



CITY OF CONCORD

REPORT TO THE MAYOR AND CITY COUNCIL

FROM: Robert J. Mack, PE, PTOE, Traffic Engineer

DATE: September 27, 2016

SUBJECT: Report from the Traffic Engineer on behalf of the Traffic Operations Committee and the Transportation Policy Advisory Committee in response to a communication from Councilor Herschlag regarding a constituent request to change the flashing yellow arrow signal at the Fisherville/Borough/Manor intersection back to a red/green arrow signal.

Recommendation

Accept this report.

Background

As part of the CIP 35 Phase 6 improvements to US Route 3 North, select signal equipment and operation at the Fisherville/Borough/Manor intersection was modernized to increase operational efficiency and reduce driver delays. In November 2015, the signal phasing for the northbound and southbound left-turn lanes was changed from formerly exclusive red/yellow/green arrows (with dedicated left-turn phase only) to a flashing yellow arrow (FYA) operation where traffic turns left while yielding to opposing through traffic. On July 11, 2016, Councilor Herschlag referred a request from a Borough Road constituent to consider changing the flashing yellow arrow signal at the Fisherville/Borough/Manor intersection back to a red/green arrow signal. The request was considered by the Traffic Operations Committee (TOC) on July 21 and September 20, 2016 and the Transportation Policy Advisory Committee (TPAC) on September 22, 2016.

Discussion

Since the intersection was first signalized in 2007, the northbound and southbound left-turn lanes were controlled by exclusive red, yellow and green arrows; left turns had to wait for an exclusive left-turn interval in order to turn. Other intersection traffic in turn had to wait at a red light until the exclusive left-turn signal phases ended. The flashing yellow arrow (FYA) operation was one of the improvements included in CIP35 Phase 6 and installed in November 2015. The purpose of the change was to reduce unnecessary intersection delays due to the need for the signal to cycle through multiple phases before being able to service a left-turn vehicle call. Furthermore, the conversion to FYA at this intersection establishes a consistent use of this type of traffic control at all signals from this

location southward to McGuire Street, controls that have worked well and have been accepted by the travelling public since first initiated in 2008.

In 2014, Councilor Todd referred an inquiry to TPAC concerning complaints by Snow Street residents of vehicle speeds and cut-through traffic choosing to avoid the signals at the subject intersection. Council accepted a September 30, 2014 TOC/TPAC report recommending the change in design to the FYA operation here in part to alleviate signal delays which may have been inducing Fisherville Road southbound traffic to use Snow Street as a cut-through bypass of the red arrow left turn signal at Manor Road.

Regarding the current referral, staff contacted the Borough Road resident on August 5, 2016 to discuss her concerns. She felt that the lack of the former green left turn arrow did not leave enough time for cars to turn left into Borough Road and that risks were being taken by left turn vehicles to beat the light. Another concern was that left-turning traffic had to pull beyond the stop lines in order to safely turn left. Staff explained the reason for the change to FYA (a recent safety concept coming into practice nationwide over the last decade), how it works, and how drivers negotiate the turn. The resident asked that staff check out traffic peaks in September after schools resume classes.

Staff observed traffic operations during both the morning and afternoon traffic peaks in August and September. At these times minimal queues and delays were observed on the Fisherville Road and Village Street approaches, a significant reduction from that observed in prior years with the red/green arrow operation. During commuter peaks, left-turn delays and 'risky' movements were not observed. Northbound and southbound left-turn delays were measured for two 30-minute periods (commuter peaks) on September 14, 2016 and indicated: 18 morning left turns per 30 minutes with average delay of 5.6 seconds; and 52 afternoon left turns per 30 minutes with average delay of 7.6 seconds. The substantial reduction in left-turn delay would effectively eliminate the desire for drivers to circumvent this intersection in order to 'speed up' a left turn movement. In the 9 months since the conversion to FYA there were two reported crashes at the intersection. This compares with four reported crashes in about 10 months of 2015 prior to the change. This is not indicative of a safety issue. Drivers making left turns were observed to do so properly and safely. Occasionally, a very conservative driver was seen waiting in the left turn lane on the green light for an unusually long time until even the most distant opposing vehicle passed by; the signal sensed the waiting turner and held the green light (with FYA) until the driver turned.

At its September 20, 2016 meeting the TOC concurred that the current FYA operation at the intersection is appropriate, safe and effective and recommended that the operation be continued full time, including during commuter peaks. Intersection performance has been significantly improved, there is no indication of safety issues and queueing and delays have been minimized reducing the potential to cause traffic to avoid the signal and cut through neighborhoods such as Snow Street. The change to FYA at this intersection establishes a consistent use of this type of traffic control with other signals along this corridor. Staff would continue to monitor traffic operations and safety. TPAC fully endorsed TOC's findings and recommendations at its September 22, 2016 meeting.