THE CITY OF WATERTOWN

MEMO

Engineering Division of the Public Works Department

To: Chairperson Davis and Committee Members

From: Nathan R. Williams, Civil Staff Engineer

Date: February 27, 2025

Subject: Public Safety & Welfare Committee Meeting of March 5, 2025

Review and take possible action: W Main Street and Dayton/Bonner Street intersection traffic signal request

Background

The Engineering Division received comments requesting a traffic signal at the intersection of W Main Street and Dayton/Bonner Street. These comments were submitted by a citizen who experienced an accident at this intersection. According to their report, there are many other accidents at this location due to semi-truck traffic. These events allegedly occur when semi-trucks turn left heading west off Dayton Street across traffic onto W Main Street during peak traffic hours. The report requests the implementation of a traffic signal here to prevent backups and allow semi-trucks to easily and safely turn onto Main Street.

In response to these comments, the Engineering Division investigated the intersection for the installation of a traffic signal. This process, detailed in the Manual on Uniform Traffic Control Devices (MUTCD), included the evaluation of eight (8) signal warrants, which if fulfilled indicate a traffic signal may be considered at this intersection. The data used for this evaluation was existing traffic counts from 2022 on Dayton Street and W Main Street. Dayton Street experiences 3,200 Annual Average Daily Traffic (AADT), and W Main Street experiences 7,400 AADT. This makes W Main Street the major road and Dayton Street the minor road. The current condition of the intersection is a two-way stop on Dayton Street/Bonner Street with a dedicated left turn lane onto W Main Street off Dayton Street. Using the existing conditions and traffic counts, the following warrants were analyzed:

1. Eight-Hour Vehicular Volume: Fail
    a. Traffic volume on both roads over the peak 8-hour period does not reach the minimum requirement for a traffic signal.
2. Four-Hour Vehicular Volume: Pass

   a. Traffic volume on both roads over the peak 4-hour period reaches the minimum requirement for a traffic signal.
3. Peak Hour: Pass
   a. Traffic volume on both roads over the peak 1-hour period reaches the minimum requirement for a traffic signal.
4. Pedestrian Volume: Fail
   a. There is no data regarding pedestrian volumes in this intersection, however it is assumed to be minimal given the absence of crosswalks in 3 out of the 4 streets (the only crosswalk is on the north side of the intersection, which is not a prime reason for this investigation).
5. School Crossing: Fail
   a. There is no data regarding school pedestrian volumes in this intersection, but as stated in Warrant 4 it is believed to be minimal given the absence of pedestrian infrastructure.
6. Coordinated Signal System: Tentative Pass
   a. This warrant is met through engineering judgement, as there are no stops or traffic disruptors along W Main Street between Bypass 26 and Church Street. This can lead to a lack of proper 'platooning' (which refers to cars driving clustered together). A benefit of platooning is that safe gaps form between groups of cars, allowing cross traffic to enter/cross the roadway.
7. Crash Experience: Fail
   a. The maximum number of reported crashes at this intersection in a single year amounted to four. This warrant requires five crashes in a single year to be fulfilled.
8. Roadway Network: Pass
   a. This warrant is fulfilled by exceeding 1,000 vehicles per hour during the peak hour of a typical weekday, and Warrants 1, 2, or 3 being met.

As shown above, 4 out of the 8 MUTCD Signal Warrants are met, so the intersection may be considered for the installation of a traffic signal.

It should be noted that there have been previous requests over the past decade from residents and/or businesses along or near the intersection of Main Street and Dayton/Bonner Streets for a traffic signal and/or improvements made to the intersection. Due to the crash data not warranting a traffic signal, signalization of the intersection was not pursued. However, in 2022 improvements were made to the intersection in question on the Dayton Street side. The street was widened and the left turn lane improved on Dayton Street. Pavement marking on W Main Street was not modified at that time.

ATTACHMENTS

- Site Map

Budget Goal

2. Proactively maintains and improves our parks and infrastructure to ensure safety, quality, and equity
5. Maintains a safe and healthy community, with an eye toward future needs and trends

Financial Impact

A traffic study performing traffic counts and analyzing signal warrants would cost approximately $10,000 and be charged to Traffic Signals Non-Reserve 05-54-24-70 in a future year. If the traffic study returns a necessity for the traffic signal, additional expenses will be necessary to perform design, installation, and maintenance. There may be grant funding available for this project to cover a large portion of the costs. If the warrant study meets WisDOT standards, it may fall under WisDOT jurisdiction as it is a connecting highway. In this case they would cover some or all the costs associated with design and construction.

Recommendation

According to the regulations of MUTCD, a traffic signal may be considered for this intersection. As mentioned above, the cost to perform the traffic signal study is not currently in the 2025 budget. The Engineering Division of the Public Works Department recommends employing a consulting engineering firm in a future year to first confirm the need for a traffic signal and then, if required, design it according to all applicable standards.

Pending approval to pursue the traffic signal at this intersection, the Engineering Division will seek quotes from at least 3 qualified engineering firms to perform a warrant study. We would then take this request with the selected quote to the Finance Committee to seek budget approval. Pending Finance Committee approval of the 2026 budget, the City would enter contract with the selected consultant firm.

Additionally, pavement marking on W Main Street could be implemented in a future budget year, as it is not currently budgeted for in the 2025 budget. Any change to pavement marking on W Main Street could result to a loss of parking which would require additional approval. This could be an incremental step in improving the intersection for traffic safety.

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2025 Operational Goals

The purpose of our operational goals is to identify, prior to the budgeting process, what work the city intends to achieve in 2025. The goals should align with our mission. Not only will the operational goals inform budget prioritization, but they will also guide the creation of the 2025 Department Work Plans.

Present a budget that (in no particular order):

1. Invests in the strategic planning and maintenance of our city buildings
2. Proactively maintains and improves our parks and infrastructure to ensure safety, quality, and equity
3. Supports employee retention and growth, while also evaluating operations and the associated staffing
4. Fosters community growth by assessing opportunities, stakeholder input, environmental needs, and modern code and policy priorities
5. Maintains a safe and healthy community, with an eye toward future needs and trends