



MEMORANDUM

DATE: February 22, 2012

A handwritten signature in black ink, appearing to read 'Antonio C. Paez'.

FROM: Antonio C. Paez, Interim Director
Department of Transportation

TO: The Honorable Steve Kozachik
Council Member, Ward 6

SUBJECT: Traffic Study – Broadway and Rosemont

TDOT has completed the traffic study and conferred with the Tucson Police Department regarding the recent pedestrian fatality at that location. The information gathered via our study was reviewed with the Pedestrian Safety Task Force, as was TPD's input. They concurred with what I am presenting you in this document and also made some recommendations regarding pedestrian warning signs in the area.

Warrants: Findings by Department of Transportation

Left turn phasing is not warranted for either the northbound or southbound left turn movements. Below we discuss the particulars of our warrant study.

First, three warrants described below are used for left turn phasing evaluation:

- Warrant 1 evaluates correctable accidents during a given period. The warrant states that 5 or more accidents of a correctable nature must occur within a 12-month period. For left turn phasing, an accident of a correctable nature is the type where a left turning vehicle collides with a through vehicle or a pedestrian crossing the street.
- Warrant 2 evaluates left turning volume and delay. The warrant is twofold: First, there has to be an average of more than two turning vehicles per cycle per hour, in a given direction; second, there has to be an average vehicle delay of at least 35 seconds/per vehicle. While the southbound direction met the volume portion of the warrant during the PM peak period, the average delay was only 27 seconds per vehicle. It should be noted that staff used traffic volume counts from 2006, as funding does not exist to perform an updated traffic count.
- Warrant 3 evaluates the product of left turning vehicles vs. opposing through and right turning traffic. This warrant serves as another opportunity to warrant left turn phasing. This cross-product gives us an idea of the available gaps in traffic, which sometimes doesn't appear in the delay study.

None of the three warrants were met for either direction of turning traffic from Rosemont. Traffic Engineering staff was also asked to observe the intersection operations, and found that it is operating safely. No sight distance issues were identified, the traffic signal timing plans are acceptable, and there are no missing signs that could lead to motorist or pedestrian confusion. The Department of Transportation recommends that no further action be taken at this intersection with regard to changes in signals.

Impact of left turn phasing on traffic signal operations

Although I am not recommending any change, I want to describe how traffic is affected by left turn phasing. Most of Tucson's traffic signals are based on a 90-second cycle length. This allows our signals

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to be synchronized with a 40 mile per hour running speed. However, once you add in the various yellow and all-red clearance times that are required, it doesn't leave much time for the actual green lights. As you mentioned in your KGUN9 interview, any new phase added for left turn arrows must come out of the through movement green times, greatly reducing the capacity of those movements.

When left turn phasing is warranted and installed, Tucson typically employs a phasing type known as permitted/protected. This allows left turners to make their turn, when safe, on the green ball. Any left turners who cannot make the turn during that phase then get the opportunity with a protected left arrow. The more extreme type of left turn phasing is known as protected-only, identified by a red arrow and accompanying sign stating LEFT TURN ON GREEN ARROW ONLY. Obviously, not allowing motorists the opportunity to turn during the green ball phase only increases the amount of time required by the left turn arrow phase. While the use of protected-only left turn phasing provides the safest opportunities for both pedestrians and motorists, it has the most negative impact on the operations of our roadway network. Trying to maximize the safety of all the roadway users while minimizing travel times and inconveniences to those same users is a delicate balance to maintain.

Tucson Police Department information

The police investigation of the December 2011 pedestrian fatality at Rosemont and Broadway revealed conduct on the part of the pedestrian that may have contributed to the collision. According to witnesses, the pedestrian stopped in the crosswalk while crossing, turned to face eastbound, was gesturing and yelling at a vehicle that was driving away from her, and had her back turned toward the intersection and the vehicle that struck her.

Future actions

I am sensitive to pedestrian safety at all levels. To that end, an analysis of warning signage will be undertaken. For example, at our Pedestrian Safety Task Force meetings we have discussed placing signs with blinking lights near selected intersections, warning drivers of heavy pedestrian activity. A trial section is in operation along St. Mary's Road between Silverbell Road and Grande Avenue, and we are pursuing placement of these blinking signs around Reid Park. The intersection of Broadway and Rosemont is another good candidate for this or other pedestrian signage, and we will pursue installation by July 2012.

No later than March 15th, staff will be visiting the businesses in the immediate vicinity of the Rosemont/Broadway intersection to provide information about pedestrian safety, the proposed pedestrian signage and the findings of our study. This information will be used to further pedestrian safety.

Please let me know if you have any questions regarding this information.

ACP:mc

c: Pedestrian Safety Task Force members
Richard Miranda, City Manager
Andrew Quigley, Assistant City Manager
Liz Miller, Assistant City Manager
Roberto Villasenor, Chief, Tucson Police Department
Andy McGovern, TDOT Administrator
Diahn Swartz, Traffic Engineering
Michael Graham, Public Information Officer