



2020 ICRS

Intersection Control Ranking System Report



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Introduction

Background and Purpose

The Intersection Control Ranking System (ICRS) is a County Board approved policy for prioritizing the installation of traffic control improvements on roadways under Washington County's jurisdiction. Traffic control improvements primarily include the installation of traffic signals and roundabouts, but may also include all-way stops, turn restrictions, or other modifications to improve traffic operations. The policy was originally adopted on November 11, 1994, and revisions were approved by the County Board on July 21, 2015.

The policy was originally adopted because Washington County was experiencing rapid population growth in the early and mid-1990's, which led to increased traffic volumes and a growing number of requests to install traffic signals at intersections on the County roadway system. Since the County has limited funding and staff resources to deliver traffic signal projects, the ICRS was established to provide a data-driven process for identifying the intersections that were the highest priorities for traffic control projects. The ICRS continues to serve that same purpose today, providing a fair and consistent benchmark for evaluating and prioritizing traffic control improvements countywide.

How Intersections Are Chosen For Inclusion

Intersections that are included in the annual ICRS Report are selected by one of three methods:

- County staff may include intersections based on observations by staff, or upon request of elected officials, residents, or roadway users.
- Cities or townships request that an intersection be included based their observations (the County may request assistance from the city or township in collecting the traffic data necessary to analyze the intersection).
- County staff may include an intersection that has been counted by a city, township, or private developer as part of an area traffic study, to show where it ranks relative to the other intersections on the list.

Intersections that are selected to be included in the annual ICRS Report in any given year will not necessarily be included in future reports. For example, an intersection which is selected to be studied and included in the 2020 ICRS Report, but which ranks near the bottom of the prioritization list and does not meet traffic signal warrants, will likely not be included in the 2021 ICRS Report unless traffic volumes or patterns have changed significantly at that location. Intersections which are close to meeting traffic signal warrants will generally be kept on the list, but might not be counted every year.

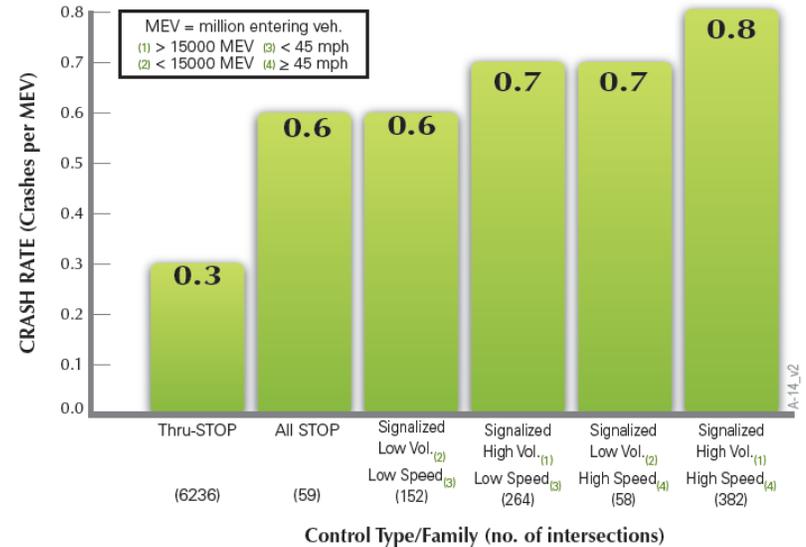
Contact Information

This report was published in February 2021 by Washington County Public Works Traffic Engineering staff.
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Traffic Signals Are Not Safety Devices

Although traffic signals are often perceived as a safety enhancement, statewide data shows that traffic signals actually tend to increase overall crash risk when installed at intersections. However, traffic signals are sometimes necessary to prevent unreasonable delays to certain traffic movements, or to ensure the orderly operation of unusually complex traffic patterns. Traffic signals do have the potential to reduce the occurrence of certain crash types, but the overall number of crashes, especially rear-end crashes, typically increases, so the expected benefits of the traffic signal must be carefully weighed against the expected increase in overall crashes.

For pedestrians, traffic signals can be useful devices to create gaps in vehicle traffic for pedestrians to cross when such gaps are unreasonably infrequent. However, although signals can limit delays for pedestrians to cross, the average delay to pedestrians often increases substantially, as pedestrians must wait for the signal to change even during periods of low traffic volume. A pedestrian who finds the wait time to be unreasonable might choose to cross illegally against the signal, with potentially deadly consequences. Even at traffic signals, pedestrians rely on drivers to obey the indications and to properly yield to pedestrians when turning, but drivers may not see pedestrians when their attention is focused on other parts of the intersection. Of the over 4,000 vehicle-pedestrian crashes at intersections in Minnesota from 2007-2011, 53 percent occurred at signalized intersections.^[1]



Note: Only for Trunk Highway Intersections

Intersection Crashes (1 of 2)
 Source: 2004-2006 Minnesota TIS Crash Data

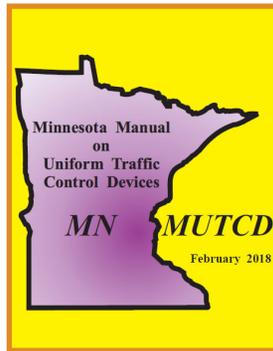
Source

[1] "Minnesota's Best Practices for Pedestrian/Bicyclist Safety". Minnesota Department of Transportation Office of Traffic, Safety and Technology. September 2013.

Traffic Signal Warrants Explained

Traffic signal warrants are prescribed by the Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD), which is the document that provides a uniform policy for all traffic control devices on all public streets, roads, highways, and private streets that are open to public travel within the State of Minnesota. The MnMUTCD is referenced in Minnesota Statute 169.06, is adopted by the Minnesota Commissioner of Transportation and is binding on all county and city roadways. The MnMUTCD is the legal standard of care used by courts when the use, misuse, overuse, or lack of traffic control devices is the subject of litigation.

Because traffic signals often increase overall crash rates and overall delay to users, traffic signal warrants are used as benchmark thresholds, below which a traffic signal might be expected to do more harm than good. There are nine warrants listed in the MnMUTCD, though many of them apply only in very unusual cases and thus are not usually evaluated. Below is a summary of the four warrants which are analyzed within Washington County's Intersection Control Ranking System (ICRS):



Warrant 1: Eight-Hour Volume

Warrant 1 is most applicable to locations that have moderately high traffic throughout the entire day. Three categories are provided within this warrant, and each category provides a set of minimum traffic levels for the major and minor street, depending on the number of lanes. The minimum traffic must be met for eight hours within a given category for this warrant to be satisfied, though the eight hours need not be consecutive. This warrant is usually most applicable at the intersection of two regional roadways or entrances to commercial areas.

Warrant 2: Four-Hour Volume

Warrant 2 is usually most applicable at intersections with collector streets that see daily sustained periods of very heavy traffic, such as during morning and evening peak periods, even if traffic levels are low throughout the remainder of the day. This warrant is evaluated by plotting the traffic volumes for the intersection approaches for each hour of the day on a graph and determining which hours, if any, exceed a prescribed set of minimum values. For this warrant to be satisfied, at least four hours of the

day must be plotted above the minimum values prescribed.

Warrant 3: Peak Hour Volume

Warrant 3 is usually most applicable at locations that have extremely high daily traffic peaks despite low volumes throughout the rest of the day. Metro agencies including Washington County do not normally consider this warrant alone to be sufficient justification to install a traffic signal, but it may be considered in combination with other factors including the severity of the peak delays and the availability of alternate routes. This warrant is evaluated by plotting the traffic volumes of the intersection approaches for each hour of the day on a graph and determining which hours, if any exceed a prescribed set of minimum values, which are higher than those used for evaluating Warrant 2. For this warrant to be satisfied, at least one hour of the day must be plotted above the minimum values prescribed.

Warrant 7: Crash Experience

This warrant is intended to capture unusual situations where a high number of crashes has already occurred and where a signal is determined to be an effective strategy to reduce such crashes. Only certain crash types can be considered for this warrant, including right-angle crashes and left turns into oncoming traffic. Other crash types such as rear-ends, deer crashes, and sideswipe crashes are unlikely to be reduced with the installation of a traffic signal and therefore are not included. This warrant first requires adequate trial of other remedial measures which might include improving signing, clearing sight corners, adding or reconfiguring lanes, or other such strategies.

All-Way Stop Control Warrants

The MnMUTCD also contains warrants for the installation of All-Way Stop control, which are also evaluated when such control might be an appropriate solution for the intersection.

Roundabouts in the ICRS

The MnMUTCD does not contain warrants for roundabout control; however, common engineering practice dictates that traffic signal warrants or all-way stop warrants may be applied.

MnMUTCD website link:

<http://www.dot.state.mn.us/trafficeng/publ/mutcd/index.html>

How the ICRS Works

How Points Are Assigned

The Intersection Control Ranking System (ICRS) utilizes four of the traffic signal warrants from the Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD), along with traffic counts and recent crash data to prioritize intersections under County jurisdiction for traffic control improvements. As discussed on the previous page, traffic signal warrants define the minimum traffic conditions that should be present before a traffic signal is installed, to ensure that they are only installed in favorable situations that improve intersection operations. ICRS prioritization is based on the total number of points for each intersection, which are assigned as follows:

Traffic Signal Warrant Points

This value is based on the number of hours that an intersection satisfies the following traffic signal warrants:

Warrant 1: Eight-Hour Volume (Condition A, B, and A+B)

An intersection receives one point for each hour for which the traffic levels satisfy this warrant, up to a maximum of 12 points. Points are not cumulative across the three conditions. In other words, an intersection only receives the maximum points from Condition A, B, or A+B.

Warrant 2: Four-Hour Volume

An intersection receives one point for each hour for which the traffic levels satisfy this warrant, up to a maximum of 6 points.

Warrant 3: Peak Hour Volume

An intersection receives one point for each hour for which the traffic levels satisfy this warrant, up to a maximum of 4 points.

Crash History Points

This value is based on the most recent three years of correctable crash data at the intersection. Correctable crashes are crashes that are considered correctable by the installation of a traffic signal or roundabout. These typically include right-angle crashes (T-bone) and left turn crashes between vehicles traveling in opposing directions. Rear-end crashes, run-off-road crashes, deer crashes, and other types of crashes are typically not considered correctable, and are therefore excluded in this analysis.

An intersection receives one point for each correctable property damage or minor injury crash, and three points for each correctable fatal or serious injury crash during the three year period. The sum is then divided by three, to account for the three years of data.

The traffic signal warrant points and the crash history points are then added together for an intersection total, and the intersections are ranked by total points using a spreadsheet.

Further Analysis

Simply satisfying one or more traffic signal warrants or ranking highly on the ICRS prioritization list doesn't always mean that the installation of a traffic signal or roundabout is the best option at a particular location. For each intersection included in the ICRS, County staff evaluates the intersection for potential intersection improvements. Among the items the staff consider when analyzing intersections:

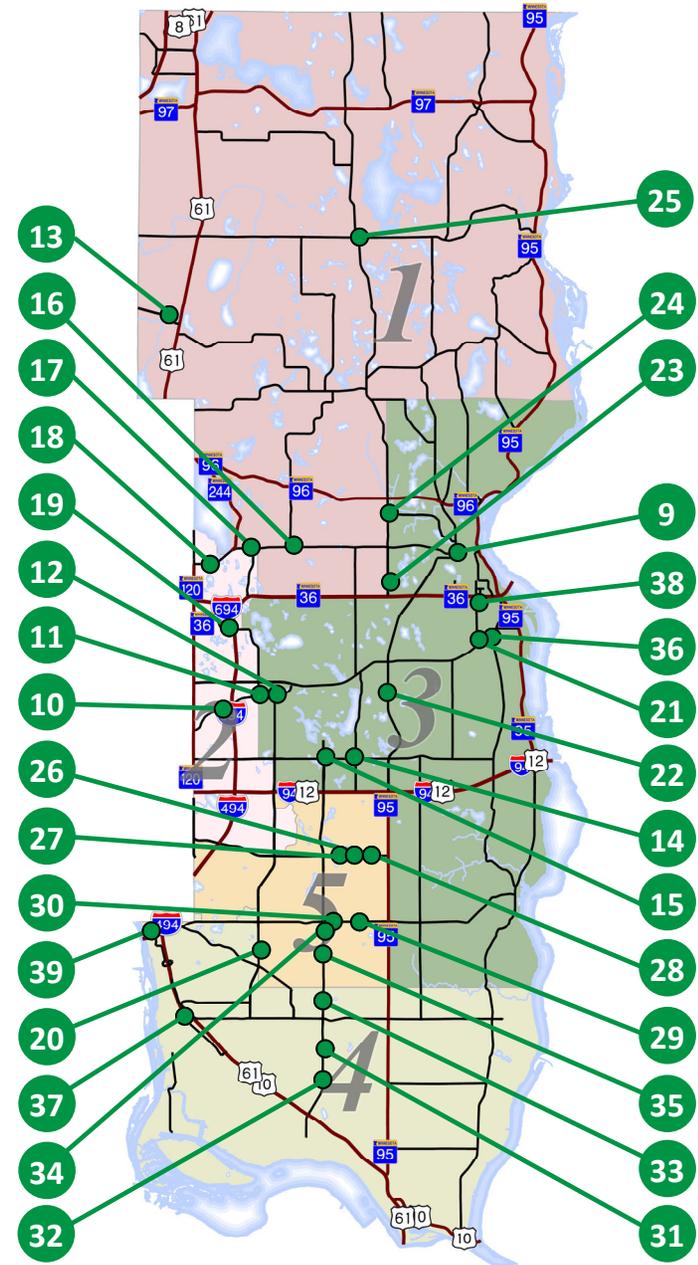
- Access spacing to adjacent intersections, and spacing from nearby traffic signals and/or roundabouts.
- Existing and future traffic volumes, and whether they're relatively balanced or unbalanced.
- Types of traffic control at nearby intersections.

Often times other alternatives to traffic signals or roundabouts, such as signing and/or striping improvements, geometric improvements, or turn restrictions, may actually be the best option to improve intersection safety and/or mobility.

The ICRS policy also doesn't mean that the County will automatically install a signal or roundabout every year. There may be years when there are no intersections that are a priority for traffic control improvements, and there may be years when County staff determines that more than one intersection is a priority for improvements. The ICRS simply provides a way to prioritize intersections in a fair and consistent manner. County staff may also advance or postpone potential projects based on the Capital Improvement Plan or other factors.

Intersections Analyzed for 2020

A total of 31 intersections were included in the Intersection Control Ranking System (ICRS) Report for 2020. The following pages provide an in-depth look at each of the intersections that are included in the report. Because this report is prepared for the Washington County Board of Commissioners, the map located on the right side of this page shows the location of each of the intersections by Commissioner District, along with their corresponding page number.



CSAH 5 (Owens Street) & CSAH 12 (Myrtle Street)

Existing Conditions

The intersection of CSAH 5 (Owens Street) & CSAH 12 (Myrtle Street) is located in the City of Stillwater, and is currently controlled by an all-way stop. The intersection experiences delays during the peak hours, and northbound congestion can exceed several blocks during the PM peak hour. The intersection is included in the ICRS Report because County staff have concerns about these backups and their effect on the safety of nearby intersections. Traffic counts were taken at this intersection in 2018 to account for any potential changes to traffic patterns after the mid-2017 opening of the Saint Croix River Crossing.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **12 of 8 Required Hours**

Warrant 1B: **5 of 8 Required Hours**

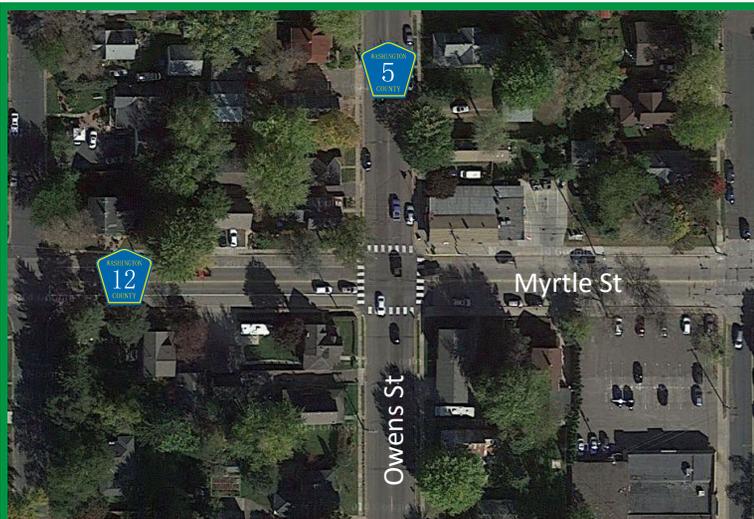
Warrant 1(A+B): **11 of 8 Required Hours**

Warrant 2: **9 of 4 Required Hours**

Warrant 3: **3 of 1 Required Hours**

Warrant 7: **Not Met**

2020 ICRS Rank: 1st



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **12 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2018**

ICRS Recommendation

The intersection currently meets Warrant 1A (Eight-Hour Volume - Minimum Vehicular Volume), Warrant 1(A+B) (Combination of Warrants), Warrant 2 (Four-Hour Volume), and Warrant 3 (Peak Hour Volume) for traffic signal installation. However, even though this intersection clearly meets traffic signal warrants, the installation of one would pose numerous challenges:

- A traffic signal would increase speeds in the area when the lights are green.
- Narrow sidewalks and minimal right-of-way would make it difficult to install traffic signal poles and pedestrian push-buttons without obstructing the sidewalk.
- The existing lane arrangement, with its lack of left turn lanes, would not function safely under traffic signal control, and modifying the lane arrangement would result in some loss of on-street parking.

County staff remain concerned about congestion in this area and its effect on safety, and remain ready to support an intersection improvement project at the CSAH 5 and CSAH 12 intersection if and when such a project is supported by the City. The County will continue to evaluate this intersection to determine if traffic volumes have changed as a result of traffic adjusting to the St. Croix River Crossing.



CSAH 6 (Stillwater Boulevard) & Hadley Avenue

Existing Conditions

The intersection of CSAH 6 (Stillwater Boulevard) & Hadley Avenue is located in the City of Oakdale, and is currently controlled by an all-way stop. It experiences delays during peak hours. This intersection was included in the 2019 ICRS Report because local residents have observed congestion and crashes at this intersection, especially as traffic has been detoured through this intersection from nearby construction projects, and it scored highly enough to remain in the 2020 ICRS.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **4 of 8 Required Hours**
Warrant 1B: **1 of 8 Required Hours**
Warrant 1(A+B): **4 of 8 Required Hours**
Warrant 2: **2 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Warrant is Met**

2020 ICRS Rank: 10th (Tie)



Aerial Photo of Intersection

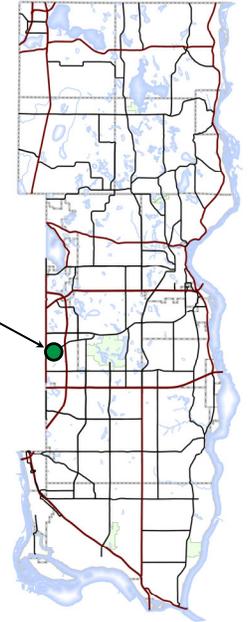
All-Way Stop Warrant, by the numbers:

All-Way Stop: **14 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2019**

Intersection
Location



ICRS Recommendation

The intersection currently meets Warrant 7 for traffic signal installation, which is for intersections that simultaneously meet both certain crash and volume thresholds. However, it is recommended that this intersection remain an all-way stop at this time for the following reasons:

- Modifying the intersection will require substantial right-of-way purchases and would encroach on existing residential parcels.
- Construction adjacent to this area along TH 120 (Century Ave) and at the CSAH 10/I-694 interchange might have caused unusually high traffic volumes in this area during the traffic counting period, particularly along Hadley Avenue.

In the MnMUTCD, one condition of Warrant 7 says that a traffic control signal shall be considered after “an adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.” A second stop sign was added to the southbound approach late in 2018 to reinforce to southbound drivers that they are required to stop at this approach.

Counts will be taken in the future to determine if the 2019 volumes were uncharacteristically high due to construction on adjacent routes, and after traffic patterns stabilize following the pandemic.

CSAH 6 (Stillwater Boulevard) & CSAH 13 (Ideal Avenue/Helmo Avenue)

Existing Conditions

The intersection of CSAH 6 (Stillwater Boulevard) & CSAH 13 (Ideal Avenue)/Helmo Avenue is located on the border of the Cities of Oakdale and Lake Elmo, and is currently controlled by an all-way stop. It experiences minor delays during peak hours. This intersection is included in the 2020 ICRS Report because County staff have observed occasional but significant congestion on the southbound CSAH 13 approach during the PM peak hour in previous years.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **4 of 8 Required Hours**
- Warrant 1B: **0 of 8 Required Hours**
- Warrant 1(A+B): **1 of 8 Required Hours**
- Warrant 2: **3 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

2020 ICRS Rank: **8th (Tie)**



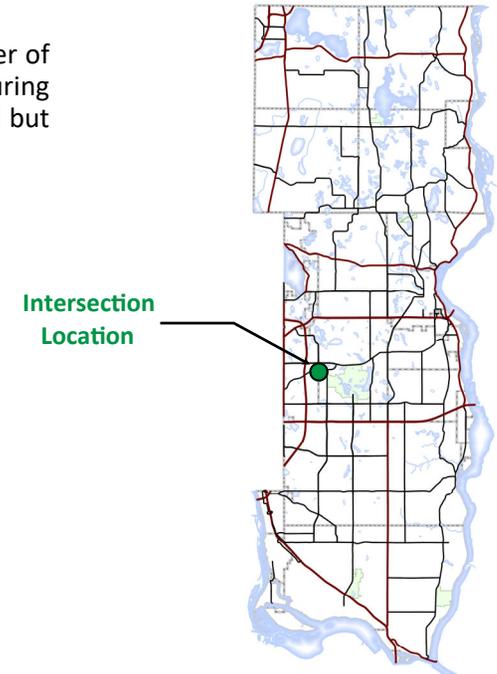
Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **9 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2014**



ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation, although it is close to meeting Warrant 2 (Four-Hour Volume). It is not recommended for intersection control changes at this time due to the following reasons:

- Although the intersection currently experiences some minor congestion during peak hours, and has occasional longer backups during the PM peak hour, it is operating efficiently during the majority of the day.
- The intersection is currently operating safely, with a crash rate around the average rate for similar intersections on county roads statewide. There were no injury crashes reported during the 3-year study period.
- Installing a traffic signal or roundabout would require significant geometric changes to the roadway, which would be costly. Any such modifications would likely require acquisition of private property, and might also impact a major sewer pump station that is located in the southwest quadrant of the intersection.

For these reasons, it is recommended that this intersection remain all-way stop controlled at this time.

CSAH 6 (Stillwater Boulevard) & CSAH 13 (Inwood Avenue)

Existing Conditions

The intersection of CSAH 6 (Stillwater Boulevard) & CSAH 13 (Inwood Avenue) is located in the City of Lake Elmo, and is currently controlled by an all-way stop. It experiences minor delays during peak hours on the northbound, westbound, and eastbound approaches. This intersection is included in the 2020 ICRS Report because it is located in an area of the County that is experiencing increased development and traffic growth, and County staff were interested in evaluating the intersection to determine any operational issues.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **5 of 8 Required Hours**
Warrant 1B: **3 of 8 Required Hours**
Warrant 1(A+B): **5 of 8 Required Hours**
Warrant 2: **4 of 4 Required Hours**
Warrant 3: **3 of 1 Required Hours**
Warrant 7: **Not Met**

2020 ICRS Rank: **4th**



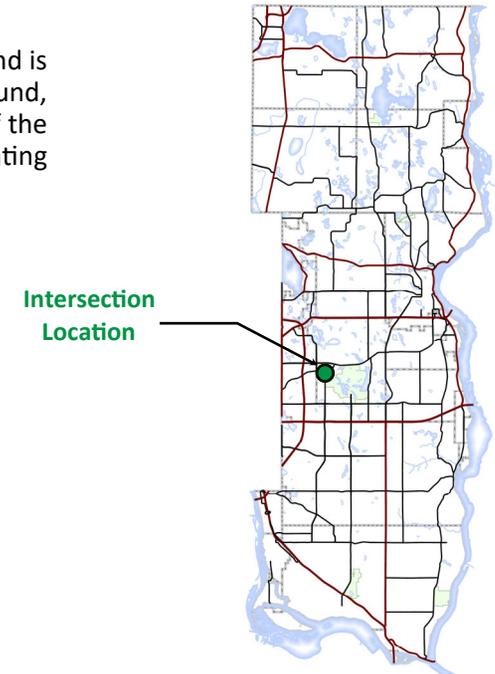
Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **12 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2015**



ICRS Recommendation

Although the intersection currently meets Warrant 2 (Four-Hour Volume) and Warrant 3 (Peak Hour Volume) for traffic signal installation, it is not recommended for intersection control changes at this time due to the following reasons:

- Although the intersection currently experiences some minor congestion during peak hours, it is operating efficiently as an all-way stop during the majority of the day.
- Installing a traffic signal or roundabout would require significant geometric changes to the roadway, which would be costly. Any such modifications would also likely require acquisition of private property.

For these reasons, it is recommended that this intersection remain an all-way stop at this time. The intersection will continue to be monitored in the future, and will be reevaluated if there are significant changes to traffic patterns or volumes.

CSAH 8 (Frenchman Road) & Oneka Parkway

Existing Conditions

The intersection of CSAH 8 (Frenchman Road) & Oneka Parkway is located in the City of Hugo, and is currently controlled by sidestreet stop control. Left turns from the northbound and southbound Oneka Parkway approaches sometimes experience delays during peak hours. The south leg of this intersection was added in late 2016, and serves as one of two access points to a new residential development that was recently completed to the south of the intersection. The intersection is included in the 2020 ICRS Report because County staff were interested in evaluating it after the south leg was added to verify that it was operating safely and efficiently, and in response to concerns from the City of Hugo.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **3 of 8 Required Hours**

Warrant 1(A+B): **1 of 8 Required Hours**

Warrant 2: **3 of 4 Required Hours**

Warrant 3: **1 of 1 Required Hour**

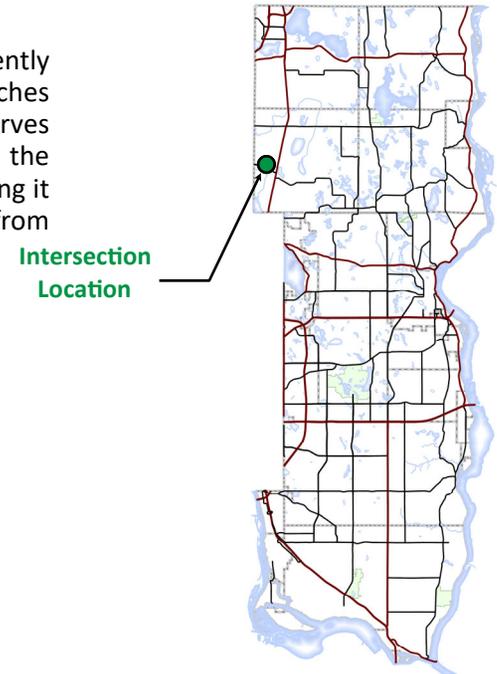
Warrant 7: **Not Met**

2020 ICRS Rank: **13th**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **2 of 8 Required Hours**

Traffic Count Conducted in **2019**



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently meets Warrant 3 (Peak Hour Volume) for traffic signal installation, and is close to meeting Warrant 2 (Four-Hour Volume). However, meeting Warrant 3 alone is typically not considered sufficient justification to install a traffic signal unless the peak delays are very severe. It is therefore not recommended for intersection control modifications at this time due to the following reasons:

- Although the left turns from the northbound and southbound Oneka Parkway approaches sometimes experience delays during peak hours, the intersection is operating efficiently during the majority of the day.
- The installation of an all-way stop or roundabout would hinder CSAH 8 traffic during all hours of the day, for the benefit of a relatively small number of left turning vehicles from Oneka Parkway during peak times of the day.
- The intersection is currently operating safely, with a crash rate at or below the average rate for similar intersections on county roads statewide.
- The installation of a traffic signal would necessitate widening of the northbound Oneka Parkway to provide full turn lanes, at the City's cost.

County staff will continue to monitor this intersection as development continues.

CSAH 10 (10th Street N) & CSAH 17/17B (Lake Elmo Avenue)

Existing Conditions

The intersection of CSAH 10 (10th Street N) & CSAH 17/17B (Lake Elmo Avenue) is located in the City of Lake Elmo and is controlled by an all-way stop. This intersection is located in an area of the County that is experiencing increased development and traffic growth, and it currently experiences delays during peak hours. This intersection is included in the 2020 ICRS Report to determine if all-way stop control is still appropriate, and because there was a notable “A” injury crash during the analysis period.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **0 of 8 Required Hours**
- Warrant 1B: **0 of 8 Required Hours**
- Warrant 1(A+B): **0 of 8 Required Hours**
- Warrant 2: **0 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hours**
- Warrant 7: **Not Met**

2020 ICRS Rank: **24th (Tie)**



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **5 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2020**

Intersection
Location



ICRS Recommendation

Even though this intersection didn't meet the All-Way Stop Warrant according to the counts that were conducted in November 2020, it is presumed that the count volumes were depressed due to there being less traffic during the pandemic. This intersection will remain an all-way stop at this time due to the following reasons:

- The intersection is currently operating safely, with a crash rate around the average rate for similar intersections on county roads statewide.
- Although the intersection currently experiences congestion during peak hours, it operates efficiently for the majority of most days.
- Installing a traffic signal or roundabout would require significant geometric modifications to the roadway.

CSAH 10 (10th Street N) & CSAH 19 (Keats Avenue)

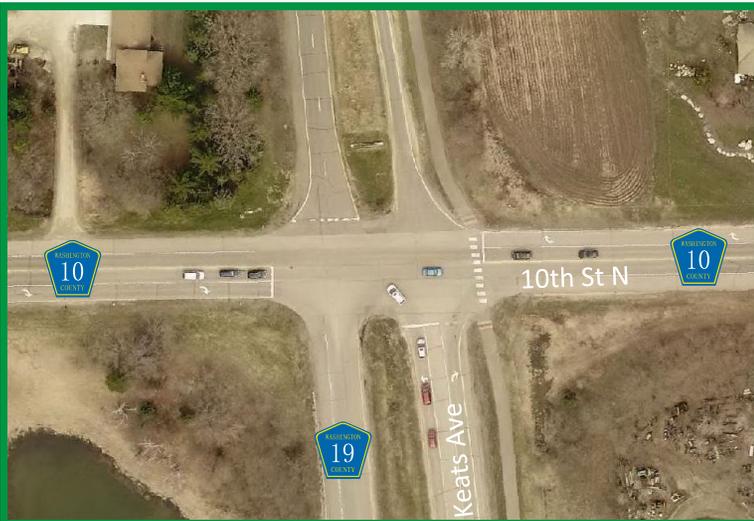
Existing Conditions

The intersection of CSAH 10 (10th Street N) & CSAH 19 (Keats Avenue) is located in the City of Lake Elmo, and is controlled by an all-way stop. It currently experiences delays during peak hours. The north leg of the intersection serves as the entrance and exit for Lake Elmo Park Reserve, so it can experience surges in traffic volumes, particularly during holiday weekends or park events such as the annual Bluegrass Festival. This intersection is located in an area of the County that is experiencing increased development and traffic growth. This intersection is included in the 2020 ICRS Report because all-way stop controlled intersections with a large number of approach lanes similar to this one can sometimes have operational issues and/or create driver confusion, and because it has ranked highly on previous versions of this report.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **7 of 8 Required Hours**
Warrant 1B: **3 of 8 Required Hours**
Warrant 1(A+B): **4 of 8 Required Hours**
Warrant 2: **4 of 4 Required Hours**
Warrant 3: **3 of 1 Required Hours**
Warrant 7: **Not Met**

2020 ICRS Rank: **3rd**



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **12 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2018**

Intersection
Location



ICRS Recommendation

Although the intersection currently meets Warrant 2 (Four-Hour Volume) and Warrant 3 (Peak Hour Volume) for traffic signal installation, it is planned to remain an all-way stop at this time due to the following reasons:

- The intersection is currently operating safely, with a crash rate around the average rate for similar intersections on county roads statewide.
- Although the intersection currently experiences congestion during peak hours, it is operating efficiently during the majority of the day.
- Installing a traffic signal or roundabout would require significant geometric modifications to the roadway.

However, County staff acknowledge that the intersection currently meets warrants, is ranked highly on the ICRS, and is located in a part of the County that is seeing significant traffic growth due to residential development.

Installing a roundabout or traffic signal at this intersection would require significant road work, and should include addressing year-round intermittent flooding issues west and south of the intersection. Therefore, it is recommended that this intersection be considered for a future Capital Improvement Plan (CIP) project.

CSAH 12 (75th Street N) & CSAH 9 (Jamaica Avenue)

Existing Conditions

The intersection of CSAH 12 (75th Street N) & CSAH 9 (Jamaica Avenue) is located in the City of Grant, and is currently controlled by sidestreet stop control. The intersection currently experiences delays and queuing issues for right turning vehicles on the southbound CSAH 9 approach during an approximately 10-15 minute period in the morning, when the nearby schools have their arrival times.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**
Warrant 1B: **2 of 8 Required Hours**
Warrant 1(A+B): **0 of 8 Required Hours**
Warrant 2: **0 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Not Met**

2020 ICRS Rank: 19th (Tie)



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **11 of 8 Required Hours**

Traffic Count Conducted in **2019**

Intersection
Location



ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It does meet the warrant for All-Way Stop. However, it is not recommended for intersection control changes at this time due to the following reasons:

- Although the intersection currently experiences some minor congestion on the southbound approach during the AM peak hour, the congestion typically lasts only 10 -15 minutes and it is operating efficiently during the majority of the day.
- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- Installing a roundabout would require significant geometric modifications to the roadway, which would be costly. It would also likely require acquisition of private property.
- Though it meets the All-Way Stop Warrant, much of the minor street volume turns right. Requiring CSAH 12 traffic to stop would likely increase the crash rate on CSAH 12 while increasing delay to all movements.

It is recommended that this intersection remain sidestreet stop controlled at this time. County staff will continue to monitor this intersection as traffic growth occurs.

CSAH 12 (Stillwater Road) & East Avenue/Hallam Avenue

Existing Conditions

The intersection of CSAH 12 (Stillwater Road) & East Avenue/Hallam Avenue is located in the City of Mahtomedi, and is currently controlled by sidestreet stop control. The southbound East Avenue approach currently experiences delays at several times of the day, particularly during peak hours, during the arrival and dismissal times for nearby Mahtomedi Middle School and Mahtomedi High School, and during church services at St. Andrews Church, which is located immediately northeast of the intersection. The intersection also serves as the primary crossing location across CSAH 12 for residents of a nearby apartment complex to walk to and from the convenience store located in the northwest quadrant of the intersection.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **5 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **3 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

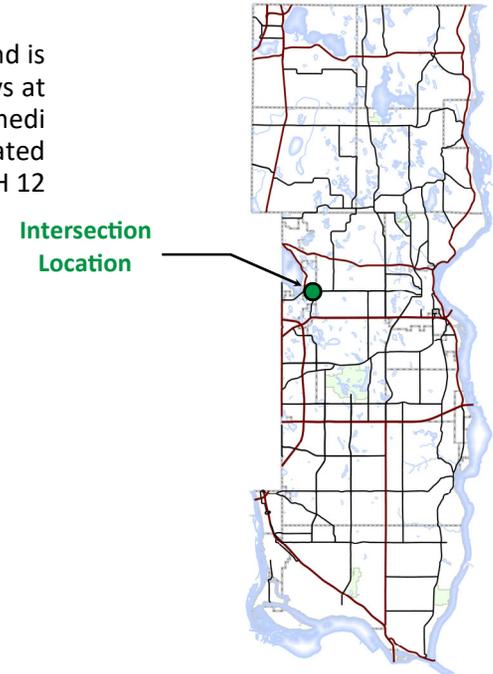
Warrant 7: **Not Met**

2020 ICRS Rank: 8th (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **4 of 8 Required Hours**

Traffic Count Conducted in **2016**



Aerial Photo of Intersection

ICRS Recommendation

Although the intersection currently does not meet any warrants for traffic signal installation, it is close to meeting Warrant 2 (Four-Hour Volume) and expected to meet that warrant in the near future. The County is therefore planning for the installation of a traffic signal at this location due to the sometimes excessive delays on the southbound East Avenue approach, the significant number of pedestrian crossings at this location, and the presence of the uncontrolled multi-lane pedestrian crossing, which has the potential for “multiple-threat” pedestrian crashes.

A traffic signal is planned to be installed at this location during Stage 2 of the Management and Safety Project programmed for 2024 on this segment of CSAH 12. As part of the project, there will be sidewalk, pedestrian ramp, turn lane, and crosswalk improvements to improve service to pedestrians, and the Hallam approach on the south leg will be widened to provide a dedicated right turn lane for the future signal.

CSAH 12 (Stillwater Road) & Wedgewood Drive

Existing Conditions

The intersection of CSAH 12 (Stillwater Road) & Wedgewood Drive is located in the City of Mahtomedi, and is currently controlled by sidestreet stop control. This segment of CSAH 12 was a state highway until jurisdiction was transferred to Washington County in 2019. This roadway was recommended for inclusion in the 2020 ICRS Report due to concerns regarding pedestrian level of service for those crossing CSAH 12 at this intersection.

Note: The traffic count took place on March 3, 2020, prior to any pandemic impacts on intersection volumes.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **0 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **0 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Not Met**

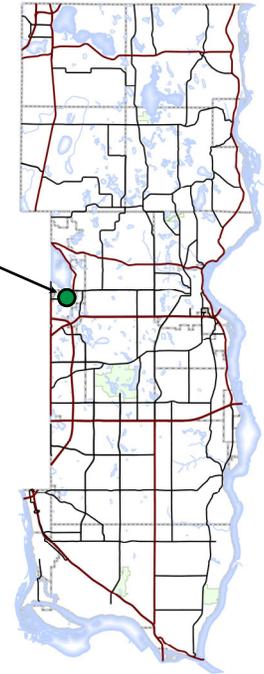
2020 ICRS Rank: 29th (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2020**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

This intersection does not meet any all-way stop or signal warrants under current traffic volumes. Nonetheless, the uncontrolled marked crosswalk on the west leg of the intersection combined with a posted speed of 45 miles per hour on CSAH 12 create concerns for pedestrians using that crossing. In addition, the roadway cross-section currently consists of numerous approach lanes and wide shoulders for a pedestrian when crossing CSAH 12.

This intersection is part of a Capital Improvement Plan (CIP) project currently programmed for construction in 2022. The County is working with the City of Mahtomedi and the community toward identifying a preferred alternative that meets the project goals and addresses concerns for non-motorists along this corridor.

CSAH 13 (50th Street N) & Hadley Avenue - East Junction

Existing Conditions

The intersection of CSAH 13 (50th Street N) & Hadley Avenue is located in the City of Oakdale, and is currently controlled by sidestreet stop control. Left turns on the northbound Hadley Avenue approach sometimes experience delays during peak hours. The County was asked to evaluate this intersection as a part of the ICRS Report because the occasional delays on the northbound approach are becoming more frequent, and it scored highly enough last year to be examined again this year.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **2 of 8 Required Hours**
- Warrant 1B: **3 of 8 Required Hours**
- Warrant 1(A+B): **5 of 8 Required Hours**
- Warrant 2: **4 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

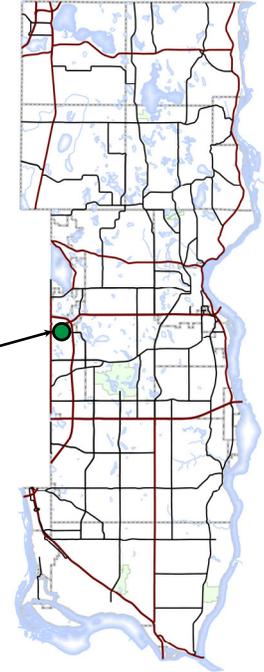
2020 ICRS Rank: 6th

All-Way Stop Warrant, by the numbers:

- All-Way Stop: **4 of 8 Required Hours**

Traffic Count Conducted in **2017**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

Although the intersection currently meets Warrant 2 (Four-Hour Volume) for traffic signal installation, it is not recommended for intersection traffic control changes at this time. While left turns from the northbound Hadley Avenue approach often experience delays during peak hours, the delays are typically not excessive, and the intersection operates efficiently during the majority of the day. Also, the installation of a traffic signal would require the construction of a dedicated left-turn lane on CSAH 13.

The nearby TH 36 & Hadley Avenue Interchange Project was completed in 2019. The intersection will be reevaluated in future years to determine how the completion of the TH 36 & Hadley Avenue Interchange Project has affected traffic volumes and patterns. This reevaluation will take place following the pandemic. In the meantime, it is recommended that this intersection remain sidestreet stop controlled.

CSAH 13 (Radio Drive) & Dale Rd

Existing Conditions

The intersection of CSAH 13 (Radio Drive) & Dale Road is located in the City of Woodbury, and is currently controlled by sidestreet stop control. Traffic from the Dale Road approach experiences delays during peak hours. The City of Woodbury requested that the County evaluate this intersection as a part of the 2019 ICRS Report, and due to its high ranking it remains in the 2020 ICRS Report.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **1 of 8 Required Hours**
- Warrant 1B: **4 of 8 Required Hours**
- Warrant 1(A+B): **1 of 8 Required Hours**
- Warrant 2: **3 of 4 Required Hours**
- Warrant 3: **1 of 1 Required Hour**
- Warrant 7: **Not Met**

2020 ICRS Rank: **12th**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **3 of 8 Required Hours**

Traffic Count Conducted in **2019**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

This intersection currently meets Warrant 3 (Peak Hour Volume) for traffic signal installation. However, meeting Warrant 3 alone is typically not considered sufficient justification to install a traffic signal unless the peak delays are very severe. It is therefore not recommended for intersection control modifications at this time due to the following reasons:

- Although traffic from the Dale Road approach sometimes experiences delays during peak hours, the intersection is operating efficiently during the majority of the day.
- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- A dedicated southbound left-turn lane would be required for safe operation of a traffic signal at this location. Such construction would have impacts on adjacent residential properties.

It is recommended that this intersection remain sidestreet stop controlled at this time. Installing a traffic signal or roundabout may be considered in conjunction with future road improvements along this corridor in the future.

CSAH 14/24 (Osgood Avenue) & CSAH 14 (47th Street N)

Existing Conditions

The intersection of CSAH 14/24 (Osgood Avenue) & CSAH 14 (47th Street N) is located in Baytown Township, and is currently controlled by a temporary all-way stop. A Union Pacific railroad track crosses CSAH 14 at-grade immediately south of the intersection. The existing temporary all-way stop was installed by the County in August of 2015 after a Union Pacific construction project created a severe bump on CSAH 14, and a temporary all-way stop was deemed to be the only viable and effective short-term solution to the problem. This intersection is included in the 2020 ICRS Report because the County currently has a project under design that would modify the grades of CSAH 14 and CSAH 24 in order to address the severe bump at the crossing. Since the temporary all-way stop will be removed as a part of the proposed project, the project team was interested in determining if the intersection meets any traffic signal warrants.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **0 of 8 Required Hours**
- Warrant 1B: **1 of 8 Required Hours**
- Warrant 1(A+B): **1 of 8 Required Hours**
- Warrant 2: **0 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

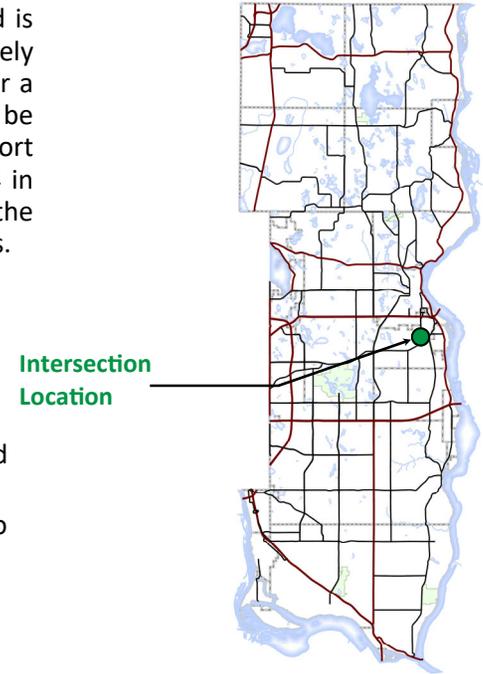
2020 ICRS Rank: 19th (Tied)

Traffic Count Conducted in **2018**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **8 of 8 Required Hours**

Although the intersection is currently being controlled by a temporary all-way stop that was installed as an emergency interim measure, an all-way stop is not a viable long-term solution at this location due to safety issues associated with a stop condition being located this close to a signalized railroad crossing.



Aerial Photo of Intersection

ICRS Recommendation

As a part of the proposed intersection project that is listed in the County's Capital Improvement Plan for construction in 2023, the western end of 47th Street N will be realigned 100 feet to the north and the temporary all-way stop will be removed. The proposed project will remove the severe bump at the railroad crossing, which was the reason that the temporary all-way stop was installed. As discussed above, an all-way stop is not a viable long-term traffic control solution at this location due to the proximity of the railroad crossing. The installation of a roundabout would not be recommended at this intersection, also due to its proximity to the railroad crossing.

The MnMUTCD contains a traffic signal warrant, Warrant 9, which pertains to intersections near at-grade railroad crossings. County staff determined that the intersection **will** meet this warrant upon completion of the planned construction project. Thus, installing a traffic signal system has been added to the project, and the proposed signal operation will be coordinated with the operation of the railroad crossing gates.

Until this project is constructed, it is recommended that the intersection remain a temporary all-way stop, due to the large bump at the crossing.

CSAH 15 (Manning Avenue) & 30th Street N

Existing Conditions

The intersection of CSAH 15 (Manning Avenue) & 30th Street N is located on the borders of the City of Lake Elmo, Baytown Township, and West Lakeland Township. It is currently controlled by sidestreet stop control. Left turns from both 30th Street N approaches currently experience delays during peak hours. This intersection is included in the 2020 ICRS Report because County staff have heard from residents that increasing traffic volumes on CSAH 15 are making it more difficult to find gaps in traffic during busy times of the day.

The west leg of the 32nd Street N intersection with CSAH 15 is planned to be closed in upcoming years, with traffic from that development being given access to Manning Avenue via 30th Street N. Thus, when performing the analysis, a traffic count was conducted at both intersections, with the appropriate traffic figures added to the count at 30th Street N.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **0 of 8 Required Hours**
- Warrant 1B: **0 of 8 Required Hours**
- Warrant 1(A+B): **0 of 8 Required Hours**
- Warrant 2: **0 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

2020 ICRS Rank: 27th (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2020**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation, even when adding traffic from the 32nd St N approach. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- The intersection is currently operating safely, with a crash rate at or below the average rate for similar intersections on county roads statewide.
- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- When and if a traffic signal is installed in the future, turn lanes will be needed on the east and west legs of the intersection, at local cost.

Safety for left turns from Manning Avenue was a predominant concern at this intersection, due to incidents of rear-end crashes and illegal passing on the right. In summer 2018, Washington County constructed center left turn lanes to address this safety concern by removing left turns from the through traffic lanes.

It is recommended that this intersection remain sidestreet stop controlled at this time.

CSAH 15 (Manning Avenue) & 62nd Street N

Existing Conditions

The intersection of CSAH 15 (Manning Avenue) & 62nd Street N is located on the border of the City of Grant and the City of Stillwater, and is currently controlled by sidestreet stop control. Left turns from the westbound 62nd Street approach currently experience delays during peak hours. These delays vary based on seasonal traffic, including traffic entering the adjacent apple orchard. This intersection is included in the 2020 ICRS Report because County staff have heard from residents that increasing traffic volumes on CSAH 15 are making it more difficult to find gaps in traffic during busy times of the day.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **1 of 8 Required Hours**

Warrant 1B: **4 of 8 Required Hours**

Warrant 1(A+B): **2 of 8 Required Hours**

Warrant 2: **3 of 4 Required Hours**

Warrant 3: **1 of 1 Required Hour**

Warrant 7: **Not Met**

2020 ICRS Rank: 10th (Tie)



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **1 of 8 Required Hours**

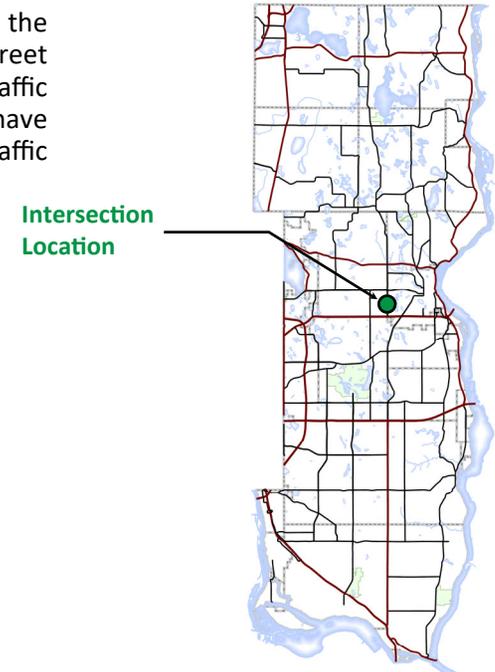
Traffic Count Conducted in **2017**

ICRS Recommendation

The intersection currently meets Warrant 3 (Peak Hour Volume), and is close to meeting Warrant 2 (Four-Hour Volume), for traffic signal installation. However, it is not recommended for intersection control changes at this time. Under current volumes, the installation of an all-way stop or roundabout would unduly hinder CSAH 15 traffic during all hours of the day, for the benefit of a comparatively small number of vehicles on 62nd Street during peak times of the day.

It is expected that increasing traffic volumes and nearby development will cause this intersection to rank highly on the ICRS in the near future. The east leg of this will likely be reconstructed in conjunction with adjacent development in the area. It is expected that a traffic signal will be warranted and installed at that time.

In addition, an interchange on TH 36 at Manning Avenue is programmed for construction in 2021. County staff will continue to observe the impact that construction may have on this intersection in future years.



Intersection Location

CSAH 15 (Manning Avenue) & CR 64 (McKusick Road)

Existing Conditions

The intersection of CSAH 15 (Manning Avenue) & CR 64 (McKusick Road) is located on the border of the City of Grant and the City of Stillwater, and is currently controlled by sidestreet stop control. The westbound CR 64 and eastbound McKusick Road approaches currently experience delays, particularly during peak hours. This intersection is included in the 2020 ICRS Report because increasing traffic volumes on CSAH 15 due to recent nearby development are making it difficult to find gaps in traffic during busy times of the day.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **0 of 8 Required Hours**
- Warrant 1B: **3 of 8 Required Hours**
- Warrant 1(A+B): **0 of 8 Required Hours**
- Warrant 2: **1 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

2020 ICRS Rank: 26th



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2020**

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- Installing a traffic signal would require extensive geometric modifications to the westbound and eastbound approaches, which would need to be widened to accommodate left turn lanes so that a potential traffic signal could operate efficiently and safely. This widening would also likely require acquisition of private property.
- The installation of an all-way stop or roundabout would unduly hinder CSAH 15 traffic during all hours of the day, for the benefit of a small number of vehicles on CR 64/McKusick Road during peak times of the day.

County staff expects that this intersection is a likely candidate for traffic signal installation in the future, and believes the low ranking this year in the 2020 ICRS can be attributed in part to reduced traffic volumes due to the affects of the pandemic. The Brown's Creek Trail Bridge was designed to accommodate a future traffic signal, and dedicated left turn lanes were installed on CSAH 15 in 2014 to improve safety and set up the CSAH 15 approaches to easily accommodate a future signal. However, due to the aforementioned reasons it is recommended that this intersection remain sidestreet stop controlled at this time.

Intersection Location



CSAH 15 (Manning Avenue) & CSAH 4 (170th Street N)

Existing Conditions

The intersection of CSAH 15 (Manning Avenue) & CSAH 4 (170th Street N) is located in May Township, and is currently controlled by all-way stop control. The intersection is in a rural area with high-speed approaches in all directions; the posted speed limit is 55 mph for both CSAH 4 and CSAH 15. This intersection was analyzed for the 2018 ICRS Report due to increasing congestion, as well as several crashes within the 2015-2017 crash analysis period. It scored highly enough in past years to remain in the 2020 ICRS Report.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **1 of 8 Required Hours**

Warrant 1B: **0 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **1 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Not Met**

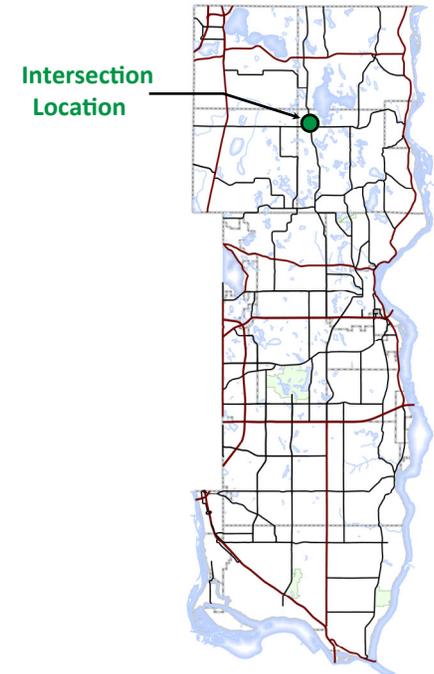
2020 ICRS Rank: 21st (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **7 of 8 Required Hours**

This intersection currently operates as an all-way stop.

Traffic Count Conducted in **2018**



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation, and is currently an hour short of meeting the warrant for an all-way stop. However, this intersection is currently not recommended for intersection control changes at this time.

- Though the intersection does not currently meet the warrant for an all-way stop, it is within a few vehicles of meeting this warrant. Also, traffic volumes are balanced among the approaches at this intersection.
- Installing a traffic signal or roundabout would require extensive geometric modifications to all four approaches. These modifications would have significant impacts to major utilities and would also likely require the acquisition of private property.

In response to crashes at this intersection, county staff reviewed the crash records and the site and made changes to the southbound approach in 2016. These changes included the clearing of trees and improved sign placement. In 2019, County staff added red flashing beacons for the northbound and southbound approaches to increase the conspicuity of the intersection control to approaching motorists.

County staff will continue to monitor this intersection in future years.

CSAH 16 (Valley Creek Road) & Dancing Waters Parkway/Woodcrest

Existing Conditions

The intersection of CSAH 16 (Valley Creek Road) & Dancing Waters Parkway/Woodcrest Drive is located in the City of Woodbury, and is currently controlled by sidestreet stop control. This intersection was originally included in the 2018 ICRS Report because jurisdiction over this section of Valley Creek Road was transferred to Washington County, and due to the marked pedestrian crossing on the east leg. Safety research has demonstrated that providing crosswalk markings across multi-lane uncontrolled approaches, in the absence of other controls, significantly increases pedestrian crash risk. This intersection has scored highly enough to remain in the 2020 ICRS Report.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **1 of 8 Required Hours**

Warrant 1B: **2 of 8 Required Hours**

Warrant 1(A+B): **1 of 8 Required Hours**

Warrant 2: **1 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

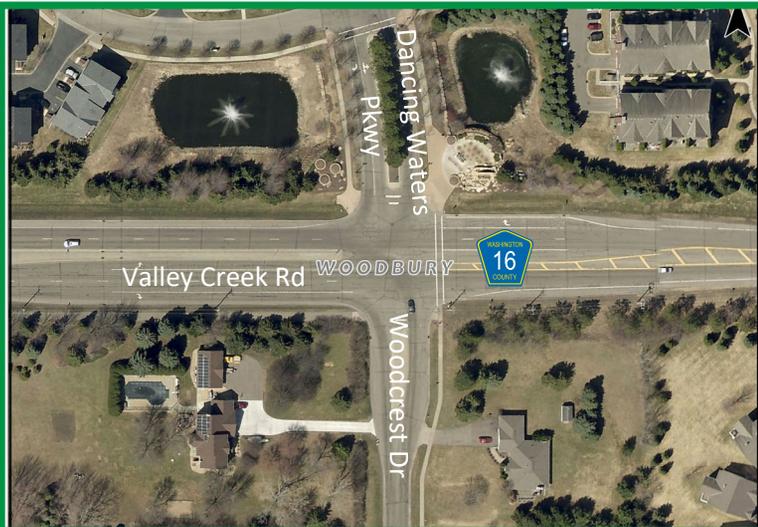
Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

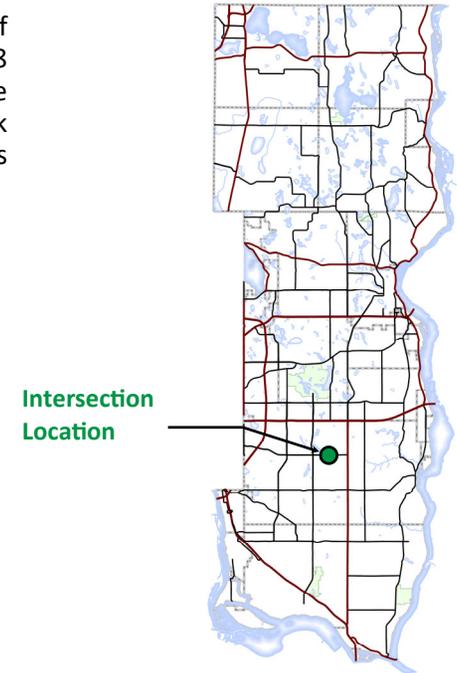
All-Way Stop: **7 of 8 Required Hours**

Traffic Count Conducted in **2018**

2020 ICRS Rank: **17th (Tie)**



Aerial Photo of Intersection



ICRS Recommendation

This intersection currently does not meet any warrants for traffic signal installation. It is however close to meeting the warrant for an all-way stop.

The intersection is currently operating safely, with a crash rate below the average rate for similar intersections on county roads statewide. However, the presence of the marked multi-lane crosswalk on the east leg is a particular safety concern.

County staff will continue to evaluate this intersection in 2021 for potential modifications to address the pedestrian crosswalk safety issue.

CSAH 16 (Valley Creek Road) & Saint John's Drive

Existing Conditions

The intersection of CSAH 16 (Valley Creek Road) & Saint John's Drive is located in the City of Woodbury, and is currently controlled by sidestreet stop control. This intersection is included in the 2018 ICRS Report because jurisdiction over this section of Valley Creek Road was transferred to Washington County, and due to the marked pedestrian crossing on the east leg. Safety research has demonstrated that providing crosswalk markings across multi-lane uncontrolled approaches, in the absence of other controls, significantly increases pedestrian crash risk. This intersection has scored highly enough to remain in the 2020 ICRS Report.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **2 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **1 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Not Met**

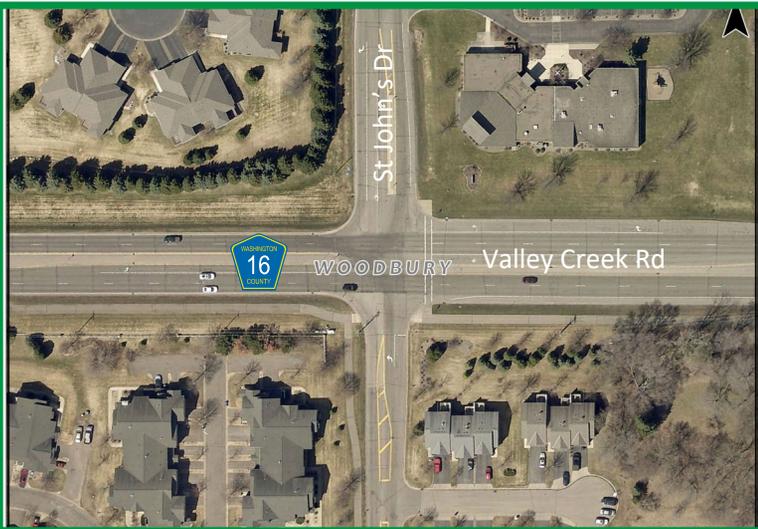
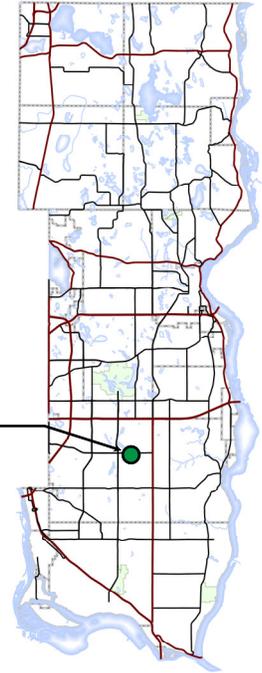
2020 ICRS Rank: 14th

All-Way Stop Warrant, by the numbers:

All-Way Stop: **3 of 8 Required Hours**

Traffic Count Conducted in **2018**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal or all-way stop installation. Additionally, the intersection is currently operating safely, with a crash rate at or below the average rate for similar intersections on county roads statewide.

The marked pedestrian crosswalk on the east leg was a safety concern; however, these markings have deteriorated since the date of the aerial photograph shown to the left, and are no longer visible. The crosswalk did not connect to any pedestrian facilities on the north side, and traffic counts taken in 2018 showed very little usage of this crosswalk; thus, there are no plans to reinstall crosswalk markings across that approach.

County staff will continue to monitor this intersection in future years.

CSAH 16 (Valley Creek Road) & Settlers Ridge Parkway

Existing Conditions

The intersection of CSAH 16 (Valley Creek Road) & Saint John's Drive is located in the City of Woodbury, and is currently controlled by all-way stop control. This intersection is included in the 2020 ICRS Report because jurisdiction over this section of Valley Creek Road was transferred to Washington County a few years ago, and this intersection is in an area that is adjacent to growing development.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**
Warrant 1B: **2 of 8 Required Hours**
Warrant 1(A+B): **0 of 8 Required Hours**
Warrant 2: **1 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Not Met**

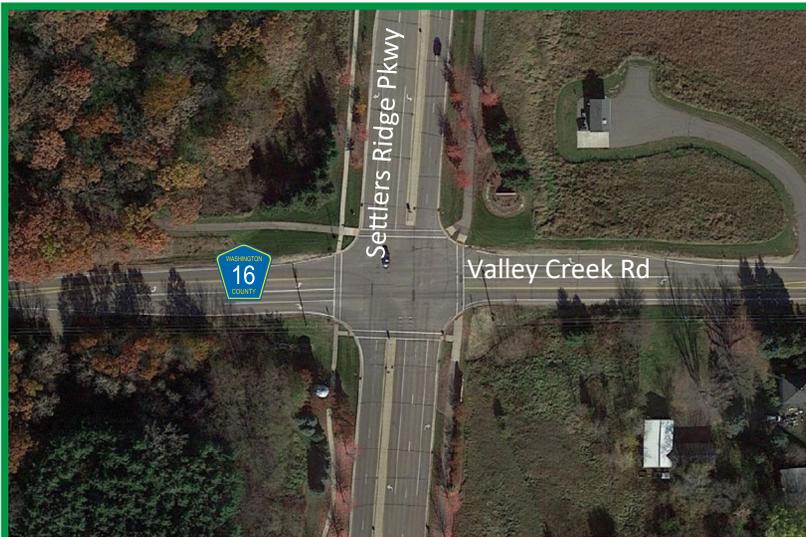
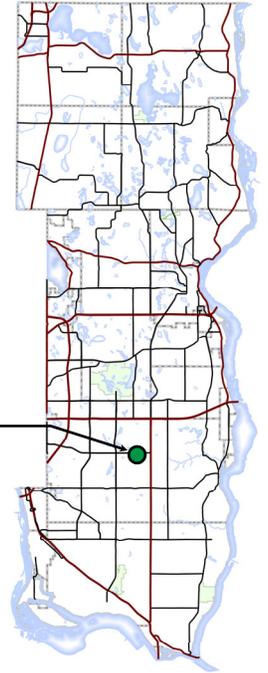
2020 ICRS Rank: 29th (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **3 of 8 Required Hours**

Traffic Count Conducted in **2020**

Intersection
Location



Aerial Photo of Intersection

ICRS Recommendation

Even though this intersection didn't meet the All-Way Stop Warrant according to the counts that were conducted in November 2020, it is presumed that the count volumes were depressed due to there being less traffic during the pandemic. This intersection should remain an all-way stop at this time due to the following reasons:

- The intersection is currently operating safely, with zero reported crashes during the 2017-19 crash analysis period.
- The all-way stop condition serves the current level of traffic appropriately.

County staff will continue to monitor this intersection, and will conduct an updated turning movement count when traffic levels stabilize following the pandemic.

CSAH 18 (Bailey Road) & Cottage Grove Drive/Settlers Ridge Parkway

Existing Conditions

The intersection of CSAH 18 (Bailey Road) & Cottage Grove Drive/Settlers Ridge Parkway is located in the City of Woodbury, and is currently controlled by sidestreet stop control. This intersection is included in the 2020 ICRS Report because it is located in an area of the County that is experiencing increased development and traffic growth. In addition, several injury crashes occurred at this location in 2013 when CSAH 18 was being used as a detour route for a construction project on CSAH 19, which caused local residents to raise safety concerns about the intersection. County staff were interested in evaluating the intersection to verify that it was operating safely and efficiently.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **0 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **0 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Crash component met: 5 correctable crashes in a 12 month period; Volume component not met: 0 of 8 Hours for 1A, 2 of 8 Hours for 1B**

2020 ICRS Rank: 15th (Tie)



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **12 of 8 Required Hours**

During the highest hour, average delay to minor street vehicles does not average at least 30 seconds per vehicle, which is a condition of this warrant. Thus, the all-way stop warrant is not met.

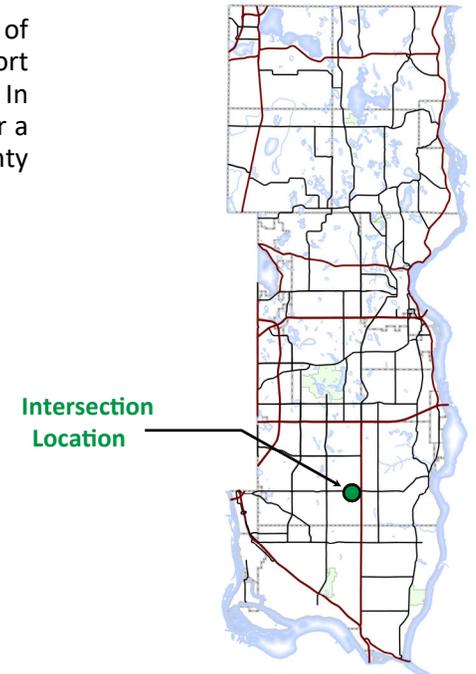
Traffic Count Conducted in **2019**

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- The installation of an all-way stop or roundabout would unduly hinder all CSAH 18 traffic during all hours of the day, for the benefit of a relatively small number of vehicles making left turns or through movements from the sidestreets during peak traffic periods.

County staff expects that this intersection is a candidate for a roundabout installation in the future, as traffic volumes increase due to development in this area of Woodbury. County staff investigated the crash history at this intersection and conducted a field review. County staff will discuss potential enhancements to signing approaching the intersection with the City of Woodbury.



CSAH 18 (Bailey Road) & Monticello Drive

Existing Conditions

The intersection of CSAH 18 (Bailey Road) & Monticello Drive is located in the City of Woodbury, and is currently controlled by sidestreet stop control. The south leg of the intersection serves as one of two access points to St. Ambrose Church and School, which is located immediately southwest of the intersection. The northbound approach currently experiences delays during the AM drop-off and PM pick-up times for the school and before and after church services. Inbound vehicle movements into the St. Ambrose site also have limited capacity due to the short available weaving distance within the site, sometimes leading to queueing in the left turn lane.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **2 of 8 Required Hours**

Warrant 1(A+B): **1 of 8 Required Hours**

Warrant 2: **1 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

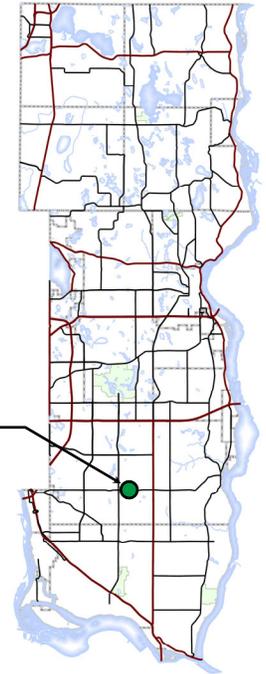
All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2017**

2020 ICRS Rank: **17th (Tied)**



Aerial Photo of Intersection



Intersection Location

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- The intersection is currently operating safely, with a crash rate at or below the average rate for similar intersections in the Metro area. In fact, there were zero total crashes during the 2017-2019 study period for this intersection.
- Although the intersection experiences congestion on the northbound approach during the AM drop-off and PM pick-up times for the school, and also during Sunday morning church services, the congestion lasts for only a short duration. The intersection is operating efficiently during the majority of the day on both weekdays and weekends.
- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- The installation of a traffic signal would not improve the overall inbound capacity into the site.

Due to the above reasons it is recommended that this intersection remain sidestreet stop controlled at this time.

CSAH 19 (Keats Avenue) & 80th Street S

Existing Conditions

The intersection of CSAH 19 (Keats Avenue) & 80th Street S is located in the City of Cottage Grove, and is currently controlled by an all-way stop. This intersection is included in the 2020 ICRS Report because it is located in an area of the County that is experiencing increased development and traffic growth, and the County has received comments from the City of Cottage Grove and from residents regarding vehicles sometimes failing to stop.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **2 of 8 Required Hours**
- Warrant 1B: **4 of 8 Required Hours**
- Warrant 1(A+B): **5 of 8 Required Hours**
- Warrant 2: **4 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

2020 ICRS Rank: **7th**



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **7 of 8 Required Hours**

This intersection currently operates as an all-way stop.

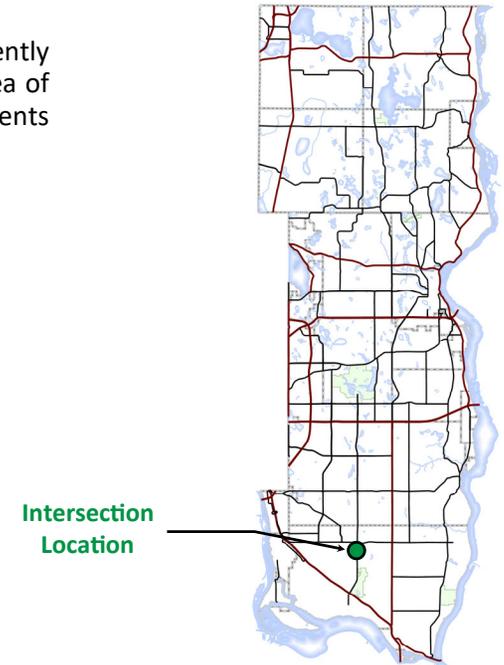
Traffic Count Conducted in **2018**

ICRS Recommendation

While this intersection technically didn't meet all required hours of the all-way stop warrant based on the 2018 traffic count, it likely would have if the count had taken place one hour longer into the evening. The intersection currently meets Warrant 2 (Four-Hour Volume) for traffic signal installation. However, it is not recommended for intersection control changes at this time due to the following reasons:

- Although the intersection currently experiences some minor congestion during peak hours, it is operating efficiently during the majority of the day.
- Installing a traffic signal or roundabout would require significant geometric modifications to the roadway, which would be costly.
- In 2019, County staff added red flashing beacons for the northbound and southbound approaches to increase the conspicuity of the intersection control to approaching motorists and address concern that drivers were running the stop signs.

At this time, it is recommended that this intersection remain all-way stop controlled. The intersection will continue to be monitored in the future, and will be reevaluated for possible modifications via a city or county Capital Improvement Plan (CIP) project if traffic volumes and patterns change, and as funding becomes available.



CSAH 19 (Keats Avenue) & 90th Street S/Ravine Parkway

Existing Conditions

The intersection of CSAH 19 (Keats Avenue) & 90th Street S/Ravine Parkway is located in the City of Cottage Grove, and is currently sidestreet stop controlled. This intersection is included in the 2020 ICRS Report because it is located in an area of the County that is experiencing increased development and traffic growth. Also, the County has received feedback from area residents that this is a difficult intersection to navigate, particularly from the minor approaches, and that CSAH 19 is difficult to cross for vehicles, bicyclists, and pedestrians.

Traffic Signal Warrants, by the numbers:

- Warrant 1A: **0 of 8 Required Hours**
- Warrant 1B: **2 of 8 Required Hours**
- Warrant 1(A+B): **0 of 8 Required Hours**
- Warrant 2: **0 of 4 Required Hours**
- Warrant 3: **0 of 1 Required Hour**
- Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

- All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2019**

2020 ICRS Rank: **27th**



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- Although the westbound and eastbound approaches currently experience minor delays during portions of the day, the intersection is operating efficiently during the majority of the day.
- Under existing volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.

This intersection, as currently configured, can be difficult to negotiate for traffic on the minor approaches. County staff will continue to monitor crash patterns at this intersection in future years. In the meantime, it will remain sidestreet stop controlled.

CSAH 19 (Keats Avenue) & Ravine Parkway

Existing Conditions

The intersection of CSAH 19 (Keats Avenue) & Ravine Parkway is located in the City of Cottage Grove, and is currently sidestreet stop controlled. Ravine Parkway was recently constructed between Jamaica and Keats Avenues, replacing Military Road that used to connect these routes nearby. This intersection is included in the 2020 ICRS Report because it is located in an area of the County that is experiencing increased development and traffic growth, and to observe how this new intersection is performing.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **2 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **0 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2020**

2020 ICRS Rank: **21st (Tie)**



Aerial Photo of Intersection



Intersection
Location

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- The intersection is currently operating safely, with a crash rate around the average rate for similar intersections on county roads statewide.
- The traffic control as is currently constituted serves the current level of traffic appropriately.

County staff will continue to monitor this intersection, and will conduct an updated turning movement count when traffic levels stabilize following the pandemic.

CSAH 19 (Woodbury Drive) & Ambrose Road

Existing Conditions

The intersection of CSAH 19 (Woodbury Drive) & Ambrose Road is located in the City of Woodbury, and is currently controlled by sidestreet stop control. This intersection serves Saint Ambrose of Woodbury Catholic Church to the east, as well as an affiliated parochial school and early childhood education center. There has been recent residential development to the west, and more developments are currently being planned or are already under construction. In addition, Woodbury Drive is experiencing increasing traffic volumes along this corridor. This intersection is included in the 2020 ICRS Report because it is in an area of rapid development, and the County is currently designing a roadway expansion south of this intersection.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**
Warrant 1B: **0 of 8 Required Hours**
Warrant 1(A+B): **0 of 8 Required Hours**
Warrant 2: **0 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **0 of 8 Required Hours**

Traffic Count Conducted in **2020**

2020 ICRS Rank: 27th (Tie)



Aerial Photo of Intersection

Intersection
Location



ICRS Recommendation

Note: Saint Ambrose of Woodbury Catholic School was in session the day of the traffic count, with all students attending in person.

This intersection is located within a Capital Improvement Plan (CIP) project that is planned for 2021. However, the intersection currently does not meet any warrants for traffic installation. It is recommended that it remain sidestreet stop-controlled at this time, for the following reasons:

- The intersection is currently operating safely, with a crash rate below the average rate for similar intersections on county roads statewide.
- Although the westbound and eastbound approaches currently experience minor congestion during portions of the day, those periods of congestion are typically short in duration. The intersection operates efficiently during the majority of the day.

CSAH 19 (Woodbury Drive) & Dale Road

Existing Conditions

The intersection of CSAH 19 (Woodbury Drive) & Dale Road is located in the City of Woodbury, and is currently controlled by sidestreet stop control. Woodbury Drive is experiencing increasing traffic volumes and creating delays on the Dale Road approaches to the intersection. This intersection is included in the 2020 ICRS Report because it is in an area of rapid development, and is located within a Capital Improvement Plan (CIP) project that is planned for 2021.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**
Warrant 1B: **7 of 8 Required Hours**
Warrant 1(A+B): **0 of 8 Required Hours**
Warrant 2: **3 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

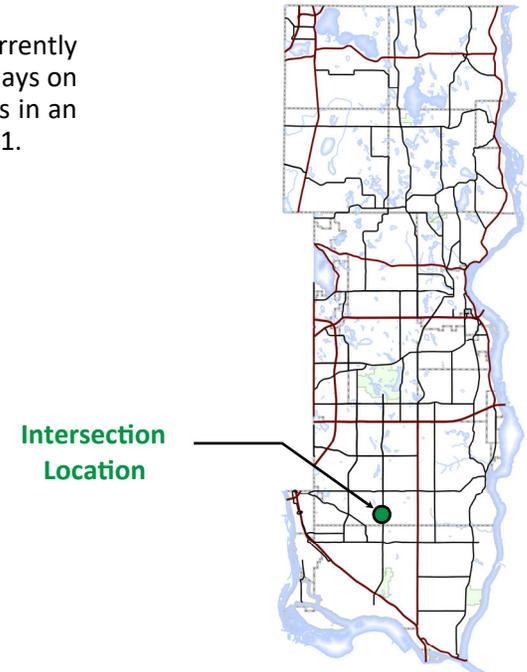
All-Way Stop: **2 of 8 Required Hours**

Traffic Count Conducted in **2018**

2020 ICRS Rank: **5th**



Aerial Photo of Intersection



ICRS Recommendation

This intersection is seeing significant traffic growth due to nearby residential development. It comes close to meeting Warrant 1B (Eight-Hour Volume - Interruption of Continuous Traffic) and Warrant 2 (Four-Hour Volume) and Warrant 3 (Peak Hour Volume).

A roundabout will be installed at this location as part of the planned 2021 construction project. It is expected that the intersection will meet Warrant 1B and Warrant 2 by the time of construction, and the intersection would require a full reconstruction to accommodate either a traffic signal or a roundabout. A roundabout is expected to have better efficiency and safety performance at this location, and is consistent with traffic control at nearby intersections along CSAH 19 including at Lake Road, Bailey Road, and 70th Street.

In addition, there will be geometric modifications for the eastbound Dale Rd approach, with the profile of Dale Road being made flatter to improve sight distance for approaching vehicles.

CSAH 21/14 (Stagecoach Trail) & CSAH 14 (47th Street N)

Existing Conditions

The intersection of CSAH 21/14 (Stagecoach Trail) & CSAH 14 (47th Street N) is located in Baytown Township, and is currently controlled by sidestreet stop control. This intersection is located adjacent to areas of recent development, as well as a nearby school. This was included in the 2019 ICRS Report due to a perception of delay from the minor approach due to there being a large percentage of turning traffic at all approaches of the intersection, and it scored highly enough to remain in the 2020 ICRS Report.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **1 of 8 Required Hours**

Warrant 1B: **0 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **1 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

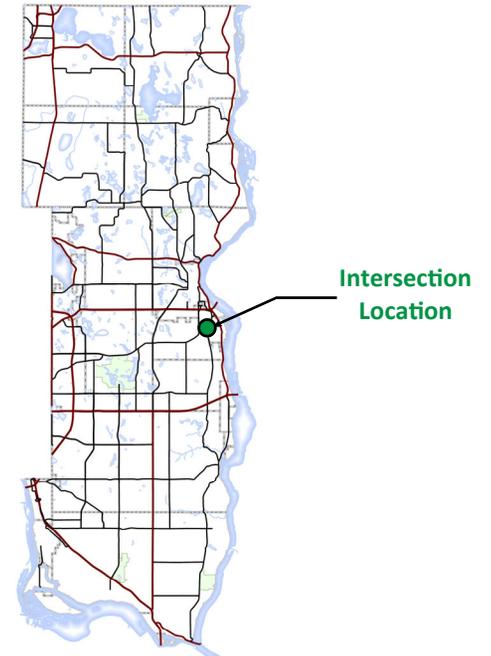
Warrant 7: **Not Met**

2020 ICRS Rank: 21st (Tied)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **6 of 8 Required Hours**

Traffic Count Conducted in **2019**



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- Although the left turns from the northbound CSAH 21 and eastbound CSAH 14 approaches often experience delays during peak hours, the delays are typically not severe, and the intersection is operating efficiently during the majority of the day.
- The installation of an all-way stop would hinder CSAH 21 traffic during all hours of the day, and might increase rear end crashes.
- In 2017, left turn lanes were constructed for the northbound and southbound approaches to reduce rear end crash risk for traffic in those directions. This has also reduced delay for traffic making the eastbound-to-northbound movement.

In the meantime, it is recommended that this intersection remain sidestreet stop controlled.

CSAH 22 (Summit Avenue) & Saint Paul Park Road

Existing Conditions

The intersection of CSAH 22 (Summit Avenue) & Saint Paul Park Road is located in the City of Saint Paul Park, and is currently controlled by sidestreet stop control. This intersection has been experiencing issues related to heavy truck traffic since truck access from the oil refinery to the Glen Road interchange was restricted in the early 2000's. The County has received numerous requests for increased traffic control at this intersection over the years from residents and truck drivers, due to safety concerns related to the lack of gaps in traffic for loaded tanker trucks making left turns from St. Paul Park Road onto northbound CSAH 22.

Traffic Signal Warrants, by the numbers*:

Warrant 1A: **11 of 8 Required Hours**

Warrant 1B: **8 of 8 Required Hours**

Warrant 1(A+B): **13 of 8 Required Hours**

Warrant 2: **11 of 4 Required Hours**

Warrant 3: **2 of 1 Required Hour**

Warrant 7: **Not Met**

*NOTE Trucks counted as 3 equivalent passenger vehicles at this location due to the unusually high truck percentages, and their size and acceleration characteristics.

2020 ICRS Rank: 2nd



Aerial Photo of Intersection

All-Way Stop Warrant, by the numbers:

All-Way Stop: **9 of 8 Required Hours**

Not recommended, because the proximity to adjacent intersections would be problematic.

Traffic Count Conducted in **2018**

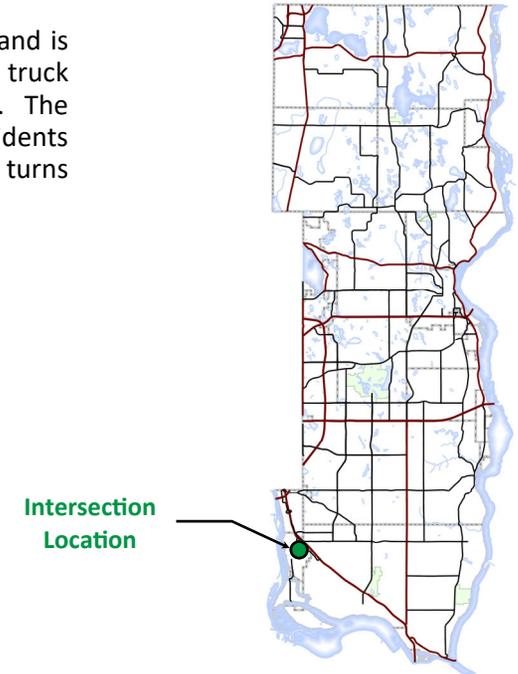
ICRS Recommendation

Prior to 2012, annual County analyses of this intersection did not indicate that the intersection was meeting traffic signal warrants. County staff took a different look at the intersection in late 2012, electing to count each semi truck as 3 equivalent passenger vehicles due to their size and acceleration characteristics. Using these criteria, the intersection meets several warrants for traffic signal installation. County staff now concur that the installation of a traffic signal could be beneficial at this location and could allow for the removal of the “no turn on red” restriction at the southbound exit ramp, which was installed to create gaps in traffic at St. Paul Park Road.

However, the City of St. Paul Park withheld support for a traffic signal at this location in early 2013, and asked that the County instead try and improve the operation of the traffic signals at the US 61/10 & CSAH 22 interchange¹. The County subsequently completed a traffic signal improvement project in the interchange area in late 2016.

County staff remain ready to support proceeding with a traffic signal design and programming a signal installation at the CSAH 22 & Saint Paul Park Road intersection if and when such a project is supported by the City.

1.) <http://www.swcbulletin.com/content/st-paul-park-city-council-opposes-fourth-stoplight-near-hwy-61summit-avenue>



CSAH 24 (Osgood Avenue) & CSAH 26 (59th Street N)

Existing Conditions

The intersection of CSAH 24 (Osgood Avenue) & CSAH 26 (59th Street N) is located in the City of Oak Park Heights, and is currently controlled by sidestreet stop control. The east leg of this intersection was added in 2016 when CSAH 26 (60th Street, or the TH 36 South Frontage Road) was closed to the east of CSAH 24, and realigned to the south to connect to CSAH 24 at this location. The intersection is included in the ICRS Report because County staff have been interested in evaluating it following the frontage road realignment to determine if there are any operational or safety issues.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**

Warrant 1B: **1 of 8 Required Hours**

Warrant 1(A+B): **0 of 8 Required Hours**

Warrant 2: **0 of 4 Required Hours**

Warrant 3: **0 of 1 Required Hour**

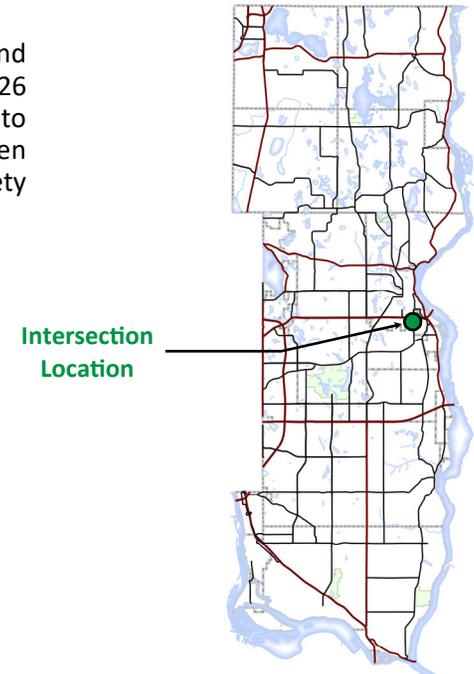
Warrant 7: **Not Met**

2020 ICRS Rank: 24th (Tie)

All-Way Stop Warrant, by the numbers:

All-Way Stop: **1 of 8 Required Hours**

Traffic Count Conducted in **2016**



Aerial Photo of Intersection

ICRS Recommendation

The intersection currently does not meet any warrants for traffic signal installation. It is therefore not recommended for intersection control changes at this time due to the following reasons:

- Although the westbound and eastbound 59th Street approaches currently experience minor delays during portions of the day, the intersection is operating efficiently during the majority of the day.
- Under existing volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- The southbound left-turn lane as currently constructed is insufficient to support signalized operation.

The County has secured funding to realign the south frontage road of TH 36 west of CSAH 24 (Osgood Avenue). Construction of this work is programmed for 2021.

This intersection will remain sidestreet stop controlled both now and after completion of the project. However, County staff will continue to monitor this intersection, as it is a possible candidate for traffic signal installation in the future.

CR 38 (Maxwell Avenue) & Red Rock Road

Existing Conditions

The intersection of CR 38 (Maxwell Avenue) & Red Rock Road is located in the City of Newport, and is currently controlled by sidestreet stop control. Traffic on the eastbound Red Rock Road approach sometimes experiences delays during peak hours due to southbound congestion extending from the I-494 interchange. The County was asked to evaluate this intersection as a part of the 2018 ICRS Report due to difficulty for vehicles on the Red Rock Road approach finding gaps, particularly due to there being a high volume of truck traffic in the area, as well as safety concerns, and it has scored well enough to remain included in subsequent reports.

Traffic Signal Warrants, by the numbers:

Warrant 1A: **0 of 8 Required Hours**
Warrant 1B: **2 of 8 Required Hours**
Warrant 1(A+B): **2 of 8 Required Hours**
Warrant 2: **0 of 4 Required Hours**
Warrant 3: **0 of 1 Required Hour**
Warrant 7: **Not Met**

All-Way Stop Warrant, by the numbers:

All-Way Stop: **5 of 8 Required Hours**

Traffic Count Conducted in **2018**

*NOTE Trucks counted as 3 equivalent passenger vehicles at this location due to the unusually high truck percentages, and their size and acceleration characteristics.

2020 ICRS Rank: 15th (Tie)



Aerial Photo of Intersection



Intersection Location

ICRS Recommendation

County staff elected to count each semi truck as 3 equivalent passenger vehicles due to their size and acceleration characteristics when evaluating this intersection. Though this intersection sometimes experiences congestion during the morning peak hours, it is not recommended for intersection traffic control changes at this time due to the following reasons:

- Under existing traffic volumes, the installation of a traffic signal would be expected to increase overall delay and increase the crash rate at the intersection.
- Although the installation of an all-way stop would reduce delays on the eastbound approach during peak traffic times, the overall delay at the intersection would be expected to be significantly worse than existing conditions due to the congestion that an all-way stop would cause on CR 38.

The Minnesota Department of Transportation recently completed a two-year project to improve capacity on westbound I-494 west of the Wakota Bridge over the Mississippi River. It is hoped that the completion of this project will alleviate much of the congestion at the CR 38 and Red Rock Road intersection during peak hours.

It is recommended that this intersection remain sidestreet stop controlled at this time.

Summary

Of the 31 intersections that were included in the 2020 Intersection Control Ranking System (ICRS) Report, 11 met one or more of the MnMUTCD traffic signal warrants. The chart below summarizes each of the 11 intersections, including their rank in the ICRS, the warrants that were met at each location, and how each of the intersections is being addressed by the Public Works Department.

The remaining intersections not listed in this table do not meet any traffic signal warrants. County staff will continue to monitor those remaining intersections, paying particular attention to ones that rank highly and are close to meeting warrants. Full ranking information can be found on the following page.

ICRS Rank	Intersection	City and/or Township	Warrants Met	Status
1	CSAH 5 (Owens St) & CSAH 12 (Myrtle St)	Stillwater	8-Hour, 4-Hour, Peak Hour	County staff remain ready to support an intersection improvement project if and when such a project is supported by the City.
2	CSAH 22 (Summit Ave) & Saint Paul Park Rd	Saint Paul Park	8-Hour, 4-Hour, Peak Hour	County staff remain ready to support a traffic signal if supported by the City.
3	CSAH 10 (10th St N) & CSAH 19 (Keats Ave)	Lake Elmo	4-Hour, Peak Hour	This intersection will remain all-way stop controlled at this time. However, County staff acknowledges that this intersection meets warrants and ranks highly, and recommends it be considered for a future Capital Improvement Plan (CIP) project.
4	CSAH 6 (Stillwater Blvd) & CSAH 13 (Inwood Ave)	Lake Elmo	4-Hour, Peak Hour	This intersection is recommended to remain an all-way stop at this time. County staff will continue to monitor this intersection, and it may be a candidate for a future CIP project.
6	CSAH 13(50th St N) & Hadley Ave	Oakdale	4-Hour	This intersection is recommended to remain sidestreet stop controlled at this time. County staff will reevaluate it in future years to determine how the completion of the TH 36 & Hadley Avenue Interchange Project affects traffic volumes and patterns.
7	CSAH 19 (Keats Ave) & 80th St S	Cottage Grove	4-Hour	This intersection will remain all-way stop controlled at this time. The intersection may be a candidate for a future CIP project as funding becomes available.
10 (Tie)	CSAH 6 (Stillwater Blvd) & Hadley Ave	Oakdale	Crash Experience	This intersection will remain all-way stop controlled at this time. County staff will monitor traffic volumes after the pandemic to determine if they return to previous levels with nearby construction projects having finished.
12	CSAH 13 (Radio Dr) & Dale Rd	Woodbury	Peak Hour	This intersection is recommended to remain sidestreet stop controlled at this time, and will continue to be monitored by County staff in future years.
10 (Tie)	CSAH 15 (Manning Ave) & 62nd St N	Grant/Stillwater	Peak Hour	A traffic signal will likely be installed at this location when adjacent development occurs and the east leg is reconstructed. It is assumed that this intersection will meet other warrants in addition to the one-hour peak hour volume warrant at that time.
13	CSAH 8 (Frenchman Rd) & Oneka Pkwy	Hugo	Peak Hour	This intersection is recommended to remain sidestreet stop controlled at this time, and will continue to be monitored by County staff in future years.
19 (Tie)	CSAH 14/24 (Osgood Avenue) & CSAH 14 (47th Street N)	Baytown Township	Intersection Near a Grade Crossing	A traffic signal will be installed as part of an upcoming project programmed in 2023 that will realign the intersection northward and address the bump at the railroad crossing.

2020 Washington County Intersection Control Ranking System (ICRS)

2020 Rank	Intersection	Year Data Collected	MN MUTCD Traffic Volume Warrants (Hours Met)					Warrant Points	2017-2019 Correctable Crashes		Crash Points	Total ICRS Points
			Warrant 1A	Warrant 1B	Warrant 1(A+B)	Warrant 2	Warrant 3		K & A	B, C, & PDO		
1	CSAH 5 (Owens St) & CSAH 12 (Myrtle St)	2018	12	5	11	6	3	21	0	4	1.3	22.3
2	CSAH 22 (Summit Ave) & St. Paul Park Rd	2018	11	8	12	6	2	20	0	1	0.3	20.3
3	CSAH 10 (10th St N) & CSAH 19 (Keats Ave)	2018	7	3	4	4	3	14	0	0	0.0	14.0
4	CSAH 6 (Stillwater Blvd) & CSAH 13 (Inwood Ave)	2015	5	3	5	4	3	12	0	1	0.3	12.3
6	CSAH 13 (50th St N) & Hadley Ave - East Junction	(1) 2017	2	3	5	4	0	9	0	4	1.3	10.3
7	CSAH 19 (Keats Ave) & 80th St S	(1) 2018	2	4	5	4	0	9	0	2	0.7	9.7
T10	CSAH 6 (Stillwater Blvd) & Hadley Ave	(1,2) 2019	4	1	4	2	0	6	0	8	2.7	8.7
T10	CSAH 15 (Manning Ave) & 62nd St N	(1) 2017	1	4	2	3	1	8	0	2	0.7	8.7
12	CSAH 13 (Radio Dr) & Dale Rd	(1) 2019	1	4	1	3	1	8	0	1	0.3	8.3
13	CSAH 8 (Frenchman Rd) & Oneka Pkwy	(1) 2019	0	3	1	3	1	7	0	1	0.3	7.3
T19	CSAH 14/24 (Osgood Ave) & CSAH 14 (47th St N)	(1,3) 2018	0	1	1	1	0	2	0	2	0.7	2.7
5	CSAH 19 (Woodbury Dr) & Dale Rd	2018	0	7	0	3	0	10	1	1	1.3	11.3
T8	CSAH 6 (Stillwater Blvd) & CSAH 13 (Ideal Ave)/Helmo Ave	2014	4	0	1	3	0	7	1	4	2.3	9.3
T8	CSAH 12 (Stillwater Rd) & East Ave/Hallam Ave	2016	0	5	0	3	0	8	0	4	1.3	9.3
14	CSAH 16 (Valley Creek Rd) & St. John's Drive	2018	0	2	0	1	0	3	0	3	1.0	4.0
T15	CR 38 (Maxwell Ave) & Red Rock Road	2018	0	2	2	0	0	2	1	3	2.0	4.0
T15	CSAH 18 (Bailey Rd) & Cottage Grove Dr/Settlers Ridge Pkwy	2019	0	0	0	0	0	0	1	8	3.7	3.7
T17	CSAH 16 (Valley Creek Rd) & Dancing Waters/Woodcrest Dr	2018	1	2	1	1	0	3	0	0	0.0	3.0
T17	CSAH 18 (Bailey Rd) & Monticello Dr	2017	0	2	1	1	0	3	0	0	0.0	3.0
T19	CSAH 12 (75th St N) & CSAH 9 (Jamaca Ave)	2019	0	2	0	0	0	2	0	2	0.7	2.7
T21	CSAH 15 (Manning Ave) & CSAH 4 (170th St N)	2018	1	0	0	1	0	2	0	1	0.3	2.3
T21	CSAH 19 (Keats Ave) & 90th St S/Ravine Pkwy	2019	0	2	0	0	0	2	0	1	0.3	2.3
T21	CSAH 21/14 (Stagecoach Trl N) & CSAH 14 (47th St N)	2019	1	0	0	1	0	2	0	1	0.3	2.3
T24	CSAH 10 (10th St N) & CSAH 17/17B (Lake Elmo Ave)	2020	0	0	0	0	0	0	1	2	1.7	1.7
T24	CSAH 24 (Osgood Ave) & CSAH 26 (59th St N)	2016	0	1	0	0	0	1	0	2	0.7	1.7
26	CSAH 15 (Manning Ave) & CR 64 (McKusick Rd)	2020	0	0	0	0	0	0	0	2	0.7	0.7
T27	CSAH 15 (Manning Ave) & 30th St N	2020	0	0	0	0	0	0	0	1	0.3	0.3
T27	CSAH 19 (Woodbury Dr) & Ambrose Rd	2020	0	0	0	0	0	0	0	1	0.3	0.3
T29	CSAH 12 (County Road E) & Wedgewood Dr	2020	0	0	0	0	0	0	0	0	0.0	0.0
T29	CSAH 16 (Valley Creek Rd) & Settlers Ridge Pkwy	2020	0	0	0	0	0	0	0	0	0.0	0.0
T29	CSAH 19 (Keats Ave) & Ravine Pkwy	2020	0	0	0	0	0	0	0	0	0.0	0.0

MEETS WARRANT

MEETS A ONE-HOUR WARRANT

DOES NOT MEET WARRANTS

NOTES:

- A.) Warrants 1A (Eight-Hour Volume, Minimum Vehicular Volume), 1B (Eight-Hour Volume, Interruption of Continuous Traffic), and 1(A+B) (Combination of Eight-Hour Warrants) receive 1 point for each hour met, up to a maximum of 12 points. Warrant 1A, 1B, and 1(A+B) are not cumulative; the highest of these values is added to the total.
- B.) Warrant 2 (Four-Hour Volume) receives 1 point for each hour met, up to a maximum of 6 points.
- C.) Warrant 3 (Peak Hour Volume) receives 1 point for each hour met, up to a maximum of 4 points.
- D.) Warrant 7 (Crash Experience) receives 1 point for each correctable crash over a 3 year study period, except for correctable fatal and "A" injury crashes which receive 3 points. The total is then divided by 3 to account for 3 years of data.
- E.) More information on traffic signal warrants can be found on page 3 of this report.
 - 1) These intersections meet warrants, and were therefore moved above the dividing line, even though other intersections listed below rank higher in points.
 - 2) This intersection meets Warrant 7: Crash Experience.
 - 3) This intersection meets Warrant 9: Intersection Near a Grade Crossing.