

## DESIGN MEMORANDUM

To: Jose Leon, P.E. - Public Works Director  
From: David J. Mennenga, P.E., PTOE  
Date: November 28, 2018  
Subject: Existing Traffic Signal at 52<sup>nd</sup> Street and Roe Avenue

As you have requested, we are providing the following response to the email concerns expressed by Councilman Poppa and Mrs. Coe regarding the removal of this existing traffic signal.

- The removal of the traffic signal at the intersection of 52<sup>nd</sup> Street and Roe Avenue was originally made in the SKW study submitted to the City in September 2016, prior to the start of our Roe 2020 Visioning process. When the intersection was counted by SKW on Thursday, July 28<sup>th</sup> of that year, very low traffic volumes were observed for the eastbound approach. SKW stated in their report that the side street was observed being used by mostly passenger cars, with only the occasional delivery/service truck. Based on the 2016 counts and observations, it is reasonable to conclude that most of the truck delivery traffic does not occur during the more congested commuter peak hours, when the eastbound to northbound left-turns may be more difficult to make.
- Based upon the 2016 SKW counts, during the morning peak hour (7:30-8:30 a.m.) the eastbound approach count was 26 total vehicles (23 left turns, 3 right turns). Likewise, during the evening peak hour (4:45 -5:45 p.m.) the eastbound approach volume was only 11 total vehicles (6 left turns, 5 right turns). GBA recounted the intersection in November 2018 and found the eastbound approach count was 18 total vehicles (16 left turns, 2 right turns) during the morning peak hour, and 23 total vehicles (19 left turns, 4 right turns) during the evening peak hour.

These approach traffic volumes are significantly less than the 100 vehicles per hour that is required as a minimum single-lane approach volume to warrant traffic signalization, as prescribed in the federally-mandated Manual on Uniform Traffic Control Devices (MUTCD). Regardless of the original reason for the traffic signal's installation, its replacement cannot be included in the Roe Avenue construction contract since the project has federal funding allocations. Since Roe Avenue is under the City's jurisdiction, the traffic signal could be replaced as a local project. The expected construction cost of \$175-200k could have a 20-year life-cycle cost of about \$400k when maintenance, operations, and coordination efforts are also included.

- With the recommended removal of the traffic signal at the 52<sup>nd</sup> Street location, it is expected that total traffic delays for the intersection will actually decrease, since the major north-south traffic flows on Roe Avenue will no longer be expected to stop when only one or two side street vehicles trigger the signal. There is also expected to be a significantly reduced chance for crashes at the intersection (up to 27% less), since most crashes at the intersection are probably rear-end types caused by the infrequent (and most likely unexpected) cycling of this unwarranted traffic signal.
- Because most of the truck deliveries to the Wal-Mart and CVS dock areas occur either during overnight or off-peak traffic periods, there should not be much of an issue for trucks to continue



making their maneuvers, whenever desired, because the conflicting traffic along Roe Avenue is considerably less during those times. Also, it is expected that there will still be acceptable gaps in the Roe Avenue traffic flows that will be created by the upstream traffic signals at both 51<sup>st</sup> and 55<sup>th</sup> Streets, if properly coordinated. With that said, an alternate truck route should not be needed. It is also unlikely that trucks will divert through the adjacent neighborhoods, since the turning maneuvers to/from the dock areas onto either Linden Street or Sherwood Drive would be very difficult to make, and the narrow roadway/intersection widths along these other available routes should be undesirable to the truck drivers, also due to difficult maneuverability.

- For other drivers from the west neighborhoods looking to access northbound Roe Avenue, there will still be signalized intersections at 50<sup>th</sup> Terrace, 51<sup>st</sup> Street, and 55<sup>th</sup> Street. Even without the traffic signal, the 52<sup>nd</sup> Street intersection will remain available for any drivers still wanting to utilize that full-access intersection. There will also be the reconfigured intersection of Rosewood Drive with Roe Boulevard, which is where we anticipate some of the diverted 52<sup>nd</sup> Street vehicles could go. Although this intersection will remain unsignalized, we are providing better intersection alignment with 53<sup>rd</sup> Terrace and also hoping to somewhat calm the Roe Avenue traffic speeds with a median widening. In addition, separated left-turn/through and right-turn lanes will be provided to better accommodate the additional eastbound vehicles that are expected.

Please let us know if you should have any questions about this response or need additional information.

cc: BAB, MLG, file