November 19, 2019

AGENDA ITEM 7 H

WOODVILLE HIGHWAY UPDATE

TYPE OF ITEM: Information

STATEMENT OF ISSUE

As requested at the September 16, 2019 CRTPA meeting, attached is a technical memorandum summarizing a traffic analysis performed at the Woodville Highway Loop related to the "People's Choice Plan" for Woodville Highway. The memorandum is scheduled to be discussed at the meeting.

ATTACHMENT

Attachment 1: Technical Memorandum

At the request of the Capital Region Transportation Planning Agency (CRTPA), FDOT District Three conducted a micro-simulation comparison of additional alternatives for the Woodville Highway planning study. This memorandum explains the methodology of the evaluation of additional alternatives and summarizes the micro-simulation results. The three alternatives that are considered in this evaluation are 1) No-Build 2) Loop Alternative and 3) People's Choice. The analysis utilizes the traffic projections and the signal timings developed as part of the "*SR 363 from SR 263 to Paul Russell Road Preliminary Engineering Report (PER)"* dated June 2014.

Methodology

A synchro analysis was used to compare all three alternatives during the future design year 2035. The existing Synchro Network for the Loop Alternative was provided in order to maintain the same intersection cycle lengths across all the three alternatives. The results of the study were compared against Intersection and Network Measure of Effectiveness (MOE). The approach to each alternative's evaluation along with geometry and signal phasing is described below:

No-Build Alternative

1) This evaluation utilizes the traffic projections as depicted in Exhibit O of the *"Woodville Highway (SR 363) Design Traffic Technical Report"* dated October 2012.
2) As the intersection geometry for the intersections of Adams Street at Ridge Road and Woodville Highway at Gaile Avenue varies from the Loop Alternative, the signal phasing and splits are these intersections are adjusted. However, the cycle length at these intersections is consistent with the cycle length used in. the Loop Alternative.

Loop Alternative

1) This evaluation utilizes the traffic projections as depicted in Exhibit Q of the "Woodville Highway (SR 363) Design Traffic Technical Report" dated October 2012.
2) The evaluation utilizes the signal timings developed as part of the "Woodville Highway (SR 363) Design Traffic Technical Report" dated October 2012.

People's Choice

1) For the purposes of this evaluation, the no-build traffic projections as depicted in Exhibit O of the *Woodville Highway (SR 363) Design Traffic Technical Report"* dated October 2012 were utilized.
2) The evaluation utilizes the signal timings developed as part of the *Woodville Highway (SR 363) Design Traffic Technical Report"* except for the intersections of the Adams Street at Ridge Road and Woodville Highway at Gaile Avenue. The signal phasing and splits for these two intersections were adjusted to account for the intersection geometry. However, the cycle length at these intersections is consistent with the cycle length used in the Loop Alternative.

Measure of Effectiveness

This evaluation uses the overall intersection delay(sec/vehicle), network wide delay (hours), average speed (mph), total delay per vehicle (sec/veh), vehicle denied entry (vehicle) as the measure of effectiveness to

quantify the project traffic operations of the three alternatives. The MOEs are obtained using SimTraffic micro-simulation software with a 15-minute seeding interval and One-hour analysis interval.

Alternative Evaluation

The following tables summarize the Synchro micro-simulation results for each alternative during the future 2035 design year for both intersections and the study area network.

Intersection MOE Comparison

Intersection	No-Build	Loop Alternative	People's Choice
	Delay (Sec/Veh)	*Delay (Sec/Veh)*	*Delay (Sec/Veh)*
Adam Street and Paul Russell Road	125.1	35.6	115.6
Monroe Street and Paul Russell Road	185.9	84.9	167.9
Adam Street and Pedestrian Crossing	-	11.2	-
Monroe Street and Tram Road	179.1	40.4	90.2
Adam Street and Ridge Road	152.4	45.3	147.7
Monroe Street and Gaile Avenue	280.4	5.7	210.8

Network MOE Comparison

Measure	No-Build	Loop Alternative	People's Choice
Network Delay (Hr)	887.1	286.5	812.4
Average Speed (MPH)	5	11	5
Total Delay per Vehicle (Sec)	503.3	138.0	415.5
Vehicle Denied Entry	2,742	1,004	1,946

Conclusion

Based on the Synchro micro-simulation results, the Loop Alternative provides significantly greater traffic operations during the future 2035 design year. This alternative evaluation also showed that the people's choice alternative provided only a slight benefit for traffic operations in comparison to the future design year 2035 traffic operations. Based on the results of this comparison, it is recommended that the Loop Alternative advance as the preferred alternative. However, other impacts from this alternative were not observed in this recommendation and may require further study to determine if the benefits from the increase in traffic operations outweigh the additional impacts of the alternative, if any exist.