



Public Works Department

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DATE: June 27, 2016

TO: Commissioner Chase

VIA: Anthony Lyons, City Manager
Paul Folkers, Assistant City Manager
Teresa Scott, P.E., Public Works Director

FROM: Philip Mann, P.E., Assistant Public Works Director
Emmanuel Posadas, P.E., P.T.O.E, Traffic Operations Manager

SUBJECT: Flashing Yellow Arrow (FYA)

The memorandum has been prepared to address questions and concerns that were raised in the City Commission meeting last June 16, 2016. The following information will help address these concerns.

Background Flashing Yellow Arrow

For many years, engineers have had concerns that drivers turning left on a permissive “circular green” signal indication might inadvertently mistake that indication as implying the left turn has the right of way over opposing traffic, especially under some geometric conditions.

In March 2006, the Federal Highway Administration (FHWA) allowed installation of the FYA under an “interim approval”. This was after decades of research and studies, originating from the mid 1990 based on National Cooperative Highway Research Program (NCHRP), particularly Project 3-54, “Evaluation of Traffic Signal Displays for Protected/Permissive Left-Turn Control” and NCHRP Report 493 with the same title finalized 2003.

In 2009, the Flashing Yellow Arrow became part of the Manual on Uniform Traffic Control Devices (MUTCD). The use of FYA is not mandatory, however it is an allowed and numerous studies has shown reduction of crashes particularly when converting a (a) Protected/Permissive Left Turns and (b) Permissive only left turns.

Implementation of Flashing Yellow Arrow in Gainesville

The Flashing Yellow Arrow indications were deployed in 2011-2014, using cost savings and value engineering measures originating from the original Traffic Management System (TMS) funds. Through leadership of Philip Mann and Matt Weisman, former Traffic Operations Managers of the City of Gainesville, the City was able to convert over 150 locations of Protected/Permissive Left and/or Permissive only left turns to Flashing Yellow Arrow. The cost of this deployment is over \$1.2M,

Efficacy and Effectiveness

As far as efficacy, particular to safety, crash Reduction Factors (CRF) from various researches throughout the county, as published in the Highway Safety Manual and/or Crash Modification Factors Clearinghouse utilizing the FYA indication has a positive result of intersection safety (with the exception of the protected only left turn conversion). They are summarized in the table below.

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Original Left turn signal Indication	Visual	New Signal Indication	CRF (%) - Range
5-Section "Dog House"		FYA	6% to 25%
Permissive Only Left		 	10% to 65%
Protected/Permissive left			6% to 40%
Protected Only Left			-12% to -124%

Recent studies in other Florida cities (i.e. Pinellas County – Study Conducted by University of South Florida; FDOT District 5/Orlando Area – Study Conducted by University of Central Florida), also has shown positive safety and efficiency benefits. A full study to determine effectiveness of the overall deployment in Gainesville should be conducted as funding permits.

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