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MEMO

To: Mayor and City Council

Cc: Steve Schainker, City Manager
John Joiner, Public Works Director

From: Damion Pregitzer, Traffic Engineer

Date: 5/18/2020

Subject: Safety concerns at 6th and Northwestern Intersection

On April 21, 2020, City Council referred a letter to staff from Carrie Michalec regarding the intersection of 6th Street and Northwestern Avenue. The letter referenced a recent vehicle accident, and concerns there is a significant history of crashes at this location. The request is for the City to look at various improvements to the intersection, including; **1)** making the intersection an All-Way Stop, **2)** [*or*] additional warning signs, and **3)** make the intersection "more pedestrian-friendly."

ALL-WAY STOP CONDITION:

Changing the traffic control from its current configuration as a Two-Way Stop (stopping north-south traffic) would require a traffic study that includes various types of data collection. The Manual on Uniform Traffic Controls Devices, which are the Federal standards adopted by the State of Iowa in Iowa Code 761.130.1(1), outlines the process under Section 2B.07, as shown below:

Section 2B.07 Multi-Way Stop Applications

Support:

01 Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.

02 The restrictions on the use of STOP signs described in Section 2B.04 also apply to multi-way stop applications.

The first part of the standard sets general criteria for the use of a multi-way stop such as road users' expectations and that traffic volumes should be approximately equal. Currently, 6th Street is designated by Municipal Code 26.62(ee) as a "Through Street," meaning that any intersection (side street) shall be Stop or Yield controlled. It is also federally functionally classified as a "Minor Arterial" street. In the most recent traffic counts (Iowa DOT 2015), 6th Street has an ADT of 5,400, whereas Northwestern is a

little over half of that volume with an ADT of 2,840. Therefore, more detailed data is needed, which is outlined in subsections 3 and 4:

GUIDANCE CRITERIA

Guidance:

03 *The decision to install multi-way stop control should be based on an engineering study.*

04 *The following criteria should be considered in the engineering study for a multi-way STOP sign installation:*

- *A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
- *B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
- *C. Minimum volumes:*
  1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
  2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
  3. *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*
- *D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.*

To be able to evaluate the criteria in sections 3 and 4, staff would need hourly turning movement counts and detailed crash history. The crash history is the easy part as it is available from the DOT ICAT website. The turning movement counts will be much harder as they need to be taken in a time that is typical of an average day.

Until there is significant relaxation of the COVID-19 restrictions in the State, any traffic volumes collected now will likely be under-representative of regular traffic. Therefore, it is the recommendation that should City Council direct a study, waiting until September or October when school is back in session, and much of the local job activity has likely returned to normalcy.

Other criteria evaluated during the study is shown below:

Option:

05 Other criteria that may be considered in an engineering study include:

- A. The need to control left-turn conflicts;
- B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
- D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

STAFF RECOMMENDATION FOR THE ALL-WAY STOP:

The intersection crash history can be quickly evaluated using Statewide crash data. Therefore, staff would recommend moving forward with assessing Guidance B of the Multi-Way Stop section in the MUTCD. Also, staff would recommend scheduling the study of the volumetric criteria (Guidance C and D) in Fall 2020, once traffic conditions return to normal.

ADDITIONAL WARNING SIGNS:

Intersection Warning signs, sometimes referred to as "blind intersections," can be assessed with a simple site visit of the intersection where staff will determine the available site distance on all approaches as compared to a driver's ability to stop safely. This type of study can be performed at any time, as it is mainly related to the geometry of the intersection. Collecting current speed data along 6th Street would be needed to check for any excessive speeding.

STAFF RECOMMENDATION FOR WARNING SIGNS:

There are several other speed study requests that staff is currently working on. Therefore, it is recommended that the speed and sight distance at 6th and Northwestern be added to the remaining study locations. This evaluation could be likely be completed by Fall 2020.

MAKING THE INTERSECTION MORE PEDESTRIAN FRIENDLY:

It may be difficult to respond directly to what is meant by this request. However, staff would take a layered approach in analyzing this intersection.

First, with the evaluation of the crash history, the City can determine the most likely types of conflicts that are occurring (at least those resulting in a crash) at the intersection. This data can be augmented by the turning movement data, which not only gives detailed directional volumes but is broken down into various classifications (modes). It will allow staff to further investigate the potential for multimodal conflicts.

Second, depending on what the data identifies, staff can look for low-cost enhancements. However, if the data shows significant improvements are needed, it is expecting that those higher cost changes would need to be programmed in the City's

Capital Improvement Plan. Staff would also use the Complete Streets Plan's recommendation for this area type as compared to what exists today. Any deficiencies could also be addressed when future improvements may occur.

Third and finally, since the MPO is undergoing a five-year update to the Long Range Transportation Plan, it is expected that staff will make sure the intersection of 6th and Northwestern is evaluated and prioritized amongst the other potential intersection improvements within the plan.

STAFF RECOMMENDATION FOR PEDESTRIAN FRIENDLY IMPROVEMENTS:

Direct staff to undertake the three-step approach to analyzing the intersection for improvements that would make it more pedestrian friendly. This analysis should be completed by late fall 2020.