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MEMORANDUM

TO: Ryan Germeroth, PE,
Transportation Planning and Traffic Engineering Manager

FROM: Jacob Vargish, PE,
Traffic Operations Engineer

DATE: October 25, 2019

SUBJECT: Speed Study Follow Up – Crystal Valley Parkway

In the Fall of 2018, traffic volume and speed data were collected over a seven day period on Crystal Valley Parkway under typical roadway conditions as part of a speed limit assessment for the corridor. The recommendation of that assessment was to increase the posted speed limit on Crystal Valley Parkway to 45 mph with the exception of the segment between Plum Creek Blvd. and Manorbrier Circle. In this segment, the existing 35 mph speed limit remained due to the limited sight distance at Old Lanterns Parkway. In an effort to enhance the safety of that location, we installed rectangular rapid flashing beacons to aid with pedestrian crossings. Additionally we added advisory warning signage with amber flashers to alert drivers of the reduced speed on that segment. Finally, we added intersection ahead warning signs at several locations along the corridor to warn of turning vehicles. The warning sign in the westbound direction in advance of Lions Paw Street also included an amber flashing beacon to further draw attention to that intersection. All of the changes listed above were implemented in the field in Summer 2019. The overall goal of the project was to provide the correct speed limit for the roadway environment that is reasonable, safe, and prudent. The engineering assessment completed prior to the change was used to determine what the posted speed should be on the corridor.

As a follow-up to the changes made over the summer, traffic volume and speed data was again collected over a seven day period under typical roadway conditions in October 2019 to determine if the modified posted speed limit on Crystal Valley Parkway was effective at achieving the goals of the project and to verify that driver behavior did not negatively change (i.e. majority of drivers increasing their speed). The following table provides a summary of the data collected before and after the changes. In addition, **Figure 1**, attached at the end of the memo, shows the change in speed graphically for each segment.

Table 1. Before and After Speed / Volume Data

	Roadway Segment – Crystal Valley Parkway		
	Plum Creek Blvd to Manorbrier Cir.	Manorbrier Cir. to Mighty Oak Street	Mighty Oak Street to W. Loop Road
Current Posted Speed (MPH)	35	45	
	September 2018		
Average Daily Traffic	3,587	2,740	1,806
85th Percentile Speed (W / E)	50 / 40	56 / 40	44 / 58
% of Drivers > 35 mph (W / E)	87 / 54	91 / 62	87 / 98
% of Drivers > 40 mph (W / E)	71 / 12	77 / 17	49 / 95
% of Drivers > 45 mph (W / E)	40 / 1	61 / 2	12 / 84
10 mph pace range (higher 85 th % speed)	39 - 49 mph	45 - 55 mph	46 - 56 mph
% within pace range	58	44	55
	October 2019		
Average Daily Traffic	5,272	4,574	3,127
85th Percentile Speed (W / E)	45 / 42	51 / -	49 / 52
% of Drivers > 35 mph (W / E)	89 / 68	98 / -	96 / 98
% of Drivers > 40 mph (W / E)	55 / 26	85 / -	83 / 90
% of Drivers > 45 mph (W / E)	16 / 5	58 / -	49 / 35
10 mph pace range (higher 85 th % speed)	36 - 46 mph	40 - 50 mph	42 - 52 mph
% within pace range	73	64	69

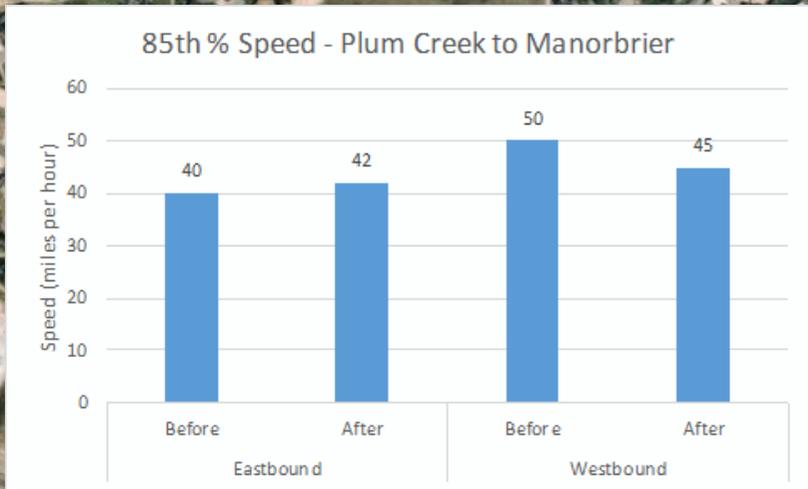
As seen in **Table 1**, through the reduced speed segment containing Old Lanterns Parkway we have reduced the 85% speed by over 10% or 5 mph down to 45 mph from 50. This can likely be attributed to the reduced speed ahead warning signs and flashing beacons. All of the other 85% speeds are within 5 mph of the before data which was the expected result. Most locations saw a reduction in the 85% speed. The 10 mph pace on each segment has been reduced by 3 to 5 mph. The data also shows that a larger percentage of drivers are now traveling within the 10 mph pace as compared to before which means that speed differentials along the corridor are less of an issue now than previously since there are more drivers within 10 mph of each other than before. In no location have speeds increased significantly which was a concern of the public prior to the change. The location with the highest increase in speed is in the westbound direction near the Mighty Oak segment where 85% speed has increased from 44 to 49 mph. This segment is also in an uphill grade area, greater than 5%, so the safety risk and safe stopping distance is considerably less.

With these findings, staff's conclusion is that the speed modification on Crystal Valley Parkway has been successfully implemented and we do not see any adverse effects

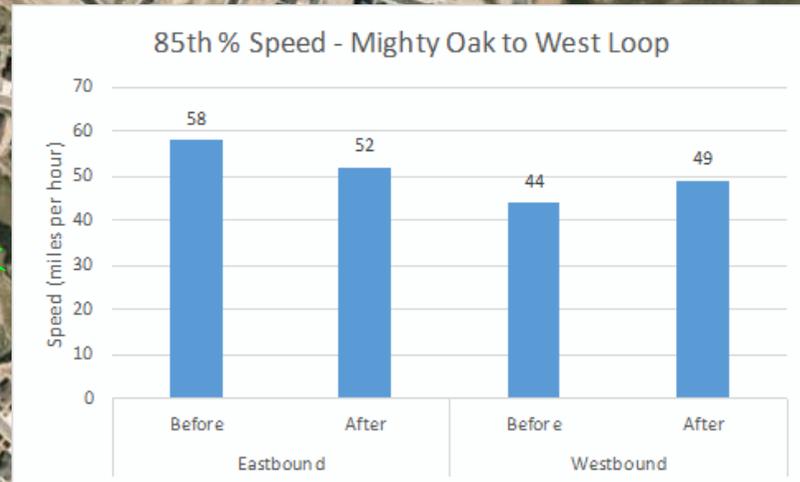
from the changes. In fact the results are better in some areas than expected. With that said, speeds remain higher than the posted regulatory speed at the Old Lanterns Parkway intersection, however the 85% speed is trending lower than previously due to added signage and beacons. Staff plans to follow up with Castle Rock Police in this regard and ask for additional enforcement to see if greater compliance can be achieved.

FIGURE 1 - SUMMARY OF SPEED DATA

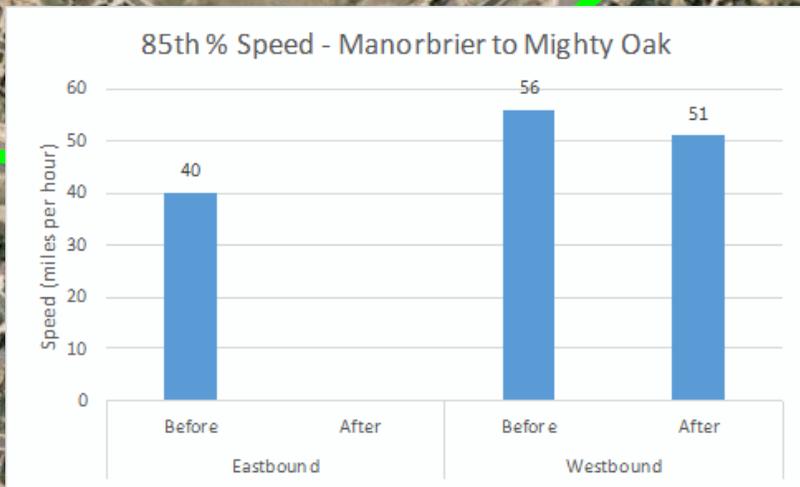
85th % Speed - Plum Creek to Manorbrier



85th % Speed - Mighty Oak to West Loop



85th % Speed - Manorbrier to Mighty Oak



Plum Creek Blvd.

Manorbrier Cir.

St. Mighty Oak

West Loop Rd.