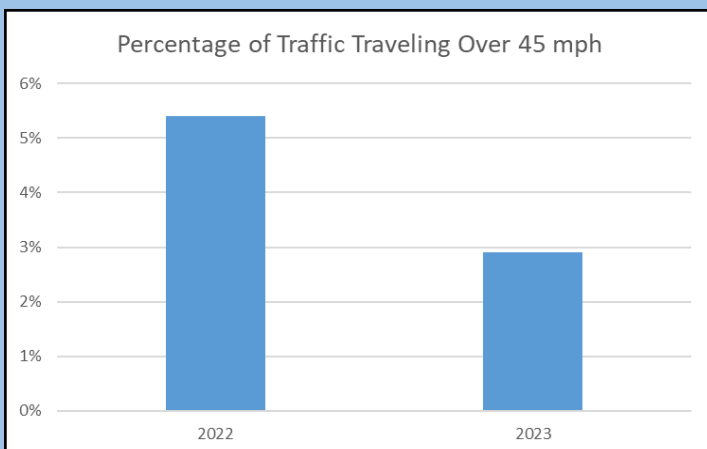
2022 John Nolen Dr Speed limit reduced from 45 mph to 35 mph



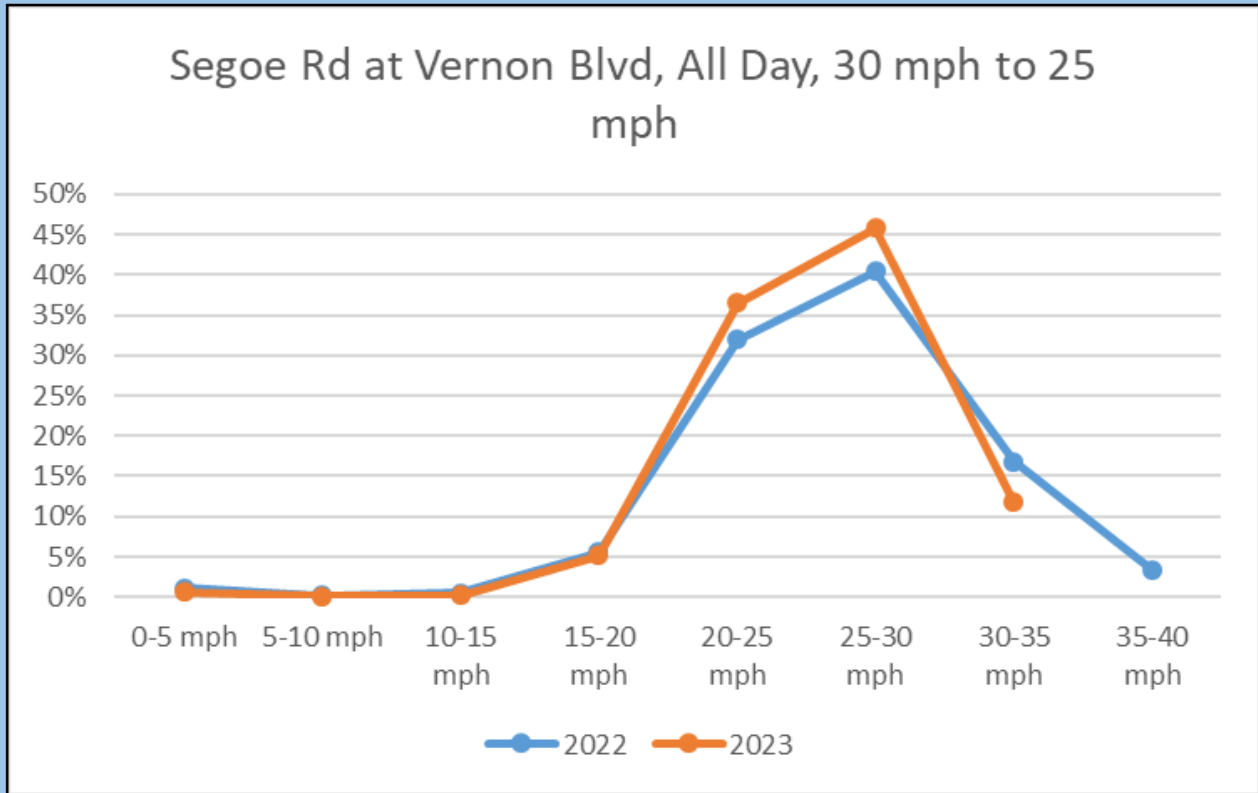
2022 Safe Speed Projects



2022 John Nolen Dr Speed limit reduced from 40 mph to 35 mph



2022 Safe Speed Projects



2022 Segoe Rd

Speed limit reduced from 30 mph to 25 mph

In October 2022 Segoe Rd was reduced to 25 mph along the entire length of the road. This area was selected for the speed management program due to the presence of schools, parks and many stores and restaurants at Hilldale Shopping Mall. Segoe Rd is also a key bicycle route for travel on the west side of Madison and serves as a walking and biking route for families to reach Van Hise Elementary and Hamilton Middle Schools.

