

June 12, 2006

TO: John M. Lamerato, Acting City Manager

FROM: Brian P. Murphy, Assistant City Manager/Services
Steve Vandette, City Engineering
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SUBJECT: Agenda Item: Report on Traffic Signal Study for Rochester Road between Square Lake and South Boulevard

Introduction:

As requested at a May City Council meeting, a traffic study was performed to evaluate the need and proper location of a traffic signal along Rochester Road between Square Lake and South Boulevard. The following studies were performed as a part of this effort.

- a. Traffic volume study – Traffic volumes on all streets intersecting Rochester, and on Rochester Road.
- b. Traffic crash study – Traffic crashes for the past three years were analyzed.
- c. Field observations at peak hours.

The above studies indicate that although there are some areas of Rochester Road that experience some left-turn-related concerns (mostly due to improper use of the center left turn lane), a traffic signal is not warranted at any location, and that a traffic signal may not correct existing concerns due to the locations of driveways and local streets. Observations indicate backups to half a mile for northbound traffic between 4:40 and 5:30 pm; however, a traffic signal will not resolve this; but rather may exacerbate it. National studies also show that traffic signals installed at locations that do not meet warrants increase the number of traffic crashes, and in general traffic signals increase traffic congestion.

The following sections describe the details of the studies performed:

A traffic signal location study was performed to find locations on Rochester Road between Square Lake and South Boulevard that may be conducive to installation of a traffic signal. The intersection of Rochester Road with the Woodside Church main drive on the east and DeEtta, a City street, on the west, provides a location that is mid-mile in this section, and also provides a “square” intersection that has no offset driveways/roadways. The second location is the intersection of Alameda (private street from Northwyck Condominiums) and Lovell Street with Rochester Road. The other locations such as Sandalwood Drive, Marengo and others along Rochester Road present a left turn conflict situation that makes traffic signal installation a challenge and not effective.

Traffic volume studies:

Traffic counts were performed for a majority of streets in this section of Rochester Road. While traffic counts were performed on weekdays for all other streets and driveways, the Woodside Bible Church driveways' traffic counts were performed over the weekend. The following table shows the 24-hour traffic volumes:

<u>Road/Driveway</u>	<u>24-hour Traffic Volume (vehicles per day)</u>
Rochester Road (Square Lake to South Blvd.)	43,400
Sandalwood	302
Lovell	788
Alameda (private)	1266
Hannah	239
DeEtta	227
Ottawa	392
Marengo	392
Woodside Church main drive	3224 (Sunday)
Woodside Church north drive	1940 (Sunday)

The highest count observed was at the Woodside Bible Church main drive on a Sunday. The peak traffic times for the church are between 10:00-10:30 a.m., 11:00 to 11:30 a.m., and 12:45 to 1:15 p.m. on Sundays. Such heavy activity at the church happens on Sundays when traffic on Rochester Road is light. Field observations show that during these peak hours it is difficult to make left turns from northbound Rochester onto local streets such as DeEtta, Hannah and Lovell, due to vehicles standing in the center left-turn lane trying to enter the church driveway or other illegal uses of the left turn lane.

All other traffic counts range between 302 and 1266 vehicles per day. As such, these are in the lower end of the range of traffic volumes on Troy residential streets where volumes range between 300-5000 vehicles per day. These traffic volumes are lower than the thresholds prescribed by the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) traffic signal warrants.

Traffic Crash Analysis:

Traffic crashes for 2003, 2004, and 2005 were analyzed and the following table summarizes the data:

Location	2003	2004	2005	3-year Total
Rochester & Sandalwood/Hartwig	5 (1)	5 (2)	1 (0)	11
Rochester & Alameda/Lovell	6 (1)	4 (1)	1 (0)	11
Rochester & Hannah	1 (0)	1 (0)	0 (0)	2
Rochester & DeEtta/Woodside	6 (1)	1 (0)	0 (0)	7
Rochester & Marengo	4 (0)	0 (0)	4 (1)	8
Rochester & Ottawa	4 (0)	3 (1)	5 (1)	12
Yearly Total	26	14	11	

(x) = Number of crashes that could be prevented by a traffic signal at the location.

Traffic crashes in this mile section show a decreasing trend in the past three years. It can be seen that there is no particular intersection that exhibits a traffic crash concern that can be corrected by a traffic signal. Crashes that can be corrected by a traffic signal include head-on and broadside crashes. Most of the crashes were of the rear-end type, and this type of crash tends to increase when traffic signals are installed. The MMUTCD requires at least five correctable crashes in each of the previous three years to warrant a traffic signal to correct a traffic crash concern.

Field observations

Site visits during various occasions show that during the AM peak, the very heavy southbound traffic experiences minor backups at Square Lake, making it difficult to enter the shopping center at the northwest corner. During the PM peak, there is often a ½ mile backup of the heavy northbound traffic from South Boulevard. These backups result from traffic signals at the M-59 ramps and at Auburn Road (both in Rochester Hills). During this period, getting in and out of driveways and local streets in the north ½ mile was observed to be a challenge. Often motorists stop to let other drivers in and out of these driveways and streets.

Another area of concern was left turn conflicts due to vehicles entering and exiting the Alibi restaurant, Alameda Blvd., E. Lovell Street and Sandalwood Drive. All of these curb cuts are in close proximity and are all offset to one another. Installation of a traffic signal will not help this situation. Traffic crashes in this area were looked at to find any patterns or trends; none were found. During off-peak hours, none of the intersections in this mile showed major traffic concerns. Observations show that many traffic concerns are attributable to the improper use of the left-turn lane. More often than not, drivers attempting to make a left turn from a minor street/driveway onto Rochester Road (both NB and SB), often use the left-turn lane as an acceleration lane, waiting for a gap in traffic in the direction he/she wishes to travel.

We will try to work with the Woodside Bible Church regarding educating parishioners via their newsletters and sermons on the proper use of the left turn lane. Attempts will be made to contact the condominium associations of Sandalwood and Northwyck Condominiums for the same purpose. This may be followed by some enforcement by our Police Department to further educate the motorists in the area. We will monitor traffic crashes in the area on a yearly basis to find if there are any major changes that would require other improvements in the area.

