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# Intersection Control Evaluation (ICE) Report

## Susan Drive and Margaret Avenue

## Marshall, Lyon County, MN

February 18, 2025

**Submitted by:**
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# Certification

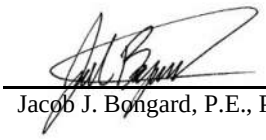
## Intersection Control Evaluation Report

Susan Drive and Margaret Avenue

in

City of Marshall
Lyon County, Minnesota

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.



| Jacob J. Bongard, P.E., PTOE | 52210 | 2/18/2025 |
|---|---|---|
| | Reg. No. | Date |

***Approved:***

| Marshall City Engineer | Date |
|---|---|

## Introduction

An analysis of the intersection control alternatives at Susan Drive and Margaret Avenue was completed to evaluate and identify necessary improvements to vehicle and pedestrian infrastructure at the intersections due to safety concerns and the close proximity of the two intersections. The intersection is located in Marshall, Lyon County, Minnesota. See **Figure 1** for a project location map.

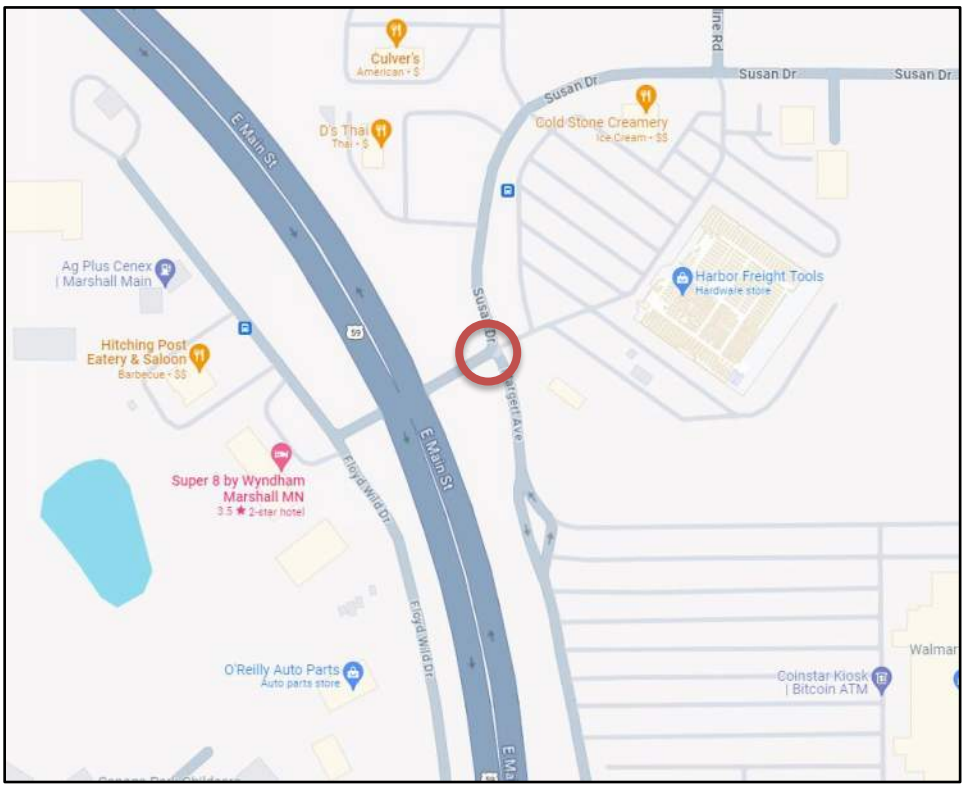



***Figure 1. Project Location Map (Map Courtesy of Google)***

## Existing Conditions

The study area is in the City of Marshall, Lyon County, Minnesota. Susan Drive is a 2-lane undivided roadway that is 38ft from curb to curb. It is classified as a local street and has no posted speed limit but is designed for 30mph. Margaret Avenue is a 2-lane undivided roadway that is 38ft from curb to curb. It is classified as a local street and has no posted speed limit.

The intersection of Susan Drive and Margaret Avenue is a four-legged intersection that is three-way stop controlled with the eastbound approach being a free movement. The segment of Susan Drive between US 59 and Margaret Avenue has 105ft of stacking distance between the adjacent intersections. The north leg is the continuation of Susan Drive. The east leg is the entrance to the commercial parking lot for Harbor Freight Tools. The south leg is Margaret Avenue which leads to the Wal-Mart parking lot. Pedestrian facilities exist on the north leg only.

The study intersection is closely spaced to the US 59 (E Main St) and Susan Drive intersection. US 59 is a 4-lane, divided roadway with curb and gutter classified as a principal arterial that runs north-south through Marshall. The speed limit is 40 mph at the Susan Drive intersection. The intersection of US 59 and Susan Dr is signalized with US 59 considered the major roadway. The west leg of the intersection has 50ft of stacking distance and then opens into a frontage road system that services a variety of businesses including a gas station, hotel, restaurant, and other commercial businesses. Pedestrian

accommodations are provided for the the north and east legs of the intersection. See **Figure 2** for the existing intersection layout and lane configuration.

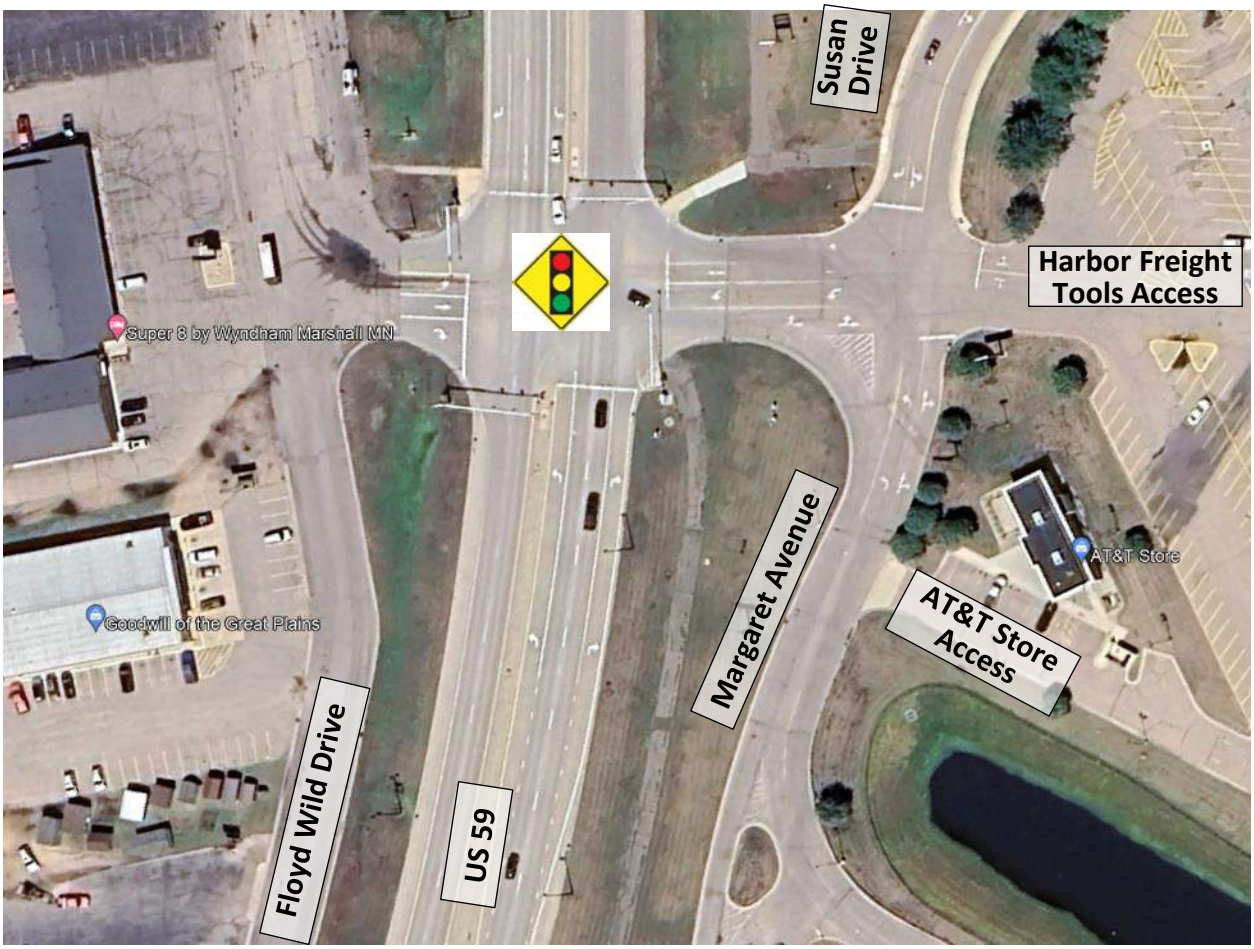



***Figure 2: Existing Intersection Layout***

## Data Collection

Traffic counts were collected in October of 2023 at the intersections of US 59/Susan Drive and Susan Drive/Margaret Avenue. A 13-hour turning movement count was collected on Thursday, October 12th between the hours of 6 am and 7 pm. The details of the count can be found in **Appendix A**. AM and PM peak hours were identified as:

Susan Drive and Margaret Avenue

- 11:00 AM to 12:00 PM for the AM Peak Hour
- 12:45 PM to 1:45 PM for the PM Peak Hour

US 59 and Susan Drive

- 11:00 AM to 12:00 PM for the AM Peak Hour
- 3:45 PM to 4:45 PM for the PM Peak Hour

Though the PM peak hours for the two intersections differ, peak volumes were analyzed together to be conservative and capture the greatest volume threshold.

## Safety Analysis

A crash review was completed for the intersection using 2018-2022 crash data obtained from the Minnesota Crash Mapping Analysis Tool (MnCMAT2).

Crash data from 2018-2022 was analyzed to determine the observed crash rate, statewide average crash rate, critical crash rate and critical index. The same parameters for injury crashes were also calculated. The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate); a critical index greater than 1.0 indicates that the observed crash rate is greater than the critical rate and that the intersection crash history is above the expected, normal range. **Tables 1 and 2** summarize the safety analysis results for the intersection.

**Table 1. Intersection Crash Data (2018-2022)**

| Intersection | Traffic Control | Total Crashes (5 Years) | Total Crash Rate | | | | Fatal & Serious Injury Crash Rate | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Observed | *Statewide Average* | *Critical Rate* | Crash Index | Observed | *Statewide Average* | *Critical Rate* | Crash Index |
| US 59 & Susan Dr | Signal | 9 | 0.777 | 0.508 | 1.090 | 0.710 | 0.00 | 0.69 | 8.13 | 0.00 |
| Susan Dr & Margaret Ave | TWSC | 5 | 0.989 | 0.128 | 0.640 | 1.550 | 0.00 | 0.311 | 13.38 | 0.00 |

For the US 59 and Susan Drive intersection, the observed total crash rate for this period is 0.78 per MEV; this is 29% below the critical rate. Based on similar statewide intersections, an additional 4 crashes over the five years would indicate this intersection operates outside the normal range.

For the Susan Drive and Margaret Avenue intersection, the observed total crash rate for this period is 0.99 per MEV; this is 1.6 times the critical rate. If crashes were reduced by 2 over five years, this intersection would perform within normal range.

**Table 2. Crash Severity & Type Summary (2018-2022)**

| Intersection | Crash Severity | | | | | Crash Type | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal | A Injury | B Injury | C Injury | PDO | Angle | Rear End | Left Turn | Sideswipe Opposing | Run off Road | Total |
| US 59 & Susan Dr | 0 | 0 | 2 | 2 | 5 | 3 | 1 | 3 | 1 | 0 | 9 |
| Susan Dr & Margaret Ave | 0 | 0 | 0 | 0 | 5 | 2 | 1 | 1 | 0 | 1 | 5 |

An analysis of crash types and severities may help in identifying common safety issues. For the Susan Drive and Margarete Avenue intersection, the analysis of the crash types reveals that two of the five observed crashes during the five-year period were reported as right-angle collisions. An intersection safety screening worksheet and crash summaries for this intersection are shown in **Appendix B**.

## Warrant Analysis

All-way stop control and traffic control signal warrant analysis was completed for the intersection of Susan Drive and Margaret Avenue using the 2023 traffic volumes.

Traffic Control Signal Warrant Analysis

Traffic signal warrants have been developed as national guidelines to promote continuity of traffic control devices to ensure that traffic signals are installed at intersections that would benefit from their use.

The MnMUTCD (Chapter 4C) states that the investigation of the need for a traffic control signal shall include an analysis of the applicable factors contained in the following traffic signal warrants:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume

- Warrant 3: Peak Hour
- Warrant 4: Pedestrian Volume
- Warrant 5: School Crossing
- Warrant 6: Coordinated Signal System
- Warrant 7: Crash Experience
- Warrant 8: Roadway Network
- Warrant 9: Intersection Near a Grade Crossing

A traffic control signal should not be installed unless one or more of the warrants can be met, however the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal. Furthermore, a traffic control signal should not be installed unless an engineering study indicates that the traffic control signal will improve the overall safety and operation of the intersection. Finally, the signal should not disrupt the progressive flow of traffic. The following assumptions were made when analyzing Warrant 1:

- North and south legs considered the major approaches due to higher volume.
- Right turn lane volumes for the east and west legs were omitted
- Right turn lanes were omitted in the approach lane counts

The warrant analysis shows that no warrants are met for the Susan Dr and Margaret Ave intersection with existing traffic volumes. A traffic signal is not warranted at the intersection. The results of the signal warrant analysis are documented in **Appendix C.**

All-Way Stop Control Warrant Analysis

All-way stop control can be useful as a safety measure at intersections if safety concerns exist because of high traffic volumes in multiple directions or if there is insufficient sight distance available to see conflicting traffic on an approach to an intersection. The decision to install an all-way stop control should be based on an engineering study.

The MnMUTCD identifies the following criteria that should be considered in the engineering study for an all-way stop control installation:

- Condition A: Where traffic control signals are justified, an all-way stop can be installed as an interim measure.
- Condition B: Five or more crashes are reported in a 12-month period.
- Condition C: The volume of either vehicles or a combination of vehicles, pedestrians and bicycles entering the intersection from all approaches for any eight hours of an average day meets the minimum volume requirements set forth in section 2B.7 of the 2018 MnMUTCD.

All-way stop control is met for 2 of the required 8 hours with the 2023 traffic volumes for the existing conditions. All-way stop control is not warranted at the intersection. The results of the all-way stop warrant analysis are documented in **Appendix C**.

## Operations Analysis

The operational analysis results are described as a Level of Service (LOS) ranging from A to F as shown in **Table 3**. These letters serve to describe a range of operating conditions for different types of facilities. Levels of service are calculated based on the Highway Capacity Manual 6$^{th}$ edition, which base the level of service on control delay. Control delay is the delay experienced by vehicles slowing down as they are approaching the intersection, the wait time at the intersection, and the time for the vehicle to speed up through the intersection and enter the traffic stream. The average intersection control delay is a volume weighted average of delay experienced by all motorists entering the intersection on all intersection approaches for signalized and roundabout intersections. Level of Service D is commonly taken as an acceptable design year LOS.

**Table 3: Level of Service Criteria**

| | Signalized Intersection | Unsignalized Intersection |
|---|---|---|
| LOS | **Control Delay per Vehicle (sec.)** | **Control Delay per Vehicle (sec.)** |
| A | ≤ 10 | ≤ 10 |
| B | >10 and ≤ 20 | >10 and ≤ 15 |
| C | >20 and ≤ 35 | >15 and ≤ 25 |
| D | >35 and ≤ 55 | >25 and ≤ 35 |
| E | >55 and ≤ 80 | >35 and ≤ 50 |
| F | >80 | >50 |

Traffic operations and queuing details for 2023 traffic volumes can be found in the **Appendix D.**

Existing Conditions

Both intersections operate with acceptable delays on all approaches in 2023. **Table 3** shows that all approaches of the Susan Drive and Margaret Avenue intersection operate with LOS A except northbound which has LOS B.

**Table 4. Existing Conditions Traffic Operations Analysis**

| Existing Condition | | | | | |
|---|---|---|---|---|---|
| **Intersection** | **Approach Leg** | **AM Peak LOS** | **PM Peak LOS** | **AM Peak Intersection LOS** | **PM Peak Intersection LOS** |
| US Highway 59 & Susan Dr | NB | B | B | B | B |
| | SB | C | C | | |
| | EB | C | C | | |
| | WB | A | A | | |
| Susan Dr & Margaret Ave | NB | B | B | A | A |
| | SB | A | A | | |
| | EB | A | A | | |
| | WB | A | A | | |

## Alternatives Analysis

A range of potential alternatives were explored for the US 59 at Susan Drive and Susan Drive at Margaret Avenue intersections to improve safety and support efficient movement of traffic through the area. This exercise included a comprehensive review of the following characteristics to identify a well-rounded improvement supportive of the many competing needs and interests at the intersection:

- *Business Access* – Sufficient access must be maintained to area businesses including Harbor Freight Tools, AT&T, D'S Thai Restaurant, and Walmart (via Margaret Avenue to the south).
- *Pedestrian/Bicyclist Accommodations* – Reducing overall exposure and simplifying decision-making for pedestrians and bicyclists in the area is a priority. Lane reductions, defined marked pedestrian crossings, and improved sidewalk/trail connectivity were considered.
- *Traffic Control* – The traffic signal at US 59 and Susan Drive will be maintained. Review of the existing three-way stop at Susan Drive and Margaret Avenue is needed to identify if other alternatives provide improved traffic flow and safety.
- *Intersection Geometry* – The current spacing between US 59 and Margaret Avenue allows for limited stacking distance and requires complex decision-making for drivers navigating the area. Re-alignment of Susan Drive or Margaret Avenue, lane reductions, access modifications, and other elements were reviewed to simplify movements at the intersection.

Several alternatives were developed, each with varying levels of accommodation for the competing needs at the intersection. The following two alternatives were viewed as best accommodating the needs of the area:

- Alternative #1: Susan Drive T-Intersection - The Susan Drive T-Intersection Alternative involves relocating the harbor freight entrance and realigning Susan Drive, aiming to improve traffic flow. See **Figure 3** for details.
- Alternative #2: Margaret Avenue Closure – The Margaret Avenue Closure Alternative recommends closing the access to Walmart on Margaret Avenue. See **Figure 4** for details.

Both alternatives will be analyzed for their feasibility and impact on the transportation system.

Alternative #1: Susan Drive T-Intersection

The T-Intersection Alternative assumes relocating the harbor freight entrance and realigning Susan Drive so that the existing southbound right and eastbound left become the through movements. Margaret Avenue then Ts into Susan Dr and is stop controlled. The lane configuration on the WB approach of US 59 is modified to combine the left and thru movements. This change allows room for a southbound left turn lane at the new Susan Drive and Margaret Avenue intersection. The pedestrian crossing of Susan Drive is shifted north to the new Harbor Freight entrance. This concept is shown in **Figure 3** and a standalone figure is included in **Appendix E.**

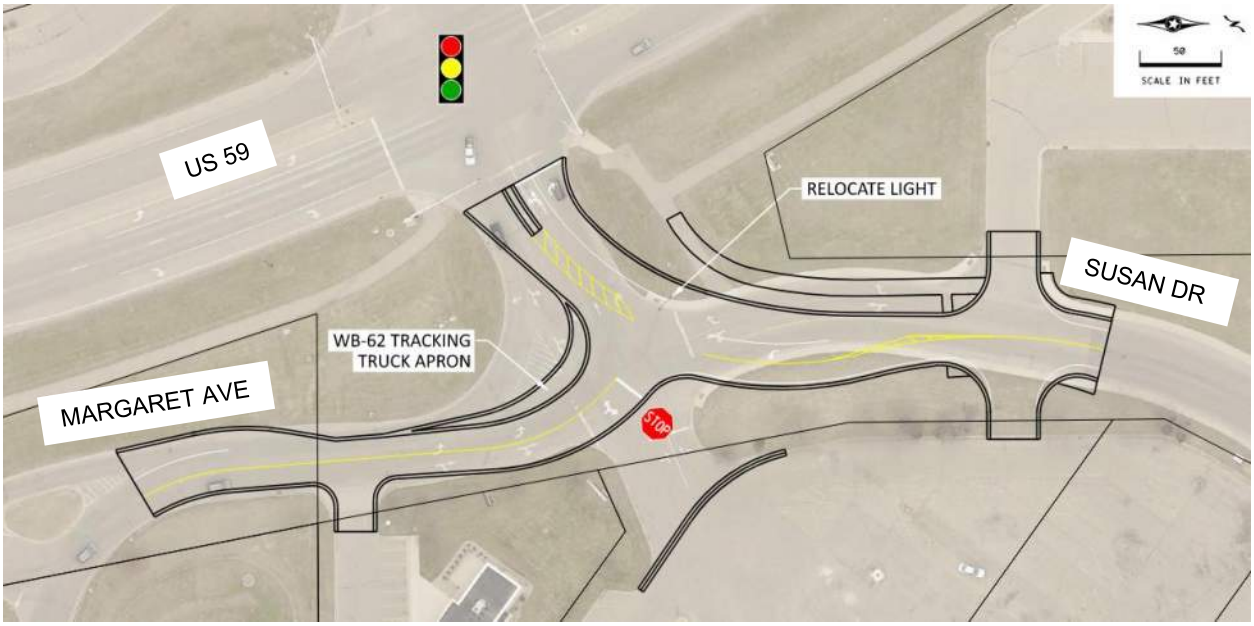



**Figure 3. T-Intersection Alterative**

Operations Analysis

The Build Conditions analysis for the T-intersection alternative shows that the revised configuration is expected to operate with acceptable delays on all approaches with existing traffic volumes. **Table 5** shows that all approaches operate with LOS A except northbound which operates at a LOS B during the AM and PM peak hours. The findings also show that modifications proposed at the Susan Drive and Margaret Avenue intersection do not negatively impact the function of the signalized US Highway 59 and Susan Drive intersection.

**Table 5. Build Conditions Traffic Operations Analysis**

| Build Condition | | | | | |
|---|---|---|---|---|---|
| Condition | Approach Leg | AM Peak LOS | PM Peak LOS | AM Peak Intersection LOS | PM Peak Intersection LOS |
| US Highway 59 & Susan Dr | NB | B | B | B | B |
| | SB | C | C | | |
| | EB | C | C | | |
| | WB | B | A | | |
| Susan Dr & Margaret Ave | NB | B | B | A | A |
| | SB | A | A | | |
| | EB | A | A | | |

Queues for the westbound approach of Susan Drive at US Highway 59 were analyzed to identify if issues arise between the closely spaced intersections. As noted, the westbound approach is reduced from three lanes of approach (left, thru, and right) to two lanes of approach (left-thru and right). Storage length In the Existing Conditions there is separate left, through and right turn lanes. Storage length for the thru-left lane is extended from 105 feet to 115 with the build condition. **Table 6** shows expected queuing between the intersections. The maximum queue for both alternatives is 50ft. This is approximately 2 car lengths and does not extend beyond the available storage in either condition.

**Table 6. Build Conditions Traffic Queuing Analysis**

| US Highway 59 & Susan Dr | | | | | |
|---|---|---|---|---|---|
| Condition | Peak Hour | Approach Leg | Movement | Queue (ft) | |
| | | | | Average | Maximum |
| Existing | AM | WB | L | 25 | 25 |
| | | | T | 25 | 25 |
| | | | R | 0 | 50 |
| | PM | | L | 25 | 50 |
| | | | T | 25 | 25 |
| | | | R | 0 | 50 |
| Build | AM | | LT | 25 | 50 |
| | | | R | 0 | 50 |
| | PM | | LT | 25 | 50 |
| | | | R | 0 | 50 |

Alternative #2: Margaret Avenue Closure

The Margaret Avenue Closure Alternative assumes severing the Margaret Avenue connection between Susan Drive and Walmart south of the AT&T access off Margaret Avenue. The lane configuration on the WB approach of US Highway 59 is changed to combine the left and thru movements. For the Susan Drive and Margaret Avenue intersection, the eastbound, northbound, and westbound approaches are combined into a single lane. An exclusive right turn lane is maintained for the southbound approach to the intersection. The existing pedestrian crossing of the north leg is maintained. This concept is shown in **Figure 4** and a standalone figure is included in **Appendix E.**

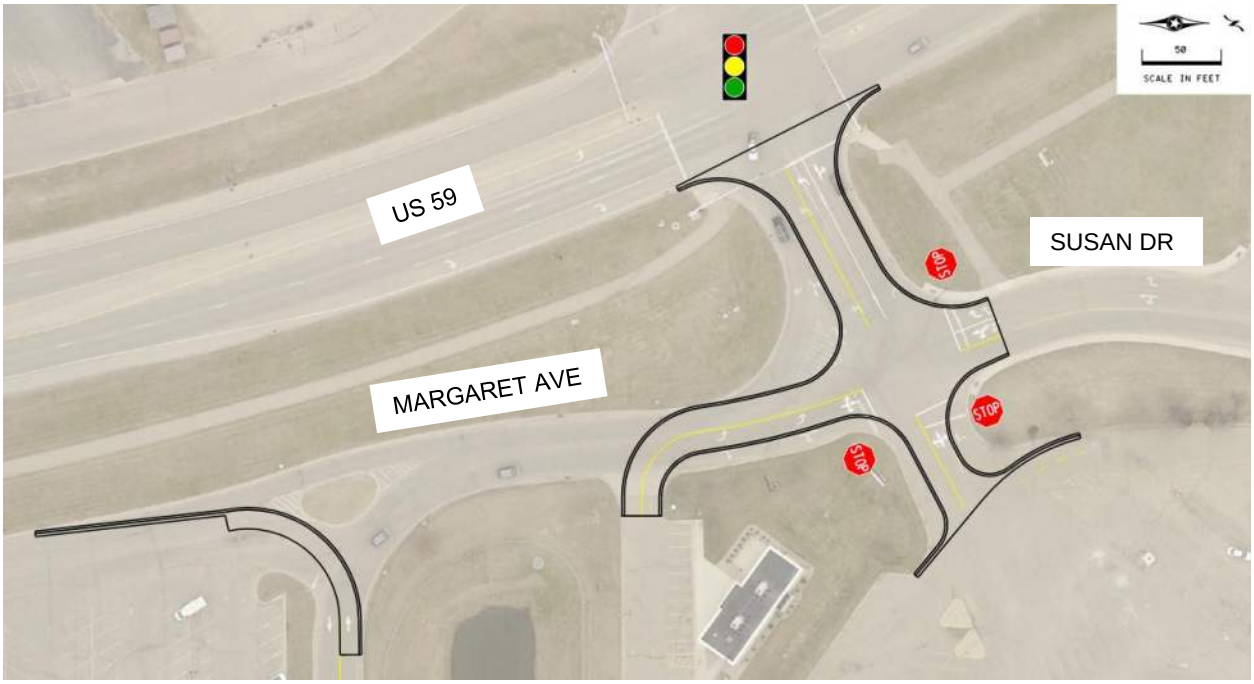



**Figure 4. Margaret Avenue Closure Alternative**

Operations Analysis

The Build Conditions analysis for the Margaret Avenue Closure Alternative shows acceptable operations for all approaches. Traffic levels are expected to be reduced for the west and south legs of the Susan Drive and Margaret Avenue intersection with all Walmart traffic now redirected to Boyer Drive to the south.

**Additional Alternatives Reviewed**

In addition to Alternatives 1 and 2 outlined above, the following alternatives were explored and documented as potential intersection treatments for the Susan Drive and Margeret Avenue but are not recommended to be carried forward.

Alternative #3: Tightened Intersection Alternative

The Tightened Intersection Alternative minimizes pavement needs for the intersection. The lane configuration on the WB approach of US Highway 59 is modified to combine the left and thru approach lanes. For the Susan Drive and Margaret Avenue intersection, the lanes are combined to one left/thru/right for the eastbound and westbound approaches. The existing pedestrian crossing of the north leg is maintained. This concept is shown in **Figure 5** and a standalone figure is included in **Appendix E.**

This alternative was dismissed as it is not expected to provide the safety and operational benefits of Alternatives 1 and 2 outlined previously.

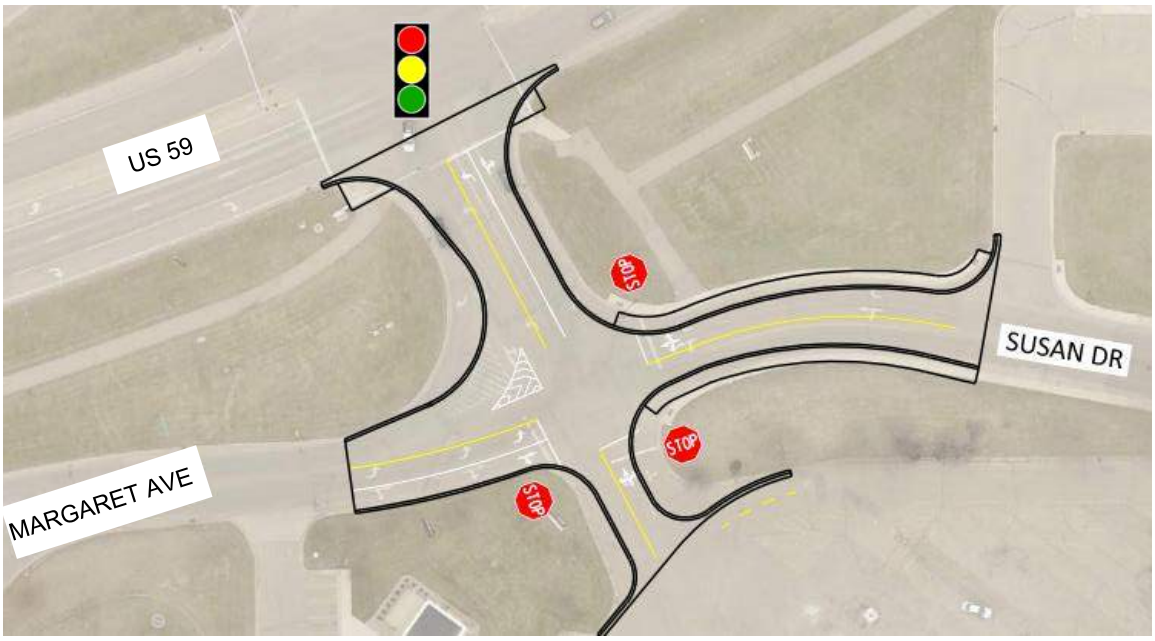



**Figure 5. Tightened Intersection Alterative**

Alternative #4: Eastbound Free Right Alternative

The Eastbound Free Right Alternative assumes relocating the Harbor Freight Tools entrance and realigns Susan Drive to allow the existing southbound right and eastbound left to function as the through movements. Margaret Avenue then Ts into Susan Dr and is stop controlled. The lane configuration on the westbound approach of US Highway 59 is changed to combine the left and thru movements. This change allows room for a southbound left turn lane at the new Susan Drive and Margaret Ave. The pedestrian crossing of Susan Drive is shifted north to driveway entrance. This concept is shown in **Figure 6** and a standalone figure is included in **Appendix E.**

This alternative was dismissed as it is not expected to provide the safety and operational benefits of Alternatives 1 and 2 outlined previously.

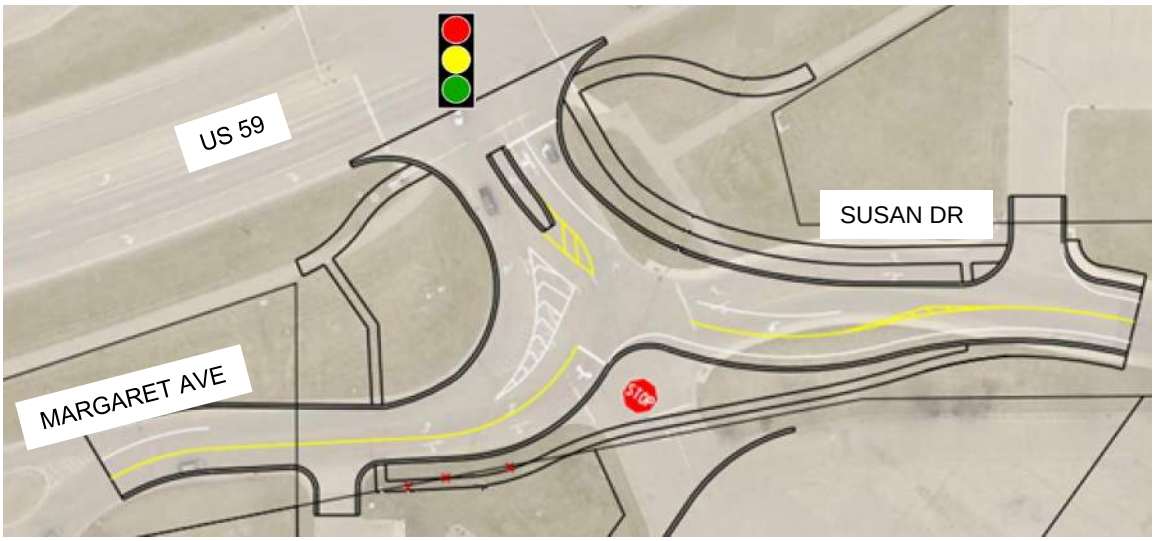



**Figure 6. Eastbound Free Right Alterative**

**Recommendations**

The operations and warrant analysis for the Susan Drive and Margaret Avenue intersection indicate that a variety of intersection alternatives could effectively serve the level of traffic traveling through the intersection with existing conditions. Alternative #1 and Alternative #2 are the preferred improvements due to their ability to best manage the competing interests of the intersection. It will be the decision of City officials as to whether access closures are permissible or if those presented in varying alternatives represent fatal flaws in carrying forward a preferred vision. All alternatives outlined in this document are expected to simplify decision-making at the intersection while maintaining sufficient operations.

# Appendix A

**Turning Movement Counts**

# US 59 & Susan Dr, Marshall MN

## 0 0

## Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 6:00 AM | 0 | 3 | 13 | 7 | 0 | *23* | 0 | 0 | 0 | 6 | 0 | *6* | 0 | 0 | 19 | 1 | 0 | *20* | 0 | 10 | 0 | 1 | 0 | *11* | **60** |
| 6:15 AM | 0 | 5 | 17 | 11 | 0 | *33* | 0 | 1 | 0 | 5 | 0 | *6* | 0 | 2 | 26 | 0 | 0 | *28* | 0 | 8 | 0 | 3 | 0 | *11* | **78** |
| 6:30 AM | 0 | 5 | 23 | 6 | 0 | *34* | 0 | 0 | 0 | 5 | 0 | *5* | 0 | 4 | 34 | 1 | 0 | *39* | 0 | 12 | 1 | 1 | 0 | *14* | **92** |
| 6:45 AM | 0 | 16 | 24 | 6 | 0 | *46* | 0 | 0 | 2 | 6 | 0 | *8* | 0 | 1 | 39 | 3 | 0 | *43* | 0 | 5 | 0 | 1 | 0 | *6* | **103** |
| Hourly Total | 0 | 29 | 77 | 30 | 0 | *136* | 0 | 1 | 2 | 22 | 0 | *25* | 0 | 7 | 118 | 5 | 0 | *130* | 0 | 35 | 1 | 6 | 0 | *42* | **333** |
| 7:00 AM | 0 | 9 | 27 | 10 | 0 | *46* | 0 | 1 | 0 | 13 | 1 | *14* | 0 | 1 | 31 | 0 | 0 | *32* | 0 | 1 | 1 | 0 | 0 | *2* | **94** |
| 7:15 AM | 0 | 6 | 32 | 12 | 1 | *50* | 0 | 0 | 0 | 11 | 0 | *11* | 0 | 4 | 68 | 1 | 0 | *73* | 0 | 11 | 1 | 3 | 0 | *15* | **149** |
| 7:30 AM | 0 | 10 | 32 | 11 | 0 | *53* | 0 | 1 | 1 | 13 | 0 | *15* | 0 | 5 | 86 | 2 | 0 | *93* | 0 | 9 | 2 | 1 | 0 | *12* | **173** |
| 7:45 AM | 0 | 23 | 43 | 21 | 0 | *87* | 0 | 0 | 2 | 11 | 0 | *13* | 0 | 5 | 78 | 3 | 0 | *86* | 0 | 16 | 2 | 4 | 0 | *22* | **208** |
| Hourly Total | 0 | 48 | 134 | 54 | 1 | *236* | 0 | 2 | 3 | 48 | 1 | *53* | 0 | 15 | 263 | 6 | 0 | *284* | 0 | 37 | 6 | 8 | 0 | *51* | **624** |

# US 59 & Susan Dr, Marshall MN
# 0 0
# Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 8:00 AM | 0 | 19 | 51 | 16 | 0 | *86* | 0 | 3 | 3 | 17 | 1 | *23* | 0 | 2 | 47 | 1 | 0 | *50* | 0 | 12 | 0 | 3 | 0 | *15* | **174** |
| 8:15 AM | 0 | 24 | 46 | 12 | 0 | *82* | 0 | 2 | 0 | 15 | 0 | *17* | 0 | 2 | 47 | 3 | 0 | *52* | 0 | 16 | 2 | 1 | 0 | *19* | **170** |
| 8:30 AM | 0 | 23 | 36 | 14 | 0 | *73* | 0 | 2 | 2 | 27 | 0 | *31* | 0 | 3 | 32 | 3 | 0 | *38* | 0 | 7 | 0 | 2 | 0 | *9* | **151** |
| 8:45 AM | 1 | 24 | 35 | 13 | 0 | *73* | 0 | 2 | 2 | 17 | 0 | *21* | 0 | 2 | 43 | 3 | 0 | *48* | 0 | 13 | 2 | 6 | 0 | *21* | **163** |
| Hourly Total | 1 | 90 | 168 | 55 | 0 | *314* | 0 | 9 | 7 | 76 | 1 | *92* | 0 | 9 | 169 | 10 | 0 | *188* | 0 | 48 | 4 | 12 | 0 | *64* | **658** |
| 9:00 AM | 0 | 23 | 50 | 18 | 0 | *91* | 0 | 2 | 4 | 22 | 0 | *28* | 0 | 2 | 47 | 5 | 0 | *54* | 0 | 9 | 0 | 4 | 0 | *13* | **186** |
| 9:15 AM | 1 | 22 | 45 | 17 | 0 | *85* | 0 | 1 | 1 | 25 | 0 | *27* | 0 | 4 | 44 | 6 | 0 | *54* | 0 | 16 | 1 | 4 | 0 | *21* | **187** |
| 9:30 AM | 0 | 33 | 40 | 13 | 0 | *86* | 0 | 2 | 3 | 24 | 0 | *29* | 0 | 4 | 39 | 3 | 0 | *46* | 0 | 16 | 3 | 3 | 0 | *22* | **183** |
| 9:45 AM | 0 | 36 | 43 | 23 | 0 | *102* | 0 | 3 | 2 | 30 | 0 | *35* | 0 | 4 | 71 | 5 | 0 | *80* | 0 | 15 | 1 | 4 | 0 | *20* | **237** |
| Hourly Total | 1 | 114 | 178 | 71 | 0 | *364* | 0 | 8 | 10 | 101 | 0 | *119* | 0 | 14 | 201 | 19 | 0 | *234* | 0 | 56 | 5 | 15 | 0 | *76* | **793** |
| 10:00 AM | 0 | 23 | 50 | 13 | 0 | *86* | 0 | 2 | 0 | 28 | 0 | *30* | 0 | 1 | 55 | 3 | 0 | *59* | 0 | 20 | 3 | 2 | 0 | *25* | **200** |
| 10:15 AM | 0 | 46 | 37 | 19 | 0 | *102* | 0 | 2 | 1 | 36 | 0 | *39* | 0 | 3 | 54 | 4 | 0 | *61* | 0 | 12 | 6 | 1 | 0 | *19* | **221** |
| 10:30 AM | 0 | 45 | 32 | 20 | 3 | *97* | 0 | 1 | 2 | 33 | 0 | *36* | 0 | 2 | 60 | 6 | 0 | *68* | 0 | 13 | 1 | 2 | 0 | *16* | **217** |
| 10:45 AM | 0 | 48 | 43 | 16 | 0 | *107* | 0 | 2 | 1 | 34 | 0 | *37* | 0 | 1 | 44 | 5 | 0 | *50* | 0 | 17 | 7 | 3 | 0 | *27* | **221** |
| Hourly Total | 0 | 162 | 162 | 68 | 3 | *392* | 0 | 7 | 4 | 131 | 0 | *142* | 0 | 7 | 213 | 18 | 0 | *238* | 0 | 62 | 17 | 8 | 0 | *87* | **859** |
| 11:00 AM | 0 | 36 | 49 | 18 | 0 | *103* | 0 | 3 | 4 | 28 | 0 | *35* | 0 | 4 | 48 | 4 | 0 | *56* | 0 | 21 | 2 | 3 | 0 | *26* | **220** |
| 11:15 AM | 0 | 40 | 51 | 19 | 0 | *110* | 0 | 4 | 5 | 40 | 0 | *49* | 0 | 2 | 46 | 6 | 0 | *54* | 0 | 19 | 6 | 4 | 0 | *29* | **242** |
| 11:30 AM | 0 | 42 | 49 | 15 | 0 | *106* | 0 | 7 | 4 | 40 | 0 | *51* | 0 | 2 | 49 | 4 | 0 | *55* | 0 | 11 | 5 | 3 | 0 | *19* | **231** |
| 11:45 AM | 0 | 41 | 70 | 14 | 0 | *125* | 0 | 4 | 2 | 42 | 0 | *48* | 0 | 3 | 54 | 6 | 0 | *63* | 0 | 16 | 4 | 4 | 0 | *24* | **260** |
| Hourly Total | 0 | 159 | 219 | 66 | 0 | *444* | 0 | 18 | 15 | 150 | 0 | *183* | 0 | 11 | 197 | 20 | 0 | *228* | 0 | 67 | 17 | 14 | 0 | *98* | **953** |
| 12:00 PM | 0 | 55 | 72 | 16 | 0 | *143* | 0 | 4 | 2 | 44 | 0 | *50* | 0 | 2 | 67 | 9 | 0 | *78* | 0 | 23 | 4 | 2 | 0 | *29* | **300** |
| 12:15 PM | 0 | 42 | 59 | 23 | 0 | *124* | 0 | 5 | 4 | 48 | 0 | *57* | 0 | 1 | 69 | 3 | 0 | *73* | 0 | 16 | 3 | 4 | 0 | *23* | **277** |
| 12:30 PM | 1 | 53 | 51 | 23 | 0 | *128* | 0 | 5 | 2 | 43 | 0 | *50* | 0 | 0 | 59 | 4 | 0 | *63* | 0 | 15 | 3 | 3 | 0 | *21* | **262** |
| 12:45 PM | 0 | 52 | 51 | 29 | 0 | *132* | 0 | 7 | 3 | 50 | 0 | *60* | 0 | 2 | 62 | 5 | 0 | *69* | 0 | 16 | 2 | 4 | 0 | *22* | **283** |
| Hourly Total | 1 | 202 | 233 | 91 | 0 | *527* | 0 | 21 | 11 | 185 | 0 | *217* | 0 | 5 | 257 | 21 | 0 | *283* | 0 | 70 | 12 | 13 | 0 | *95* | **1122** |
| 1:00 PM | 0 | 48 | 61 | 17 | 0 | *126* | 0 | 12 | 2 | 72 | 0 | *86* | 0 | 5 | 50 | 11 | 0 | *66* | 0 | 14 | 3 | 6 | 0 | *23* | **301** |
| 1:15 PM | 0 | 51 | 54 | 20 | 0 | *125* | 0 | 4 | 5 | 45 | 0 | *54* | 0 | 1 | 50 | 7 | 0 | *58* | 0 | 21 | 3 | 1 | 0 | *25* | **262** |
| 1:30 PM | 0 | 45 | 41 | 21 | 0 | *107* | 0 | 3 | 3 | 52 | 0 | *58* | 0 | 2 | 49 | 5 | 0 | *56* | 0 | 22 | 3 | 2 | 0 | *27* | **248** |
| 1:45 PM | 0 | 38 | 52 | 26 | 0 | *116* | 0 | 8 | 7 | 39 | 0 | *54* | 0 | 3 | 41 | 3 | 0 | *47* | 0 | 28 | 5 | 4 | 0 | *37* | **254** |
| Hourly Total | 0 | 182 | 208 | 84 | 0 | *474* | 0 | 27 | 17 | 208 | 0 | *252* | 0 | 11 | 190 | 26 | 0 | *227* | 0 | 85 | 14 | 13 | 0 | *112* | **1065** |
| 2:00 PM | 0 | 43 | 37 | 16 | 0 | *96* | 0 | 5 | 3 | 63 | 0 | *71* | 0 | 5 | 43 | 6 | 0 | *54* | 0 | 21 | 3 | 4 | 0 | *28* | **249** |
| 2:15 PM | 0 | 38 | 66 | 16 | 0 | *120* | 0 | 3 | 5 | 47 | 0 | *55* | 0 | 3 | 47 | 1 | 0 | *51* | 0 | 22 | 4 | 3 | 0 | *29* | **255** |
| 2:30 PM | 0 | 45 | 49 | 18 | 0 | *112* | 0 | 3 | 5 | 45 | 0 | *53* | 0 | 2 | 84 | 6 | 0 | *92* | 0 | 17 | 2 | 4 | 0 | *23* | **280** |
| 2:45 PM | 0 | 39 | 53 | 17 | 0 | *109* | 0 | 4 | 4 | 48 | 0 | *56* | 0 | 0 | 66 | 2 | 0 | *68* | 0 | 9 | 2 | 3 | 0 | *14* | **247** |
| Hourly Total | 0 | 165 | 205 | 67 | 0 | *437* | 0 | 15 | 17 | 203 | 0 | *235* | 0 | 10 | 240 | 15 | 0 | *265* | 0 | 69 | 11 | 14 | 0 | *94* | **1031** |
| 3:00 PM | 0 | 27 | 55 | 10 | 0 | *92* | 0 | 3 | 0 | 47 | 0 | *50* | 0 | 1 | 50 | 2 | 0 | *53* | 0 | 19 | 3 | 0 | 0 | *22* | **217** |
| 3:15 PM | 0 | 44 | 62 | 32 | 0 | *138* | 0 | 4 | 5 | 41 | 0 | *50* | 0 | 2 | 50 | 0 | 0 | *52* | 0 | 18 | 5 | 2 | 0 | *25* | **265** |
| 3:30 PM | 0 | 48 | 54 | 23 | 0 | *125* | 0 | 4 | 2 | 42 | 0 | *48* | 0 | 2 | 59 | 1 | 0 | *62* | 0 | 23 | 5 | 3 | 0 | *31* | **266** |
| 3:45 PM | 0 | 61 | 75 | 22 | 0 | *158* | 0 | 4 | 2 | 59 | 0 | *65* | 0 | 3 | 88 | 3 | 0 | *94* | 0 | 17 | 3 | 3 | 0 | *23* | **340** |
| Hourly Total | 0 | 180 | 246 | 87 | 0 | *513* | 0 | 15 | 9 | 189 | 0 | *213* | 0 | 8 | 247 | 6 | 0 | *261* | 0 | 77 | 16 | 8 | 0 | *101* | **1088** |

# US 59 & Susan Dr, Marshall MN
# 0 0
# Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 4:00 PM | 0 | 54 | 67 | 24 | 0 | *145* | 0 | 8 | 3 | 47 | 2 | *58* | 0 | 2 | 78 | 8 | 0 | *88* | 0 | 17 | 4 | 5 | 0 | *26* | **317** |
| 4:15 PM | 0 | 45 | 58 | 23 | 0 | *126* | 0 | 5 | 2 | 52 | 0 | *59* | 0 | 5 | 55 | 3 | 0 | *63* | 0 | 14 | 5 | 4 | 0 | *23* | **271** |
| 4:30 PM | 0 | 40 | 88 | 18 | 0 | *146* | 0 | 4 | 2 | 43 | 0 | *49* | 0 | 3 | 66 | 3 | 0 | *72* | 0 | 16 | 6 | 1 | 0 | *23* | **290** |
| 4:45 PM | 0 | 47 | 84 | 6 | 0 | *137* | 0 | 6 | 3 | 71 | 0 | *80* | 0 | 1 | 70 | 5 | 0 | *76* | 0 | 17 | 7 | 2 | 0 | *26* | **319** |
| Hourly Total | 0 | 186 | 297 | 71 | 0 | *554* | 0 | 23 | 10 | 213 | 2 | *246* | 0 | 11 | 269 | 19 | 0 | *299* | 0 | 64 | 22 | 12 | 0 | *98* | **1197** |
| 5:00 PM | 0 | 45 | 89 | 5 | 0 | *139* | 0 | 6 | 6 | 54 | 0 | *66* | 0 | 4 | 68 | 4 | 0 | *76* | 0 | 25 | 4 | 5 | 0 | *34* | **315** |
| 5:15 PM | 0 | 45 | 60 | 5 | 0 | *110* | 0 | 7 | 4 | 41 | 0 | *52* | 0 | 4 | 68 | 3 | 0 | *75* | 0 | 19 | 2 | 3 | 0 | *24* | **261** |
| 5:30 PM | 0 | 40 | 60 | 4 | 0 | *104* | 0 | 5 | 2 | 46 | 0 | *53* | 0 | 3 | 45 | 4 | 0 | *52* | 0 | 14 | 1 | 3 | 0 | *18* | **227** |
| 5:45 PM | 0 | 40 | 60 | 0 | 0 | *100* | 0 | 2 | 4 | 45 | 0 | *51* | 0 | 2 | 58 | 6 | 0 | *66* | 0 | 8 | 4 | 7 | 0 | *19* | **236** |
| Hourly Total | 0 | 170 | 269 | 14 | 0 | *453* | 0 | 20 | 16 | 186 | 0 | *222* | 0 | 13 | 239 | 17 | 0 | *269* | 0 | 66 | 11 | 18 | 0 | *95* | **1039** |
| 6:00 PM | 0 | 37 | 44 | 4 | 0 | *85* | 0 | 10 | 2 | 57 | 0 | *69* | 0 | 2 | 58 | 4 | 0 | *64* | 0 | 14 | 2 | 2 | 0 | *18* | **236** |
| 6:15 PM | 0 | 30 | 42 | 1 | 0 | *73* | 0 | 3 | 4 | 44 | 0 | *51* | 0 | 3 | 41 | 2 | 0 | *46* | 0 | 12 | 3 | 2 | 0 | *17* | **187** |
| 6:30 PM | 0 | 48 | 34 | 0 | 0 | *82* | 0 | 5 | 1 | 45 | 0 | *51* | 0 | 1 | 40 | 5 | 0 | *46* | 0 | 13 | 4 | 2 | 0 | *19* | **198** |
| 6:45 PM | 0 | 40 | 26 | 0 | 0 | *66* | 0 | 5 | 0 | 39 | 0 | *44* | 0 | 3 | 28 | 0 | 0 | *31* | 0 | 10 | 0 | 1 | 0 | *11* | **152** |
| Hourly Total | 0 | 155 | 146 | 5 | 0 | *306* | 0 | 23 | 7 | 185 | 0 | *215* | 0 | 9 | 167 | 11 | 0 | *187* | 0 | 49 | 9 | 7 | 0 | *65* | **773** |
| 7:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| **DAILY TOTAL** | **3** | **1842** | **2542** | **763** | **4** | ***5150*** | **0** | **189** | **128** | **1897** | **4** | ***2214*** | **0** | **130** | **2770** | **193** | **0** | ***3093*** | **0** | **785** | **145** | **148** | **0** | ***1078*** | **11535** |
| **Cars** | 3 | 1818 | 2310 | 687 | 4 | *4818* | 0 | 184 | 125 | 1847 | 4 | *2156* | 0 | 118 | 2538 | 186 | 0 | *2842* | 0 | 704 | 144 | 132 | 0 | *980* | **10796** |
| **Heavy Vehicles** | 0 | 24 | 232 | 76 | 0 | *332* | 0 | 5 | 3 | 50 | 0 | *58* | 0 | 12 | 232 | 7 | 0 | *251* | 0 | 81 | 1 | 16 | 0 | *98* | **739** |
| **Heavy Vehicle %** | 0.00% | 1.30% | 9.13% | 9.96% | 0.00% | *6.45%* | 0.00% | 2.65% | 2.34% | 2.64% | 0.00% | *2.62%* | 0.00% | 9.23% | 8.38% | 3.63% | 0.00% | *8.12%* | 0.00% | 10.32% | 0.69% | 10.81% | 0.00% | *9.09%* | **6.41%** |

# US 59 & Susan Dr, Marshall MN
# 0 0
# Thursday, October 12, 2023

## AM Peak Hour

| Time | Southbound | | | | | | Westbound | | | | | | Northbound | | | | | | Eastbound | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 11:00 AM | 0 | 36 | 49 | 18 | 0 | *103* | 0 | 3 | 4 | 28 | 0 | *35* | 0 | 4 | 48 | 4 | 0 | *56* | 0 | 21 | 2 | 3 | 0 | *26* | **220** |
| 11:15 AM | 0 | 40 | 51 | 19 | 0 | *110* | 0 | 4 | 5 | 40 | 0 | *49* | 0 | 2 | 46 | 6 | 0 | *54* | 0 | 19 | 6 | 4 | 0 | *29* | **242** |
| 11:30 AM | 0 | 42 | 49 | 15 | 0 | *106* | 0 | 7 | 4 | 40 | 0 | *51* | 0 | 2 | 49 | 4 | 0 | *55* | 0 | 11 | 5 | 3 | 0 | *19* | **231** |
| 11:45 AM | 0 | 41 | 70 | 14 | 0 | *125* | 0 | 4 | 2 | 42 | 0 | *48* | 0 | 3 | 54 | 6 | 0 | *63* | 0 | 16 | 4 | 4 | 0 | *24* | **260** |
| Peak Hour Total | 0 | 159 | 219 | 66 | 0 | *444* | 0 | 18 | 15 | 150 | 0 | *183* | 0 | 11 | 197 | 20 | 0 | *228* | 0 | 67 | 17 | 14 | 0 | *98* | **953** |
| PHF | 0.000 | 0.946 | 0.782 | 0.868 | 0.000 | *0.888* | 0.000 | 0.643 | 0.750 | 0.893 | 0.000 | *0.897* | 0.000 | 0.688 | 0.912 | 0.833 | 0.000 | *0.905* | 0.000 | 0.798 | 0.708 | 0.875 | 0.000 | *0.845* | **0.916** |

## PM Peak Hour

| Time | Southbound | | | | | | Westbound | | | | | | Northbound | | | | | | Eastbound | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 3:45 PM | 0 | 61 | 75 | 22 | 0 | *158* | 0 | 4 | 2 | 59 | 0 | *65* | 0 | 3 | 88 | 3 | 0 | *94* | 0 | 17 | 3 | 3 | 0 | *23* | **340** |
| 4:00 PM | 0 | 54 | 67 | 24 | 0 | *145* | 0 | 8 | 3 | 47 | 2 | *58* | 0 | 2 | 78 | 8 | 0 | *88* | 0 | 17 | 4 | 5 | 0 | *26* | **317** |
| 4:15 PM | 0 | 45 | 58 | 23 | 0 | *126* | 0 | 5 | 2 | 52 | 0 | *59* | 0 | 5 | 55 | 3 | 0 | *63* | 0 | 14 | 5 | 4 | 0 | *23* | **271** |
| 4:30 PM | 0 | 40 | 88 | 18 | 0 | *146* | 0 | 4 | 2 | 43 | 0 | *49* | 0 | 3 | 66 | 3 | 0 | *72* | 0 | 16 | 6 | 1 | 0 | *23* | **290** |
| Peak Hour Total | 0 | 200 | 288 | 87 | 0 | *575* | 0 | 21 | 9 | 201 | 2 | *231* | 0 | 13 | 287 | 17 | 0 | *317* | 0 | 64 | 18 | 13 | 0 | *95* | **1218** |
| PHF | 0.000 | 0.820 | 0.818 | 0.906 | 0.000 | *0.910* | 0.000 | 0.656 | 0.750 | 0.852 | 0.250 | *0.888* | 0.000 | 0.650 | 0.815 | 0.531 | 0.000 | *0.843* | 0.000 | 0.941 | 0.750 | 0.650 | 0.000 | *0.913* | **0.896** |

| Total Vehicles On Leg | | | 10605 | | |
|---|---|---|---|---|---|
| Vehicles Entering Intersection | 5150 | | Vehicles Exiting Intersection | 5455 | |
| **Southbound** | | | | | |
| Cars | 687 | 2310 | 1818 | 3 | 4 |
| Heavy | 76 | 232 | 24 | 0 | 0 |
| **Total** | **763** | **2542** | **1842** | **3** | **4** |

| Total Vehicles on Leg 2099 | Vehicles Entering Intersection 1078 | **Eastbound** | Cars | Heavy | **Total** |
|---|---|---|---|---|---|
| | | | 0 | 0 | **0** |
| | | | 0 | 0 | **0** |
| | | | 704 | 81 | **785** |
| | Vehicles Exiting Intersection 1021 | | 144 | 1 | **145** |
| | | | 132 | 16 | **148** |

**Daily Volumes**

| Cars | Heavy | **Total** | **Westbound** | Vehicles Entering Intersection 2214 | Total Vehicles on Leg 4394 |
|---|---|---|---|---|---|
| 1847 | 50 | **1897** | | | |
| 125 | 3 | **128** | | | |
| 184 | 5 | **189** | | Vehicles Exiting Intersection 2180 | |
| 0 | 0 | **0** | | | |
| 4 | 0 | **4** | | | |

| Cars | 0 | 0 | 118 | 2538 | 186 |
|---|---|---|---|---|---|
| Heavy | 0 | 0 | 12 | 232 | 7 |
| **Total** | **0** | **0** | **130** | **2770** | **193** |
| **Northbound** | | | | | |
| Vehicles Entering Intersection | 3093 | | Vehicles Exiting Intersection | 2879 | |
| Total Vehicles On Leg | | | 5972 | | |

# Susan Dr & Margert Ave, Marshall MN

## 0 0

## Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 12:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 1:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 2:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 3:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 4:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:00 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:15 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 5:45 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 6:00 AM | 0 | 0 | 2 | 2 | 0 | *4* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 4 | 0 | 0 | 0 | *4* | 0 | 0 | 0 | 4 | 0 | *4* | **12** |
| 6:15 AM | 0 | 0 | 0 | 2 | 0 | *2* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 4 | 4 | 0 | 0 | *8* | 0 | 0 | 0 | 5 | 0 | *5* | **15** |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 4 | 0 | 1 | 0 | *5* | 0 | 2 | 0 | 5 | 0 | *7* | **13** |
| 6:45 AM | 0 | 0 | 2 | 3 | 0 | *5* | 0 | 1 | 0 | 0 | 0 | *1* | 0 | 5 | 0 | 0 | 0 | *5* | 0 | 5 | 2 | 12 | 0 | *19* | **30** |
| Hourly Total | 0 | 0 | 4 | 7 | 0 | *11* | 0 | 1 | 1 | 0 | 0 | *2* | 0 | 17 | 4 | 1 | 0 | *22* | 0 | 7 | 2 | 26 | 0 | *35* | **70** |
| 7:00 AM | 0 | 0 | 1 | 3 | 0 | *4* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 10 | 1 | 0 | 0 | *11* | 0 | 2 | 0 | 8 | 0 | *10* | **26** |
| 7:15 AM | 0 | 0 | 1 | 3 | 1 | *4* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 9 | 1 | 0 | 0 | *10* | 0 | 2 | 1 | 5 | 0 | *8* | **22** |
| 7:30 AM | 0 | 0 | 3 | 6 | 0 | *9* | 0 | 1 | 0 | 0 | 0 | *1* | 0 | 8 | 0 | 0 | 0 | *8* | 0 | 5 | 0 | 9 | 0 | *14* | **32** |
| 7:45 AM | 0 | 0 | 1 | 7 | 0 | *8* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 6 | 1 | 0 | 0 | *7* | 0 | 14 | 2 | 12 | 0 | *28* | **43** |
| Hourly Total | 0 | 0 | 6 | 19 | 1 | *25* | 0 | 1 | 1 | 0 | 0 | *2* | 0 | 33 | 3 | 0 | 0 | *36* | 0 | 23 | 3 | 34 | 0 | *60* | **123** |

# Susan Dr & Margert Ave, Marshall MN
# 0 0
# Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 8:00 AM | 0 | 0 | 2 | 8 | 0 | *10* | 0 | 1 | 1 | 1 | 0 | *3* | 0 | 14 | 2 | 0 | 0 | *16* | 0 | 5 | 1 | 14 | 0 | *20* | **49** |
| 8:15 AM | 0 | 0 | 1 | 6 | 0 | *7* | 0 | 0 | 0 | 1 | 0 | *1* | 0 | 11 | 3 | 0 | 0 | *14* | 0 | 7 | 3 | 18 | 0 | *28* | **50** |
| 8:30 AM | 0 | 0 | 1 | 13 | 0 | *14* | 0 | 1 | 4 | 0 | 0 | *5* | 0 | 15 | 1 | 1 | 0 | *17* | 0 | 9 | 1 | 16 | 0 | *26* | **62** |
| 8:45 AM | 0 | 0 | 1 | 9 | 0 | *10* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 11 | 3 | 1 | 0 | *15* | 0 | 5 | 3 | 21 | 0 | *29* | **54** |
| Hourly Total | 0 | 0 | 5 | 36 | 0 | *41* | 0 | 2 | 5 | 2 | 0 | *9* | 0 | 51 | 9 | 2 | 0 | *62* | 0 | 26 | 8 | 69 | 0 | *103* | **215** |
| 9:00 AM | 0 | 1 | 2 | 7 | 0 | *10* | 0 | 0 | 4 | 0 | 0 | *4* | 0 | 18 | 1 | 0 | 0 | *19* | 0 | 12 | 1 | 14 | 0 | *27* | **60** |
| 9:15 AM | 0 | 0 | 3 | 7 | 0 | *10* | 0 | 0 | 1 | 1 | 0 | *2* | 0 | 18 | 2 | 1 | 0 | *21* | 0 | 6 | 4 | 19 | 1 | *29* | **62** |
| 9:30 AM | 0 | 0 | 2 | 14 | 0 | *16* | 0 | 3 | 2 | 0 | 0 | *5* | 0 | 13 | 5 | 0 | 0 | *18* | 0 | 10 | 3 | 26 | 0 | *39* | **78** |
| 9:45 AM | 0 | 1 | 4 | 6 | 0 | *11* | 0 | 1 | 0 | 0 | 0 | *1* | 0 | 28 | 3 | 1 | 0 | *32* | 0 | 9 | 2 | 31 | 0 | *42* | **86** |
| Hourly Total | 0 | 2 | 11 | 34 | 0 | *47* | 0 | 4 | 7 | 1 | 0 | *12* | 0 | 77 | 11 | 2 | 0 | *90* | 0 | 37 | 10 | 90 | 1 | *137* | **286** |
| 10:00 AM | 0 | 0 | 5 | 7 | 0 | *12* | 0 | 1 | 1 | 0 | 0 | *2* | 0 | 24 | 1 | 1 | 0 | *26* | 0 | 6 | 1 | 23 | 0 | *30* | **70** |
| 10:15 AM | 0 | 0 | 2 | 11 | 0 | *13* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 26 | 2 | 0 | 0 | *28* | 0 | 17 | 5 | 34 | 0 | *56* | **98** |
| 10:30 AM | 0 | 0 | 6 | 9 | 0 | *15* | 0 | 1 | 0 | 1 | 0 | *2* | 0 | 27 | 7 | 1 | 0 | *35* | 0 | 16 | 3 | 33 | 0 | *52* | **104** |
| 10:45 AM | 0 | 0 | 4 | 13 | 0 | *17* | 0 | 1 | 4 | 0 | 0 | *5* | 0 | 22 | 4 | 1 | 0 | *27* | 0 | 20 | 3 | 37 | 0 | *60* | **109** |
| Hourly Total | 0 | 0 | 17 | 40 | 0 | *57* | 0 | 3 | 6 | 1 | 0 | *10* | 0 | 99 | 14 | 3 | 0 | *116* | 0 | 59 | 12 | 127 | 0 | *198* | **381** |
| 11:00 AM | 0 | 0 | 8 | 11 | 0 | *19* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 23 | 9 | 0 | 0 | *32* | 0 | 12 | 5 | 24 | 0 | *41* | **92** |
| 11:15 AM | 0 | 1 | 6 | 20 | 0 | *27* | 0 | 1 | 0 | 0 | 2 | *1* | 0 | 25 | 5 | 1 | 0 | *31* | 0 | 26 | 3 | 23 | 0 | *52* | **111** |
| 11:30 AM | 0 | 0 | 5 | 24 | 0 | *29* | 0 | 1 | 1 | 1 | 0 | *3* | 0 | 26 | 4 | 3 | 0 | *33* | 0 | 23 | 2 | 29 | 0 | *54* | **119** |
| 11:45 AM | 0 | 0 | 5 | 19 | 0 | *24* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 30 | 9 | 3 | 0 | *42* | 0 | 14 | 5 | 32 | 0 | *51* | **118** |
| Hourly Total | 0 | 1 | 24 | 74 | 0 | *99* | 0 | 2 | 2 | 1 | 2 | *5* | 0 | 104 | 27 | 7 | 0 | *138* | 0 | 75 | 15 | 108 | 0 | *198* | **440** |
| 12:00 PM | 0 | 0 | 5 | 22 | 0 | *27* | 0 | 0 | 5 | 1 | 0 | *6* | 0 | 21 | 11 | 0 | 0 | *32* | 0 | 29 | 6 | 35 | 0 | *70* | **135** |
| 12:15 PM | 0 | 0 | 9 | 24 | 0 | *33* | 0 | 0 | 3 | 0 | 0 | *3* | 0 | 30 | 12 | 1 | 0 | *43* | 0 | 22 | 0 | 25 | 0 | *47* | **126** |
| 12:30 PM | 0 | 1 | 8 | 22 | 0 | *31* | 0 | 1 | 1 | 0 | 0 | *2* | 0 | 27 | 5 | 0 | 0 | *32* | 0 | 26 | 2 | 32 | 0 | *60* | **125** |
| 12:45 PM | 0 | 1 | 7 | 32 | 0 | *40* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 30 | 13 | 1 | 0 | *44* | 0 | 22 | 5 | 31 | 0 | *58* | **143** |
| Hourly Total | 0 | 2 | 29 | 100 | 0 | *131* | 0 | 1 | 10 | 1 | 0 | *12* | 0 | 108 | 41 | 2 | 0 | *151* | 0 | 99 | 13 | 123 | 0 | *235* | **529** |
| 1:00 PM | 0 | 0 | 7 | 36 | 1 | *43* | 0 | 0 | 5 | 0 | 1 | *5* | 0 | 41 | 13 | 4 | 0 | *58* | 0 | 25 | 1 | 34 | 0 | *60* | **166** |
| 1:15 PM | 0 | 0 | 1 | 17 | 0 | *18* | 0 | 1 | 7 | 0 | 0 | *8* | 0 | 31 | 6 | 0 | 0 | *37* | 0 | 23 | 4 | 31 | 0 | *58* | **121** |
| 1:30 PM | 0 | 0 | 7 | 26 | 0 | *33* | 0 | 3 | 1 | 0 | 0 | *4* | 0 | 32 | 11 | 1 | 0 | *44* | 0 | 12 | 5 | 37 | 0 | *54* | **135** |
| 1:45 PM | 0 | 0 | 5 | 23 | 0 | *28* | 0 | 1 | 0 | 1 | 0 | *2* | 0 | 31 | 13 | 3 | 0 | *47* | 0 | 16 | 1 | 28 | 0 | *45* | **122** |
| Hourly Total | 0 | 0 | 20 | 102 | 1 | *122* | 0 | 5 | 13 | 1 | 1 | *19* | 0 | 135 | 43 | 8 | 0 | *186* | 0 | 76 | 11 | 130 | 0 | *217* | **544** |
| 2:00 PM | 0 | 0 | 4 | 27 | 0 | *31* | 0 | 1 | 7 | 0 | 0 | *8* | 0 | 37 | 8 | 0 | 0 | *45* | 0 | 25 | 3 | 25 | 1 | *53* | **137** |
| 2:15 PM | 0 | 0 | 9 | 27 | 0 | *36* | 0 | 0 | 2 | 0 | 0 | *2* | 0 | 25 | 5 | 0 | 0 | *30* | 0 | 7 | 5 | 31 | 0 | *43* | **111** |
| 2:30 PM | 0 | 0 | 9 | 23 | 0 | *32* | 0 | 3 | 2 | 0 | 0 | *5* | 0 | 27 | 10 | 2 | 0 | *39* | 0 | 19 | 2 | 30 | 0 | *51* | **127** |
| 2:45 PM | 0 | 0 | 4 | 15 | 0 | *19* | 0 | 0 | 4 | 0 | 0 | *4* | 0 | 37 | 11 | 1 | 0 | *49* | 0 | 17 | 4 | 26 | 0 | *47* | **119** |
| Hourly Total | 0 | 0 | 26 | 92 | 0 | *118* | 0 | 4 | 15 | 0 | 0 | *19* | 0 | 126 | 34 | 3 | 0 | *163* | 0 | 68 | 14 | 112 | 1 | *194* | **494** |
| 3:00 PM | 0 | 0 | 6 | 11 | 0 | *17* | 0 | 2 | 4 | 0 | 0 | *6* | 0 | 36 | 3 | 1 | 0 | *40* | 0 | 8 | 3 | 19 | 0 | *30* | **93** |
| 3:15 PM | 0 | 0 | 4 | 16 | 0 | *20* | 0 | 2 | 3 | 0 | 0 | *5* | 0 | 31 | 7 | 0 | 0 | *38* | 0 | 10 | 7 | 32 | 0 | *49* | **112** |
| 3:30 PM | 0 | 0 | 5 | 18 | 0 | *23* | 0 | 2 | 0 | 0 | 0 | *2* | 0 | 30 | 7 | 1 | 0 | *38* | 0 | 25 | 1 | 26 | 0 | *52* | **115** |
| 3:45 PM | 0 | 0 | 7 | 18 | 0 | *25* | 0 | 1 | 2 | 0 | 0 | *3* | 0 | 45 | 7 | 2 | 0 | *54* | 0 | 24 | 3 | 39 | 0 | *66* | **148** |
| Hourly Total | 0 | 0 | 22 | 63 | 0 | *85* | 0 | 7 | 9 | 0 | 0 | *16* | 0 | 142 | 24 | 4 | 0 | *170* | 0 | 67 | 14 | 116 | 0 | *197* | **468** |

# Susan Dr & Margert Ave, Marshall MN
# 0 0
# Thursday, October 12, 2023

| Time | Southbound 0 | | | | | | Westbound 0 | | | | | | Northbound 0 | | | | | | Eastbound 0 | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 4:00 PM | 0 | 0 | 6 | 19 | 0 | *25* | 0 | 1 | 2 | 0 | 0 | *3* | 0 | 37 | 8 | 1 | 0 | *46* | 0 | 22 | 0 | 45 | 0 | *67* | **141** |
| 4:15 PM | 0 | 0 | 8 | 23 | 0 | *31* | 0 | 2 | 1 | 0 | 0 | *3* | 0 | 36 | 10 | 0 | 0 | *46* | 0 | 16 | 1 | 36 | 0 | *53* | **133** |
| 4:30 PM | 0 | 0 | 6 | 24 | 0 | *30* | 0 | 2 | 1 | 0 | 0 | *3* | 0 | 23 | 8 | 1 | 0 | *32* | 0 | 18 | 3 | 29 | 0 | *50* | **115** |
| 4:45 PM | 0 | 0 | 9 | 32 | 0 | *41* | 0 | 2 | 4 | 0 | 0 | *6* | 0 | 43 | 9 | 4 | 0 | *56* | 0 | 18 | 4 | 37 | 0 | *59* | **162** |
| Hourly Total | 0 | 0 | 29 | 98 | 0 | *127* | 0 | 7 | 8 | 0 | 0 | *15* | 0 | 139 | 35 | 6 | 0 | *180* | 0 | 74 | 8 | 147 | 0 | *229* | **551** |
| 5:00 PM | 0 | 0 | 10 | 24 | 0 | *34* | 0 | 3 | 6 | 0 | 1 | *9* | 0 | 38 | 9 | 1 | 0 | *48* | 0 | 19 | 3 | 30 | 0 | *52* | **143** |
| 5:15 PM | 0 | 0 | 4 | 17 | 0 | *21* | 0 | 1 | 2 | 0 | 0 | *3* | 0 | 33 | 10 | 2 | 0 | *45* | 0 | 17 | 2 | 33 | 0 | *52* | **121** |
| 5:30 PM | 0 | 0 | 11 | 12 | 0 | *23* | 0 | 1 | 5 | 0 | 1 | *6* | 0 | 36 | 6 | 0 | 0 | *42* | 0 | 16 | 3 | 28 | 0 | *47* | **118** |
| 5:45 PM | 0 | 1 | 3 | 14 | 0 | *18* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 37 | 9 | 0 | 0 | *46* | 0 | 15 | 6 | 28 | 0 | *49* | **113** |
| Hourly Total | 0 | 1 | 28 | 67 | 0 | *96* | 0 | 5 | 13 | 0 | 2 | *18* | 0 | 144 | 34 | 3 | 0 | *181* | 0 | 67 | 14 | 119 | 0 | *200* | **495** |
| 6:00 PM | 0 | 0 | 6 | 25 | 0 | *31* | 0 | 0 | 6 | 0 | 0 | *6* | 0 | 39 | 2 | 0 | 0 | *41* | 0 | 18 | 3 | 21 | 0 | *42* | **120** |
| 6:15 PM | 0 | 0 | 3 | 20 | 0 | *23* | 0 | 0 | 2 | 0 | 0 | *2* | 0 | 31 | 6 | 2 | 0 | *39* | 0 | 11 | 0 | 22 | 0 | *33* | **97** |
| 6:30 PM | 0 | 0 | 3 | 18 | 0 | *21* | 0 | 0 | 9 | 1 | 0 | *10* | 0 | 30 | 4 | 1 | 0 | *35* | 0 | 13 | 2 | 41 | 0 | *56* | **122** |
| 6:45 PM | 0 | 0 | 5 | 14 | 0 | *19* | 0 | 1 | 3 | 0 | 0 | *4* | 0 | 25 | 6 | 0 | 0 | *31* | 0 | 10 | 3 | 28 | 0 | *41* | **95** |
| Hourly Total | 0 | 0 | 17 | 77 | 0 | *94* | 0 | 1 | 20 | 1 | 0 | *22* | 0 | 125 | 18 | 3 | 0 | *146* | 0 | 52 | 8 | 112 | 0 | *172* | **434** |
| 7:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 7:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 8:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 9:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 10:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:00 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:15 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:30 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| 11:45 PM | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 0 | 0 | 0 | 0 | *0* | **0** |
| **DAILY TOTAL** | **0** | **6** | **238** | **809** | **2** | ***1053*** | **0** | **43** | **110** | **8** | **5** | ***161*** | **0** | **1300** | **297** | **44** | **0** | ***1641*** | **0** | **730** | **132** | **1313** | **2** | ***2175*** | **5030** |
| **Cars** | 0 | 6 | 236 | 791 | 2 | *1033* | 0 | 33 | 109 | 8 | 5 | *150* | 0 | 1259 | 296 | 44 | 0 | *1599* | 0 | 716 | 129 | 1295 | 1 | *2140* | **4922** |
| **Heavy Vehicles** | 0 | 0 | 2 | 18 | 0 | *20* | 0 | 10 | 1 | 0 | 0 | *11* | 0 | 41 | 1 | 0 | 0 | *42* | 0 | 14 | 3 | 18 | 1 | *35* | **108** |
| **Heavy Vehicle %** | 0.00% | 0.00% | 0.84% | 2.22% | 0.00% | *1.90%* | 0.00% | 23.26% | 0.91% | 0.00% | 0.00% | *6.83%* | 0.00% | 3.15% | 0.34% | 0.00% | 0.00% | *2.56%* | 0.00% | 1.92% | 2.27% | 1.37% | 50.00% | *1.61%* | **2.15%** |

# Susan Dr & Margert Ave, Marshall MN
# 0 0
# Thursday, October 12, 2023

## AM Peak Hour

| Time | Southbound | | | | | | Westbound | | | | | | Northbound | | | | | | Eastbound | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 11:00 AM | 0 | 0 | 8 | 11 | 0 | *19* | 0 | 0 | 0 | 0 | 0 | *0* | 0 | 23 | 9 | 0 | 0 | *32* | 0 | 12 | 5 | 24 | 0 | *41* | **92** |
| 11:15 AM | 0 | 1 | 6 | 20 | 0 | *27* | 0 | 1 | 0 | 0 | 2 | *1* | 0 | 25 | 5 | 1 | 0 | *31* | 0 | 26 | 3 | 23 | 0 | *52* | **111** |
| 11:30 AM | 0 | 0 | 5 | 24 | 0 | *29* | 0 | 1 | 1 | 1 | 0 | *3* | 0 | 26 | 4 | 3 | 0 | *33* | 0 | 23 | 2 | 29 | 0 | *54* | **119** |
| 11:45 AM | 0 | 0 | 5 | 19 | 0 | *24* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 30 | 9 | 3 | 0 | *42* | 0 | 14 | 5 | 32 | 0 | *51* | **118** |
| Peak Hour Total | 0 | 1 | 24 | 74 | 0 | *99* | 0 | 2 | 2 | 1 | 2 | *5* | 0 | 104 | 27 | 7 | 0 | *138* | 0 | 75 | 15 | 108 | 0 | *198* | **440** |
| PHF | 0.000 | 0.250 | 0.750 | 0.771 | 0.000 | *0.853* | 0.000 | 0.500 | 0.500 | 0.250 | 0.250 | *0.417* | 0.000 | 0.867 | 0.750 | 0.583 | 0.000 | *0.821* | 0.000 | 0.721 | 0.750 | 0.844 | 0.000 | *0.917* | **0.924** |

## PM Peak Hour

| Time | Southbound | | | | | | Westbound | | | | | | Northbound | | | | | | Eastbound | | | | | | VEHICLE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | U Turns | Left Turns | Straight Through | Right Turns | Crosswalk Crossings | *Vehicle Approach Total* | |
| 12:45 PM | 0 | 1 | 7 | 32 | 0 | *40* | 0 | 0 | 1 | 0 | 0 | *1* | 0 | 30 | 13 | 1 | 0 | *44* | 0 | 22 | 5 | 31 | 0 | *58* | **143** |
| 1:00 PM | 0 | 0 | 7 | 36 | 1 | *43* | 0 | 0 | 5 | 0 | 1 | *5* | 0 | 41 | 13 | 4 | 0 | *58* | 0 | 25 | 1 | 34 | 0 | *60* | **166** |
| 1:15 PM | 0 | 0 | 1 | 17 | 0 | *18* | 0 | 1 | 7 | 0 | 0 | *8* | 0 | 31 | 6 | 0 | 0 | *37* | 0 | 23 | 4 | 31 | 0 | *58* | **121** |
| 1:30 PM | 0 | 0 | 7 | 26 | 0 | *33* | 0 | 3 | 1 | 0 | 0 | *4* | 0 | 32 | 11 | 1 | 0 | *44* | 0 | 12 | 5 | 37 | 0 | *54* | **135** |
| Peak Hour Total | 0 | 1 | 22 | 111 | 1 | *134* | 0 | 4 | 14 | 0 | 1 | *18* | 0 | 134 | 43 | 6 | 0 | *183* | 0 | 82 | 15 | 133 | 0 | *230* | **565** |
| PHF | 0.000 | 0.250 | 0.786 | 0.771 | 0.250 | *0.779* | 0.000 | 0.333 | 0.500 | 0.000 | 0.250 | *0.563* | 0.000 | 0.817 | 0.827 | 0.375 | 0.000 | *0.789* | 0.000 | 0.820 | 0.750 | 0.899 | 0.000 | *0.958* | **0.851** |

| | | | | | |
|---|---|---|---|---|---|
| Total Vehicles On Leg | | | 2088 | | |
| Vehicles Entering Intersection | 1053 | | Vehicles Exiting Intersection | 1035 | |
| **Southbound** | | | | | |
| Cars | 791 | 236 | 6 | 0 | 2 |
| Heavy | 18 | 2 | 0 | 0 | 0 |
| **Total** | **809** | **238** | **6** | **0** | **2** |

| | | | | | |
|---|---|---|---|---|---|
| **Northbound** | | | | | |
| Cars | 0 | 0 | 1259 | 296 | 44 |
| Heavy | 0 | 0 | 41 | 1 | 0 |
| **Total** | **0** | **0** | **1300** | **297** | **44** |
| Vehicles Entering Intersection | 1641 | | Vehicles Exiting Intersection | 1594 | |
| Total Vehicles On Leg | | | 3235 | | |

| Total Vehicles on Leg 4394 | | **Eastbound** | Cars | Heavy | **Total** |
|---|---|---|---|---|---|
| | Vehicles Entering Intersection 2175 | | 1 | 1 | **2** |
| | | | 0 | 0 | **0** |
| | Vehicles Exiting Intersection 2219 | | 716 | 14 | **730** |
| | | | 129 | 3 | **132** |
| | | | 1295 | 18 | **1313** |

**Daily Volumes**

| Cars | Heavy | **Total** | **Westbound** | | Total Vehicles on Leg 343 |
|---|---|---|---|---|---|
| 8 | 0 | **8** | | Vehicles Entering Intersection 161 | |
| 109 | 1 | **110** | | | |
| 33 | 10 | **43** | | Vehicles Exiting Intersection 182 | |
| 0 | 0 | **0** | | | |
| 5 | 0 | **5** | | | |

# Appendix B

**Crash Analysis**

# Intersection Safety Screening

Intersection: US 59 and Susan Dr, Marshall, MN

*Statewide Averages based on 2016-2020 crashes*

| Crashes by Crash Severity | |
|---|---|
| Fatal (K) | 0 |
| Serious Injury (A) | 0 |
| Minor Injury (B) | 2 |
| Possible Injury (C) | 2 |
| Property Damage (PDO) | 5 |
| Total Crashes | 9 |

| Intersection Characteristics | |
|---|---|
| Entering Volume | 6,342 |
| Environment | Urban |
| Lighting | Lit |
| Traffic Control | Signal |

*Annual crash cost = $153,000*

*Statewide comparison = Signal, Low Volume (<=20K)*

| Total Crash Rate | |
|---|---|
| Observed | 0.777 |
| Statewide Average | 0.508 |
| Critical Rate | 1.090 |
| **Critical Index** | **0.71** |

| Fatal & Serious Injury Crash Rate | |
|---|---|
| Observed | 0.000 |
| Statewide Average | 0.690 |
| Critical Rate | 8.130 |
| **Critical Index** | **0.00** |

*The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).*

*The observed total crash rate for this period is 0.78 per MEV; this is 29% below the critical rate. Based on similar statewide intersections, an additional 4 crashes over the five years would indicate this intersection operates outside the normal range.*

*The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.*

# Intersection Safety Screening

Intersection: Susan Dr and Margaret Ave, Marshall, MN

*Statewide Averages based on 2016-2020 crashes*

| Crashes by Crash Severity | |
|---|---|
| Fatal (K) | 0 |
| Serious Injury (A) | 0 |
| Minor Injury (B) | 0 |
| Possible Injury (C) | 0 |
| Property Damage (PDO) | 5 |
| Total Crashes | 5 |

| Intersection Characteristics | |
|---|---|
| Entering Volume | 2,767 |
| Environment | Urban |
| Lighting | Lit |
| Traffic Control | Thru-Stop |

*Annual crash cost = $13,000*

*Statewide comparison = Urban, Thru/STOP*

| Total Crash Rate | |
|---|---|
| Observed | 0.989 |
| Statewide Average | 0.128 |
| Critical Rate | 0.640 |
| **Critical Index** | **1.55** |

| Fatal & Serious Injury Crash Rate | |
|---|---|
| Observed | 0.000 |
| Statewide Average | 0.311 |
| Critical Rate | 13.380 |
| **Critical Index** | **0.00** |

*The observed crash rate is the number of crashes per million entering vehicles (MEV). The critical rate is a statistical comparison based on similar intersections statewide. An observed crash rate greater than the critical rate indicates that the intersection operates outside the expected, normal range. The critical index reports the magnitude of this difference (i.e. observed crash rate ÷ critical crash rate).*

*The observed total crash rate for this period is 0.99 per MEV; this is 1.6 times the critical rate. If crashes were reduced by 2 over five years, this intersection would perform within normal range.*

*The observed fatal and serious injury crash rate for this period is 0.00 per 100 MEV; this is 100% below the critical rate. The intersection operates within the normal range.*

# Appendix C

**Warrant Analysis**

# SIGNAL WARRANTS ANALYSIS

2023 Volumes

Minor Rights Excluded

LOCATION:
COUNTY: LYON
REF. POINT:
DATE: 1/17/2024

OPERATOR: KMH

| Speed | Approach Description | | Lanes |
|---|---|---|---|
| 30 | Major App1: | NB Margaret Ave | 2 |
| 30 | Major App3: | SB Susan Dr | 2 |
| 30 | Minor App2: | EB Susan Dr | 1 |
| 30 | Minor App4: | WB Harbor Freight Entrance | 2 |

0.70 FACTOR USED? No

POPULATION < 10,000? No

EXISTING SIGNAL ? No

THRESHOLDS 1A/1B: 600/900 150/75 200/100

| HOUR | MAJOR APP. 1 | MAJOR APP. 3 | TOTAL 1+3 | MAJOR 1A/1B | MINOR APP. 2 | MINOR 2 1A/1B | MINOR APP. 4 | MINOR 4 1A/1B | **MET SAME 1A/1B** |
|---|---|---|---|---|---|---|---|---|---|
| 0:00 - 1:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 1:00 - 2:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 2:00 - 3:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 3:00 - 4:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 4:00 - 5:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 5:00 - 6:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 6:00 - 7:00 | 22 | 11 | 33 | / | 9 | / | 2 | / | / |
| 7:00 - 8:00 | 36 | 25 | 61 | / | 26 | / | 2 | / | / |
| 8:00 - 9:00 | 62 | 41 | 103 | / | 34 | / | 7 | / | / |
| 9:00 - 10:00 | 90 | 47 | 137 | / | 47 | / | 11 | / | / |
| 10:00 - 11:00 | 116 | 57 | 173 | / | 71 | / | 9 | / | / |
| 11:00 - 12:00 | 138 | 99 | 237 | / | 90 | /X | 4 | / | / |
| 12:00 - 13:00 | 151 | 131 | 282 | / | 112 | /X | 11 | / | / |
| 13:00 - 14:00 | 186 | 122 | 308 | / | 87 | /X | 18 | / | / |
| 14:00 - 15:00 | 163 | 118 | 281 | / | 82 | /X | 19 | / | / |
| 15:00 - 16:00 | 170 | 85 | 255 | / | 81 | /X | 16 | / | / |
| 16:00 - 17:00 | 180 | 127 | 307 | / | 82 | /X | 15 | / | / |
| 17:00 - 18:00 | 181 | 96 | 277 | / | 81 | /X | 18 | / | / |
| 18:00 - 19:00 | 146 | 94 | 240 | / | 60 | / | 21 | / | / |
| 19:00 - 20:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 20:00 - 21:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 21:00 - 22:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 22:00 - 23:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |
| 23:00 - 24:00 | 0 | 0 | 0 | / | 0 | / | 0 | / | / |

| | Met (Hr) | Required (Hr) | |
|---|---|---|---|
| Warrant 1A | 0 | 8 | Not satisfied |
| Warrant 1B | 0 | 8 | Not satisfied |
| Warrant 2 | 0 | 4 | Not satisfied |
| Warrant 3 | 0 | 1 | Not satisfied |
| Warrant 7 | 0 | 8 | Not satisfied |

LOCATION:
COUNTY: LYON
REF. POINT:
DATE: 1/17/2024

OPERATOR: KMH

| Speed | Approach Description | Lanes |
|---|---|---|
| 30 | Major App1: NB Margaret Ave | 2 |
| 30 | Major App3: SB Susan Dr | 2 |
| 30 | Minor App2: EB Susan Dr | 1 |
| 30 | Minor App4: WB Harbor Freight Entrance | 2 |

0.70 FACTOR USED? No
POPULATION < 10,000? No
EXISTING SIGNAL ? No

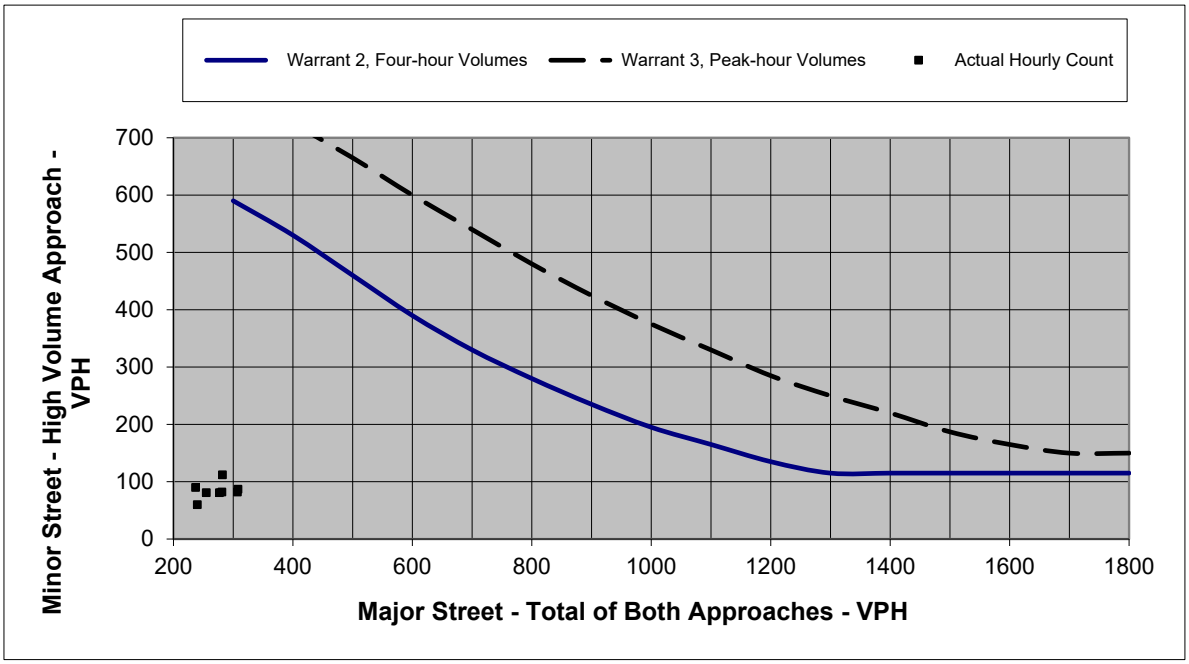



Figure 1. Four Hour and Peak Hour Warrant Analysis

*Note: For data points outside the graph range, check the minor street volume against the lower thresholds*

| Warrant Criteria | | | Actual Hourly Count | |
|---|---|---|---|---|
| Major | Warrant 2, F | Warrant 3, Pe | Major | Actual Hourly Count |
| 200 | | | 0 | 0 |
| 300 | 590 | | 0 | 0 |
| 400 | 530 | 725 | 0 | 0 |
| 500 | 460 | 665 | 0 | 0 |
| 600 | 390 | 600 | 0 | 0 |
| 700 | 330 | 540 | 0 | 0 |
| 800 | 280 | 480 | 33 | 9 |
| 900 | 235 | 425 | 61 | 26 |
| 1000 | 195 | 375 | 103 | 34 |
| 1100 | 165 | 330 | 137 | 47 |
| 1200 | 135 | 285 | 173 | 71 |
| 1300 | 115 | 250 | 237 | 90 |
| 1400 | 115 | 220 | 282 | 112 |
| 1500 | 115 | 187 | 308 | 87 |
| 1600 | 115 | 165 | 281 | 82 |
| 1700 | 115 | 150 | 255 | 81 |
| 1800 | 115 | 150 | 307 | 82 |
| | | | 277 | 81 |
| | | | 240 | 60 |
| | | | 0 | 0 |
| | | | 0 | 0 |
| | | | 0 | 0 |
| | | | 0 | 0 |
| | | | 0 | 0 |

# ALL WAY STOP WARRANT

2023 Volumes

LOCATION:
COUNTY: LYON
REF. POINT:
DATE: 1/17/2024

OPERATOR: KMH

| Speed | Approach Description | Lanes |
|---|---|---|
| 30 | Major App1: NB Margaret Ave | 2 |
| 30 | Major App3: SB Susan Dr | 1 |
| 30 | Minor App2: EB Susan Dr | 1 |
| 30 | Minor App4: WB Harbor Freight Entrance | 2 |

0.70 FACTOR USED? No

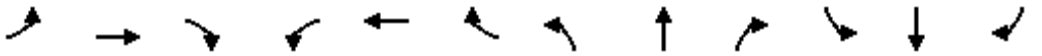
| | | | | | 300 | 200 | |
|---|---|---|---|---|---|---|---|
| HOUR | MAJOR APP. 1 | MAJOR APP. 3 | MINOR APP. 2 | MINOR APP. 4 | MAJOR TOTAL Σ (APP. 1 & APP. 3) | MINOR TOTAL APP. 2 + APP. 4 | WARRANT MET |
| 0:00 - 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 1:00 - 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 2:00 - 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 3:00 - 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 4:00 - 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 5:00 - 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 6:00 - 7:00 | 22 | 11 | 35 | 2 | 33 | 37 | / |
| 7:00 - 8:00 | 36 | 25 | 60 | 2 | 61 | 62 | / |
| 8:00 - 9:00 | 62 | 41 | 103 | 9 | 103 | 112 | / |
| 9:00 - 10:00 | 90 | 47 | 137 | 12 | 137 | 149 | / |
| 10:00 - 11:00 | 116 | 57 | 198 | 10 | 173 | 208 | /X |
| 11:00 - 12:00 | 138 | 99 | 198 | 5 | 237 | 203 | /X |
| 12:00 - 13:00 | 151 | 131 | 235 | 12 | 282 | 247 | /X |
| 13:00 - 14:00 | 186 | 122 | 217 | 19 | 308 | 236 | X/X |
| 14:00 - 15:00 | 163 | 118 | 194 | 19 | 281 | 213 | /X |
| 15:00 - 16:00 | 170 | 85 | 197 | 16 | 255 | 213 | /X |
| 16:00 - 17:00 | 180 | 127 | 229 | 15 | 307 | 244 | X/X |
| 17:00 - 18:00 | 181 | 96 | 200 | 18 | 277 | 218 | /X |
| 18:00 - 19:00 | 146 | 94 | 172 | 22 | 240 | 194 | / |
| 19:00 - 20:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 20:00 - 21:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 21:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 22:00 - 23:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |
| 23:00 - 24:00 | 0 | 0 | 0 | 0 | 0 | 0 | / |

| | Met (Hr) | Required (Hr) | |
|---|---|---|---|
| Allway Stop Warrant: | 2 | 8 | Not satisfied |

REMARKS:

# Appendix D

**Traffic Operations Analysis**



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 64 | 18 | 13 | 21 | 9 | 201 | 13 | 287 | 17 | 200 | 288 | 87 |
| Future Volume (veh/h) | 64 | 18 | 13 | 21 | 9 | 201 | 13 | 287 | 17 | 200 | 288 | 87 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 68 | 24 | 20 | 32 | 12 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| Peak Hour Factor | 0.94 | 0.75 | 0.65 | 0.66 | 0.75 | 0.85 | 0.65 | 0.81 | 0.53 | 0.82 | 0.82 | 0.91 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 408 | 564 | 478 | 471 | 564 | 478 | 713 | 1541 | 687 | 502 | 937 | 418 |
| Arrive On Green | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.26 | 0.43 | 0.43 | 0.09 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1132 | 1870 | 1585 | 1362 | 1870 | 1585 | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 |
| Grp Volume(v), veh/h | 68 | 24 | 20 | 32 | 12 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| Grp Sat Flow(s),veh/h/ln | 1132 | 1870 | 1585 | 1362 | 1870 | 1585 | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 |
| Q Serve(g_s), s | 4.5 | 0.9 | 0.9 | 1.7 | 0.5 | 12.2 | 0.5 | 6.3 | 1.2 | 9.4 | 8.1 | 4.8 |
| Cycle Q Clear(g_c), s | 4.9 | 0.9 | 0.9 | 2.6 | 0.5 | 12.2 | 0.5 | 6.3 | 1.2 | 9.4 | 8.1 | 4.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 408 | 564 | 478 | 471 | 564 | 478 | 713 | 1541 | 687 | 502 | 937 | 418 |
| V/C Ratio(X) | 0.17 | 0.04 | 0.04 | 0.07 | 0.02 | 0.49 | 0.03 | 0.23 | 0.05 | 0.49 | 0.37 | 0.23 |
| Avail Cap(c_a), veh/h | 408 | 564 | 478 | 471 | 564 | 478 | 713 | 1541 | 687 | 502 | 937 | 418 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.3 | 24.7 | 24.7 | 25.6 | 24.6 | 28.7 | 10.9 | 17.8 | 16.4 | 24.0 | 30.1 | 28.9 |
| Incr Delay (d2), s/veh | 0.9 | 0.1 | 0.2 | 0.3 | 0.1 | 3.6 | 0.1 | 0.3 | 0.1 | 3.3 | 1.1 | 1.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 0.4 | 0.4 | 0.6 | 0.2 | 5.1 | 0.2 | 2.5 | 0.4 | 4.6 | 3.5 | 1.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 27.2 | 24.9 | 24.9 | 25.9 | 24.6 | 32.3 | 11.0 | 18.2 | 16.5 | 27.3 | 31.3 | 30.2 |
| LnGrp LOS | C | C | C | C | C | C | B | B | B | C | C | C |
| Approach Vol, veh/h | | 112 | | | 280 | | | 406 | | | 691 | |
| Approach Delay, s/veh | | 26.3 | | | 31.2 | | | 17.7 | | | 29.7 | |
| Approach LOS | | C | | | C | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 15.0 | 49.0 | | 36.1 | 32.0 | 32.0 | | 36.1 | | | | |
| Change Period (Y+Rc), s | * 5.6 | * 5.6 | | 5.9 | * 5.7 | * 5.6 | | * 5.9 | | | | |
| Max Green Setting (Gmax), s | * 9.4 | * 43 | | 30.1 | * 26 | * 26 | | * 30 | | | | |
| Max Q Clear Time (g_c+I1), s | 11.4 | 8.3 | | 6.9 | 2.5 | 10.1 | | 14.2 | | | | |
| Green Ext Time (p_c), s | 0.0 | 2.4 | | 0.4 | 0.0 | 2.2 | | 0.8 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 26.5 | |
| HCM 6th LOS | | C | |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SBL | SBR | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Vol, veh/h | 82 | 15 | 133 | 4 | 14 | 0 | 22 | 111 | 134 | 43 |
| Future Vol, veh/h | 82 | 15 | 133 | 4 | 14 | 0 | 22 | 111 | 134 | 43 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | None | - | None | - | - |
| Storage Length | - | - | 60 | - | - | - | 150 | - | 150 | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Peak Hour Factor | 82 | 75 | 90 | 33 | 50 | 25 | 79 | 77 | 82 | 83 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 100 | 20 | 148 | 12 | 28 | 0 | 28 | 144 | 163 | 52 |

| Major/Minor | Major1 | | | Major2 | | | Minor2 | | Minor1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 28 | 0 | 0 | 20 | 0 | 0 | 306 | 14 | 272 | 20 |
| Stage 1 | - | - | - | - | - | - | 52 | - | 220 | - |
| Stage 2 | - | - | - | - | - | - | 254 | - | 52 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.33 | 6.93 | 7.33 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | - | 6.13 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | - | 6.53 | - |
| Follow-up Hdwy | 2.219 | - | - | 2.219 | - | - | 3.519 | 3.319 | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 1585 | - | - | 1595 | - | - | 635 | 1063 | 670 | 1057 |
| Stage 1 | - | - | - | - | - | - | 955 | - | 782 | - |
| Stage 2 | - | - | - | - | - | - | 750 | - | 955 | - |
| Platoon blocked, % | | - | - | | - | - | | | | |
| Mov Cap-1 Maneuver | 1585 | - | - | 1595 | - | - | 549 | 1063 | 525 | 1057 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 549 | - | 525 | - |
| Stage 1 | - | - | - | - | - | - | 887 | - | 726 | - |
| Stage 2 | - | - | - | - | - | - | 633 | - | 792 | - |

| Approach | EB | WB | SB | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 2.8 | 2.2 | 9.4 | 13.8 |
| HCM LOS | | | A | B |

| Minor Lane/Major Mvmt | NWLn1 | NWLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 525 | 653 | 1585 | - | - | 1595 | - | - | 580 | 1063 |
| HCM Lane V/C Ratio | 0.311 | 0.104 | 0.063 | - | - | 0.008 | - | - | 0.055 | 0.136 |
| HCM Control Delay (s) | 14.9 | 11.1 | 7.4 | 0 | - | 7.3 | 0 | - | 11.6 | 8.9 |
| HCM Lane LOS | B | B | A | A | - | A | A | - | B | A |
| HCM 95th %tile Q(veh) | 1.3 | 0.3 | 0.2 | - | - | 0 | - | - | 0.2 | 0.5 |

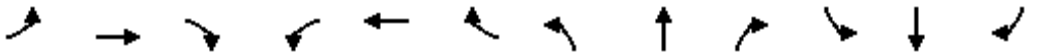
| Intersection | |
|---|---|
| Int Delay, s/veh | 6.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | SBL | SBR | NWL | NWR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Vol, veh/h | 75 | 15 | 108 | 2 | 2 | 1 | 24 | 74 | 104 | 27 |
| Future Vol, veh/h | 75 | 15 | 108 | 2 | 2 | 1 | 24 | 74 | 104 | 27 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | None | - | None | - | - |
| Storage Length | - | - | 60 | - | - | - | 150 | - | 150 | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 82 | 16 | 117 | 2 | 2 | 1 | 26 | 80 | 113 | 29 |

| Major/Minor | Major1 | | | Major2 | | | Minor2 | | Minor1 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 3 | 0 | 0 | 16 | 0 | 0 | 206 | 2 | 198 | 16 |
| Stage 1 | - | - | - | - | - | - | 7 | - | 180 | - |
| Stage 2 | - | - | - | - | - | - | 199 | - | 18 | - |
| Critical Hdwy | 4.13 | - | - | 4.13 | - | - | 7.33 | 6.93 | 7.33 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.53 | - | 6.13 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.13 | - | 6.53 | - |
| Follow-up Hdwy | 2.219 | - | - | 2.219 | - | - | 3.519 | 3.319 | 3.519 | 3.319 |
| Pot Cap-1 Maneuver | 1618 | - | - | 1601 | - | - | 743 | 1081 | 752 | 1063 |
| Stage 1 | - | - | - | - | - | - | 1014 | - | 821 | - |
| Stage 2 | - | - | - | - | - | - | 802 | - | 999 | - |
| Platoon blocked, % | | - | - | | - | - | | | | |
| Mov Cap-1 Maneuver | 1618 | - | - | 1601 | - | - | 682 | 1081 | 646 | 1063 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 682 | - | 646 | - |
| Stage 1 | - | - | - | - | - | - | 957 | - | 775 | - |
| Stage 2 | - | - | - | - | - | - | 721 | - | 897 | - |

| Approach | EB | WB | SB | NW |
|---|---|---|---|---|
| HCM Control Delay, s | 2.8 | 2.9 | 9.1 | 11.4 |
| HCM LOS | | | A | B |

| Minor Lane/Major Mvmt | NWLn1 | NWLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 646 | 722 | 1618 | - | - | 1601 | - | - | 668 | 1081 |
| HCM Lane V/C Ratio | 0.175 | 0.051 | 0.05 | - | - | 0.001 | - | - | 0.041 | 0.074 |
| HCM Control Delay (s) | 11.8 | 10.3 | 7.3 | 0 | - | 7.3 | 0 | - | 10.6 | 8.6 |
| HCM Lane LOS | B | B | A | A | - | A | A | - | B | A |
| HCM 95th %tile Q(veh) | 0.6 | 0.2 | 0.2 | - | - | 0 | - | - | 0.1 | 0.2 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 67 | 17 | 14 | 18 | 15 | 150 | 11 | 197 | 20 | 159 | 219 | 66 |
| Future Volume (veh/h) | 67 | 17 | 14 | 18 | 15 | 150 | 11 | 197 | 20 | 159 | 219 | 66 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 84 | 24 | 16 | 28 | 20 | 169 | 16 | 216 | 24 | 167 | 281 | 76 |
| Peak Hour Factor | 0.80 | 0.71 | 0.88 | 0.64 | 0.75 | 0.89 | 0.69 | 0.91 | 0.83 | 0.95 | 0.78 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 199 | 245 | 207 | 162 | 101 | 207 | 762 | 2283 | 1018 | 876 | 2417 | 1078 |
| Arrive On Green | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.02 | 0.64 | 0.64 | 0.05 | 0.68 | 0.68 |
| Sat Flow, veh/h | 1194 | 1870 | 1585 | 800 | 775 | 1585 | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 |
| Grp Volume(v), veh/h | 84 | 24 | 16 | 48 | 0 | 169 | 16 | 216 | 24 | 167 | 281 | 76 |
| Grp Sat Flow(s),veh/h/ln | 1194 | 1870 | 1585 | 1576 | 0 | 1585 | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 |
| Q Serve(g_s), s | 6.8 | 1.1 | 0.9 | 1.1 | 0.0 | 10.4 | 0.3 | 2.3 | 0.5 | 3.1 | 2.7 | 1.6 |
| Cycle Q Clear(g_c), s | 9.2 | 1.1 | 0.9 | 2.5 | 0.0 | 10.4 | 0.3 | 2.3 | 0.5 | 3.1 | 2.7 | 1.6 |
| Prop In Lane | 1.00 | | 1.00 | 0.58 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 199 | 245 | 207 | 263 | 0 | 207 | 762 | 2283 | 1018 | 876 | 2417 | 1078 |
| V/C Ratio(X) | 0.42 | 0.10 | 0.08 | 0.18 | 0.00 | 0.81 | 0.02 | 0.09 | 0.02 | 0.19 | 0.12 | 0.07 |
| Avail Cap(c_a), veh/h | 403 | 565 | 479 | 525 | 0 | 477 | 897 | 2283 | 1018 | 1246 | 2417 | 1078 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 43.0 | 38.3 | 38.2 | 38.8 | 0.0 | 42.3 | 5.8 | 6.8 | 6.5 | 5.1 | 5.6 | 5.4 |
| Incr Delay (d2), s/veh | 1.4 | 0.2 | 0.2 | 0.3 | 0.0 | 7.6 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.1 | 0.5 | 0.4 | 1.1 | 0.0 | 4.5 | 0.1 | 0.8 | 0.2 | 0.9 | 0.9 | 0.5 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 44.4 | 38.4 | 38.3 | 39.1 | 0.0 | 49.8 | 5.8 | 6.9 | 6.5 | 5.2 | 5.7 | 5.5 |
| LnGrp LOS | D | D | D | D | A | D | A | A | A | A | A | A |
| Approach Vol, veh/h | | 124 | | | 217 | | | 256 | | | 524 | |
| Approach Delay, s/veh | | 42.5 | | | 47.5 | | | 6.8 | | | 5.5 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.4 | 73.6 | | 19.0 | 11.2 | 69.8 | | 19.0 | | | | |
| Change Period (Y+Rc), s | * 5.6 | * 5.6 | | 5.9 | * 5.7 | * 5.6 | | * 5.9 | | | | |
| Max Green Setting (Gmax), s | * 9.4 | * 43 | | 30.1 | * 26 | * 26 | | * 30 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.3 | 4.7 | | 12.4 | 5.1 | 4.3 | | 11.2 | | | | |
| Green Ext Time (p_c), s | 0.0 | 2.0 | | 0.7 | 0.4 | 1.3 | | 0.4 | | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 18.0 |
| HCM 6th LOS | | B |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

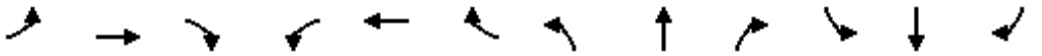
| Intersection | |
|---|---|
| Int Delay, s/veh | 3.9 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 90 | 108 | 24 | 100 | 104 | 34 |
| Future Vol, veh/h | 90 | 108 | 24 | 100 | 104 | 34 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 100 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 98 | 117 | 26 | 109 | 113 | 37 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 215 | 0 | 318 | 157 |
| Stage 1 | - | - | - | - | 157 | - |
| Stage 2 | - | - | - | - | 161 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1355 | - | 675 | 889 |
| Stage 1 | - | - | - | - | 871 | - |
| Stage 2 | - | - | - | - | 868 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1355 | - | 662 | 889 |
| Mov Cap-2 Maneuver | - | - | - | - | 662 | - |
| Stage 1 | - | - | - | - | 871 | - |
| Stage 2 | - | - | - | - | 852 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.5 | 11.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NBR | NWLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 706 | 1355 | - |
| HCM Lane V/C Ratio | - | - | 0.212 | 0.019 | - |
| HCM Control Delay (s) | - | - | 11.5 | 7.7 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.8 | 0.1 | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 64 | 18 | 13 | 21 | 9 | 201 | 13 | 287 | 17 | 200 | 288 | 87 |
| Future Volume (veh/h) | 64 | 18 | 13 | 21 | 9 | 201 | 13 | 287 | 17 | 200 | 288 | 87 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 68 | 24 | 20 | 32 | 12 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| Peak Hour Factor | 0.94 | 0.75 | 0.65 | 0.66 | 0.75 | 0.85 | 0.65 | 0.81 | 0.53 | 0.82 | 0.82 | 0.91 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 238 | 324 | 274 | 236 | 79 | 274 | 654 | 2051 | 915 | 740 | 2255 | 1006 |
| Arrive On Green | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.02 | 0.58 | 0.58 | 0.08 | 0.63 | 0.63 |
| Sat Flow, veh/h | 1132 | 1870 | 1585 | 1004 | 457 | 1585 | 1781 | 3554 | 1585 | 1781 | 3554 | 1585 |
| Grp Volume(v), veh/h | 68 | 24 | 20 | 44 | 0 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| Grp Sat Flow(s),veh/h/ln | 1132 | 1870 | 1585 | 1461 | 0 | 1585 | 1781 | 1777 | 1585 | 1781 | 1777 | 1585 |
| Q Serve(g_s), s | 5.5 | 1.1 | 1.1 | 1.6 | 0.0 | 14.5 | 0.5 | 4.7 | 0.9 | 5.2 | 4.0 | 2.4 |
| Cycle Q Clear(g_c), s | 8.1 | 1.1 | 1.1 | 2.7 | 0.0 | 14.5 | 0.5 | 4.7 | 0.9 | 5.2 | 4.0 | 2.4 |
| Prop In Lane | 1.00 | | 1.00 | 0.73 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 238 | 324 | 274 | 315 | 0 | 274 | 654 | 2051 | 915 | 740 | 2255 | 1006 |
| V/C Ratio(X) | 0.29 | 0.07 | 0.07 | 0.14 | 0.00 | 0.86 | 0.03 | 0.17 | 0.03 | 0.33 | 0.16 | 0.10 |
| Avail Cap(c_a), veh/h | 384 | 565 | 479 | 503 | 0 | 477 | 784 | 2051 | 915 | 1069 | 2255 | 1006 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 38.8 | 34.6 | 34.6 | 35.3 | 0.0 | 40.2 | 8.2 | 9.9 | 9.1 | 6.4 | 7.4 | 7.1 |
| Incr Delay (d2), s/veh | 0.7 | 0.1 | 0.1 | 0.2 | 0.0 | 7.8 | 0.0 | 0.2 | 0.1 | 0.3 | 0.1 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 0.5 | 0.4 | 0.9 | 0.0 | 6.2 | 0.2 | 1.7 | 0.3 | 1.7 | 1.4 | 0.7 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 39.4 | 34.7 | 34.7 | 35.5 | 0.0 | 47.9 | 8.2 | 10.1 | 9.2 | 6.7 | 7.6 | 7.3 |
| LnGrp LOS | D | C | C | D | A | D | A | B | A | A | A | A |
| Approach Vol, veh/h | | 112 | | | 280 | | | 406 | | | 691 | |
| Approach Delay, s/veh | | 37.6 | | | 46.0 | | | 9.9 | | | 7.2 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.7 | 69.1 | | 23.2 | 13.5 | 63.3 | | 23.2 | | | | |
| Change Period (Y+Rc), s | * 5.6 | * 5.6 | | 5.9 | * 5.7 | * 5.6 | | * 5.9 | | | | |
| Max Green Setting (Gmax), s | * 9.4 | * 43 | | 30.1 | * 26 | * 26 | | * 30 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.5 | 6.0 | | 16.5 | 7.2 | 6.7 | | 10.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 2.6 | | 0.8 | 0.6 | 2.1 | | 0.4 | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 17.5 | |
| HCM 6th LOS | | B | |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

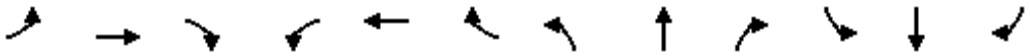
| Intersection | |
|---|---|
| Int Delay, s/veh | 4.8 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 97 | 133 | 22 | 125 | 134 | 49 |
| Future Vol, veh/h | 97 | 133 | 22 | 125 | 134 | 49 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | 100 | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 82 | 90 | 79 | 77 | 82 | 83 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 118 | 148 | 28 | 162 | 163 | 59 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 266 | 0 | 410 | 192 |
| Stage 1 | - | - | - | - | 192 | - |
| Stage 2 | - | - | - | - | 218 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1298 | - | 598 | 850 |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 818 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1298 | - | 585 | 850 |
| Mov Cap-2 Maneuver | - | - | - | - | 585 | - |
| Stage 1 | - | - | - | - | 841 | - |
| Stage 2 | - | - | - | - | 800 | - |

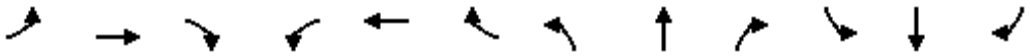
| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.1 | 13.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NBR | NWLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 638 | 1298 | - |
| HCM Lane V/C Ratio | - | - | 0.349 | 0.021 | - |
| HCM Control Delay (s) | - | - | 13.6 | 7.8 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.6 | 0.1 | - |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 84 | 24 | 16 | 28 | 20 | 169 | 16 | 216 | 24 | 167 | 281 | 76 |
| v/c Ratio | 0.20 | 0.04 | 0.03 | 0.07 | 0.04 | 0.28 | 0.02 | 0.14 | 0.03 | 0.36 | 0.30 | 0.14 |
| Control Delay | 27.7 | 25.2 | 0.1 | 25.6 | 25.0 | 5.5 | 8.9 | 17.4 | 0.1 | 14.9 | 30.5 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.7 | 25.2 | 0.1 | 25.6 | 25.0 | 5.5 | 8.9 | 17.4 | 0.1 | 14.9 | 30.5 | 0.6 |
| Queue Length 50th (ft) | 40 | 11 | 0 | 13 | 9 | 0 | 4 | 42 | 0 | 46 | 75 | 0 |
| Queue Length 95th (ft) | 69 | 23 | 0 | 23 | 22 | 45 | 10 | 66 | 0 | 78 | 95 | 0 |
| Internal Link Dist (ft) | | 78 | | | 125 | | | 1128 | | | 972 | |
| Turn Bay Length (ft) | 150 | | 150 | 150 | | 150 | 150 | | 150 | 150 | | 150 |
| Base Capacity (vph) | 417 | 560 | 582 | 417 | 562 | 596 | 739 | 1535 | 739 | 469 | 934 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.20 | 0.04 | 0.03 | 0.07 | 0.04 | 0.28 | 0.02 | 0.14 | 0.03 | 0.36 | 0.30 | 0.14 |

Intersection Summary



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 68 | 24 | 20 | 32 | 12 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| v/c Ratio | 0.16 | 0.04 | 0.03 | 0.08 | 0.02 | 0.37 | 0.03 | 0.23 | 0.04 | 0.57 | 0.38 | 0.18 |
| Control Delay | 27.0 | 25.2 | 0.1 | 25.7 | 24.8 | 5.3 | 8.9 | 18.3 | 0.1 | 19.6 | 31.5 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.0 | 25.2 | 0.1 | 25.7 | 24.8 | 5.3 | 8.9 | 18.3 | 0.1 | 19.6 | 31.5 | 1.7 |
| Queue Length 50th (ft) | 32 | 11 | 0 | 15 | 5 | 0 | 5 | 72 | 0 | 70 | 96 | 0 |
| Queue Length 95th (ft) | 66 | 25 | 0 | 27 | 16 | 44 | 11 | 92 | 0 | 99 | 124 | 9 |
| Internal Link Dist (ft) | | 78 | | | 125 | | | 1128 | | | 972 | |
| Turn Bay Length (ft) | 150 | | 150 | 150 | | 150 | 150 | | 150 | 150 | | 150 |
| Base Capacity (vph) | 420 | 560 | 582 | 417 | 562 | 642 | 702 | 1535 | 739 | 431 | 934 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.16 | 0.04 | 0.03 | 0.08 | 0.02 | 0.37 | 0.03 | 0.23 | 0.04 | 0.57 | 0.38 | 0.18 |

Intersection Summary

| Lane Group | EBL | EBT | EBR | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 84 | 24 | 16 | 48 | 169 | 16 | 216 | 24 | 167 | 281 | 76 |
| v/c Ratio | 0.21 | 0.04 | 0.03 | 0.10 | 0.28 | 0.02 | 0.14 | 0.03 | 0.36 | 0.30 | 0.14 |
| Control Delay | 27.8 | 25.2 | 0.1 | 25.9 | 5.5 | 8.9 | 17.4 | 0.1 | 14.9 | 30.5 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.8 | 25.2 | 0.1 | 25.9 | 5.5 | 8.9 | 17.4 | 0.1 | 14.9 | 30.5 | 0.6 |
| Queue Length 50th (ft) | 40 | 11 | 0 | 22 | 0 | 4 | 42 | 0 | 46 | 75 | 0 |
| Queue Length 95th (ft) | 69 | 23 | 0 | 41 | 45 | 10 | 66 | 0 | 78 | 95 | 0 |
| Internal Link Dist (ft) | | 78 | | 138 | | | 1128 | | | 972 | |
| Turn Bay Length (ft) | 150 | | 150 | | 150 | 150 | | 150 | 150 | | 150 |
| Base Capacity (vph) | 406 | 560 | 582 | 485 | 596 | 739 | 1535 | 739 | 469 | 934 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.21 | 0.04 | 0.03 | 0.10 | 0.28 | 0.02 | 0.14 | 0.03 | 0.36 | 0.30 | 0.14 |

Intersection Summary

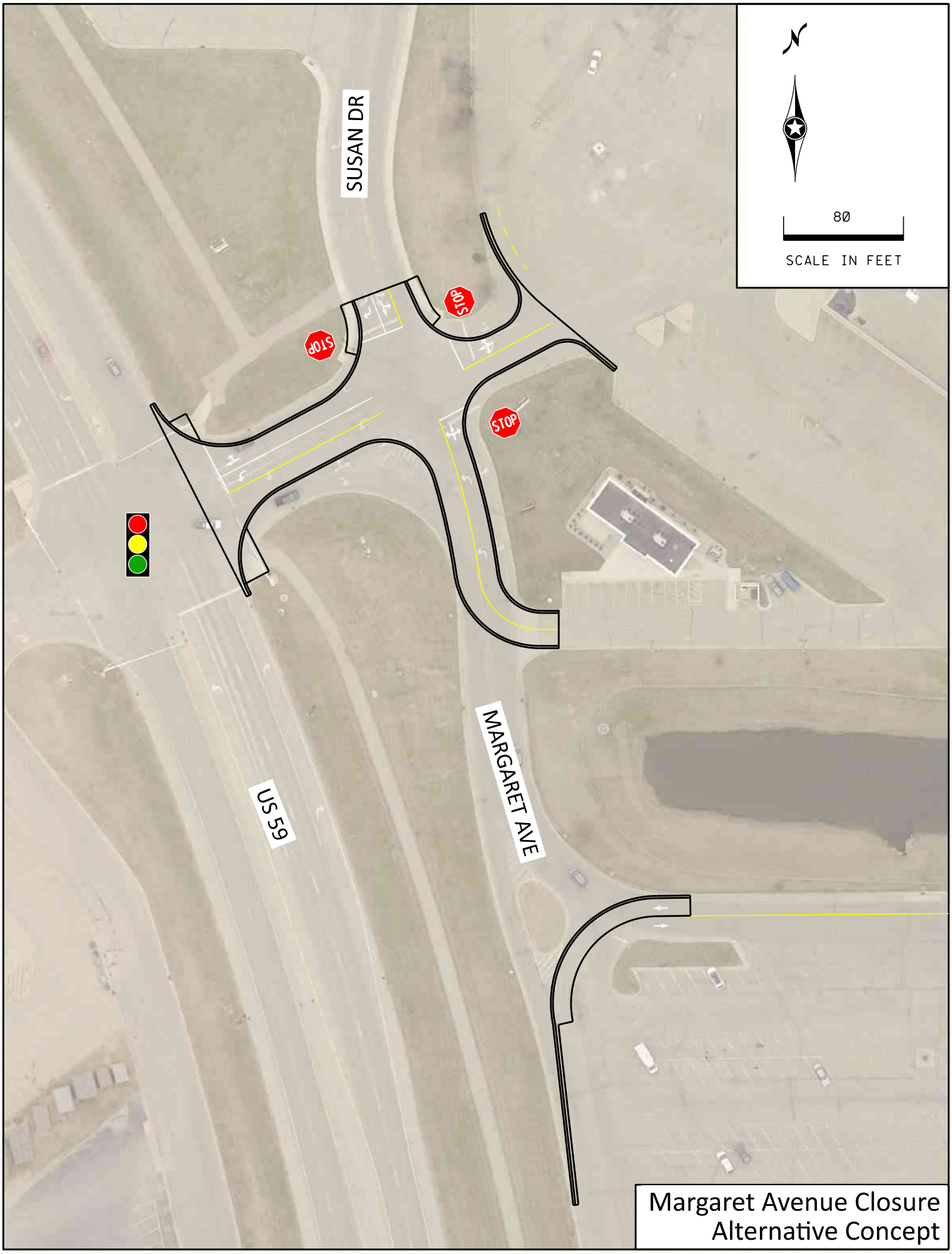
| Lane Group | EBL | EBT | EBR | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 68 | 24 | 20 | 44 | 236 | 20 | 354 | 32 | 244 | 351 | 96 |
| v/c Ratio | 0.17 | 0.04 | 0.03 | 0.09 | 0.37 | 0.03 | 0.23 | 0.04 | 0.57 | 0.38 | 0.18 |
| Control Delay | 27.2 | 25.2 | 0.1 | 25.9 | 5.3 | 8.9 | 18.3 | 0.1 | 19.6 | 31.5 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.2 | 25.2 | 0.1 | 25.9 | 5.3 | 8.9 | 18.3 | 0.1 | 19.6 | 31.5 | 1.7 |
| Queue Length 50th (ft) | 32 | 11 | 0 | 20 | 0 | 5 | 72 | 0 | 70 | 96 | 0 |
| Queue Length 95th (ft) | 66 | 25 | 0 | 38 | 44 | 11 | 92 | 0 | 99 | 124 | 9 |
| Internal Link Dist (ft) | | 78 | | 138 | | | 1128 | | | 972 | |
| Turn Bay Length (ft) | 150 | | 150 | | 150 | 150 | | 150 | 150 | | 150 |
| Base Capacity (vph) | 408 | 560 | 582 | 466 | 642 | 702 | 1535 | 739 | 431 | 934 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.17 | 0.04 | 0.03 | 0.09 | 0.37 | 0.03 | 0.23 | 0.04 | 0.57 | 0.38 | 0.18 |

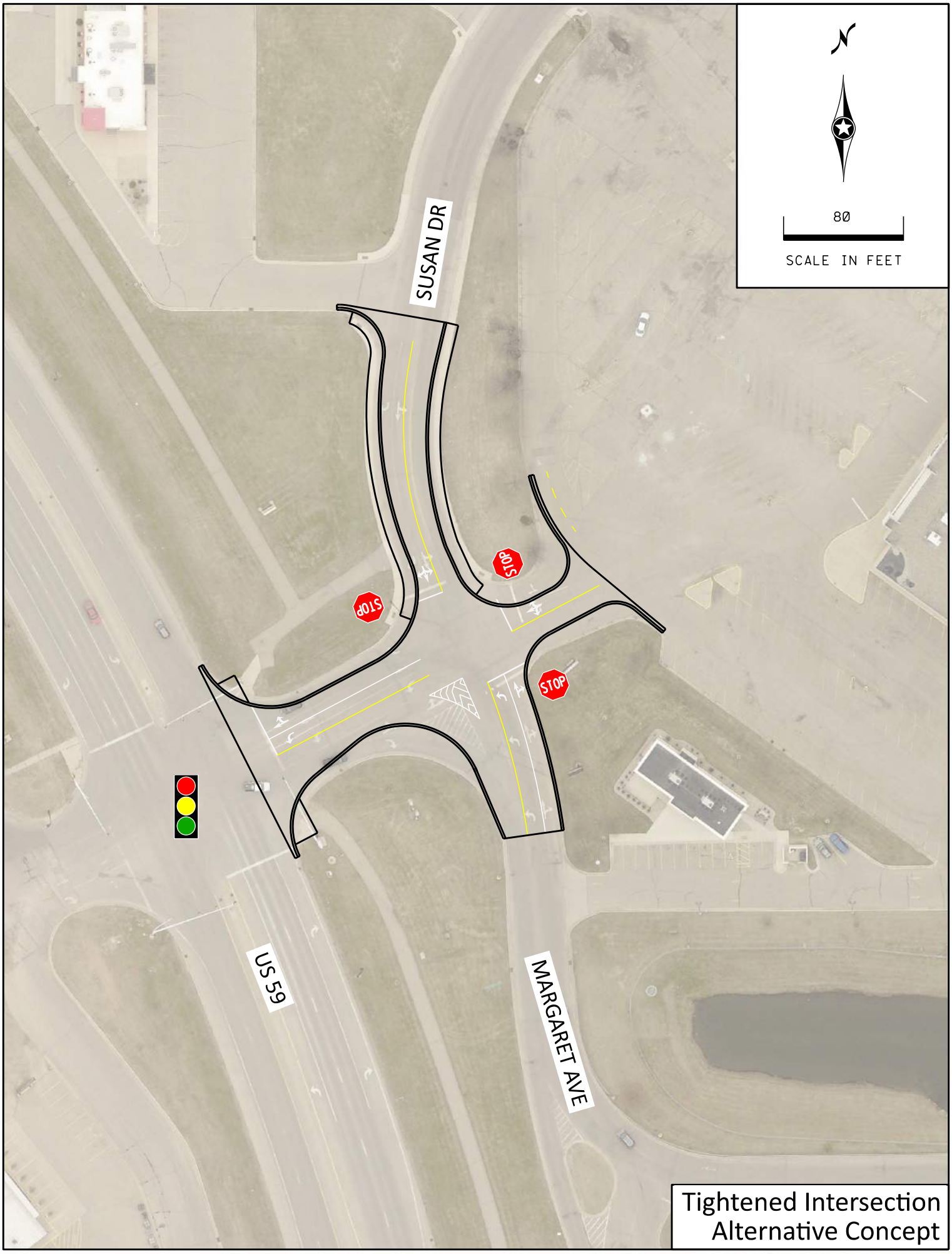
Intersection Summary

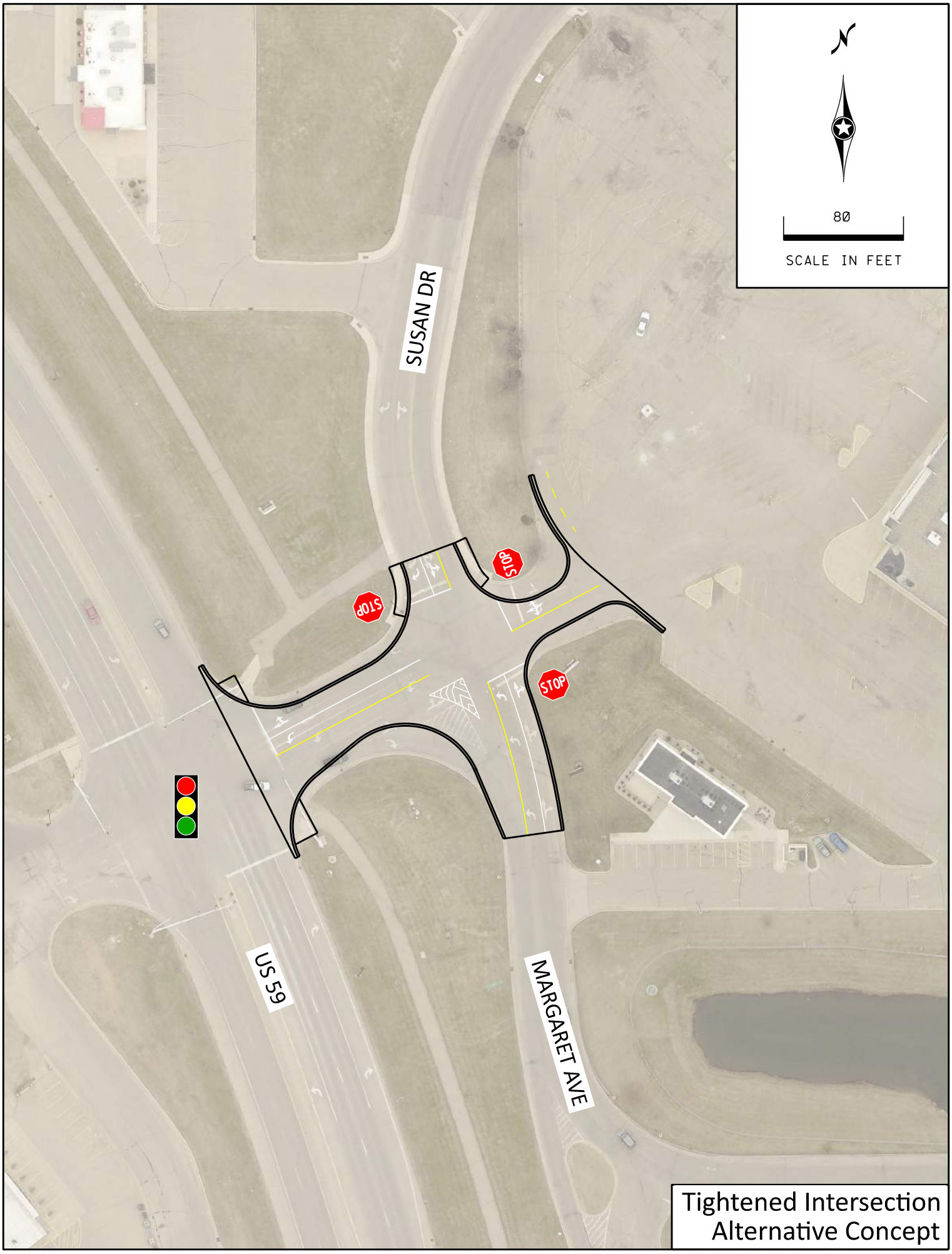
# Appendix E

**Intersection Alternatives**

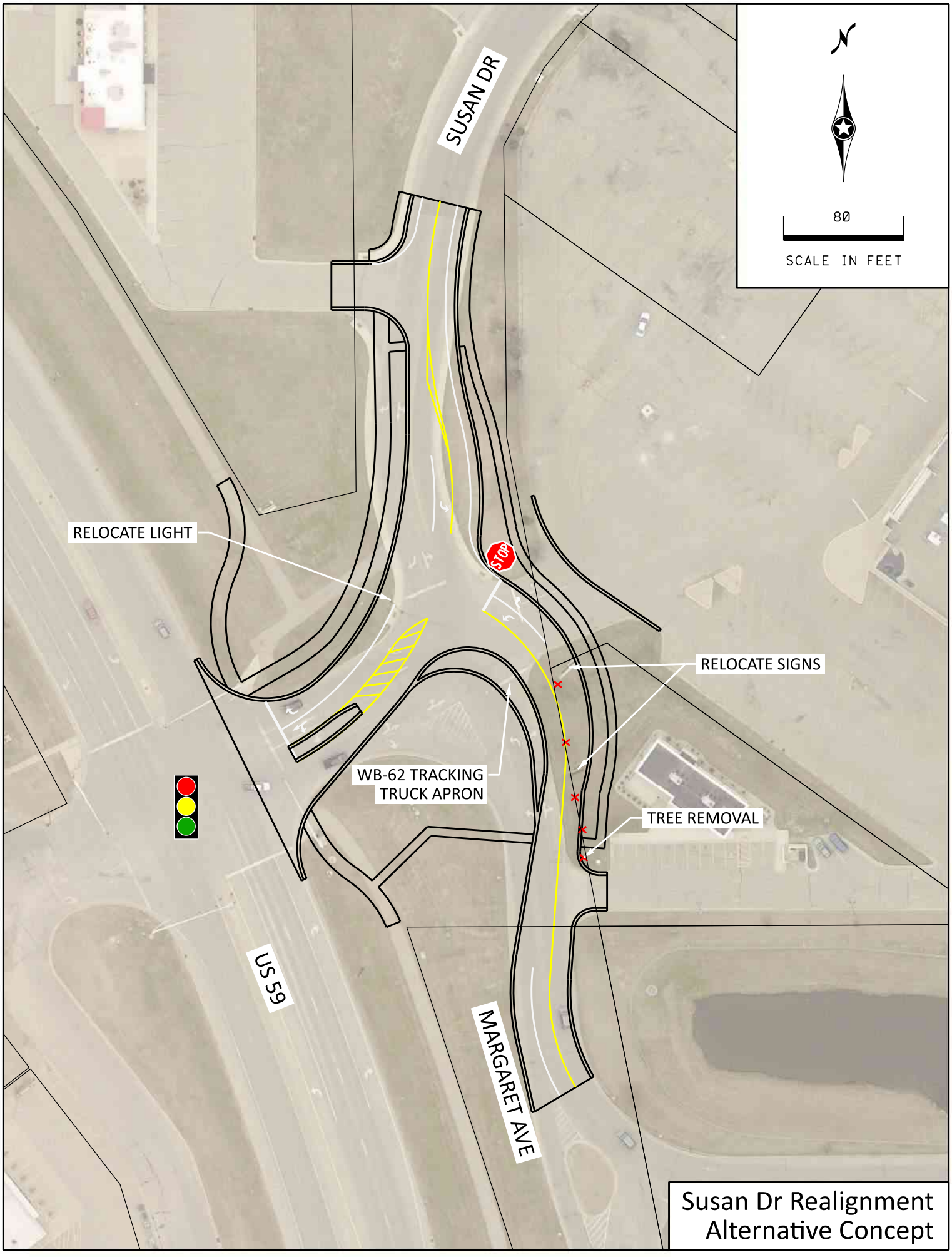

N
80
SCALE IN FEET
SUSAN DR
RELOCATE LIGHT
STOP
WB-62 TRACKING
TRUCK APRON
US 59
MARGARET AVE
T-Intersection
Alternative Concept

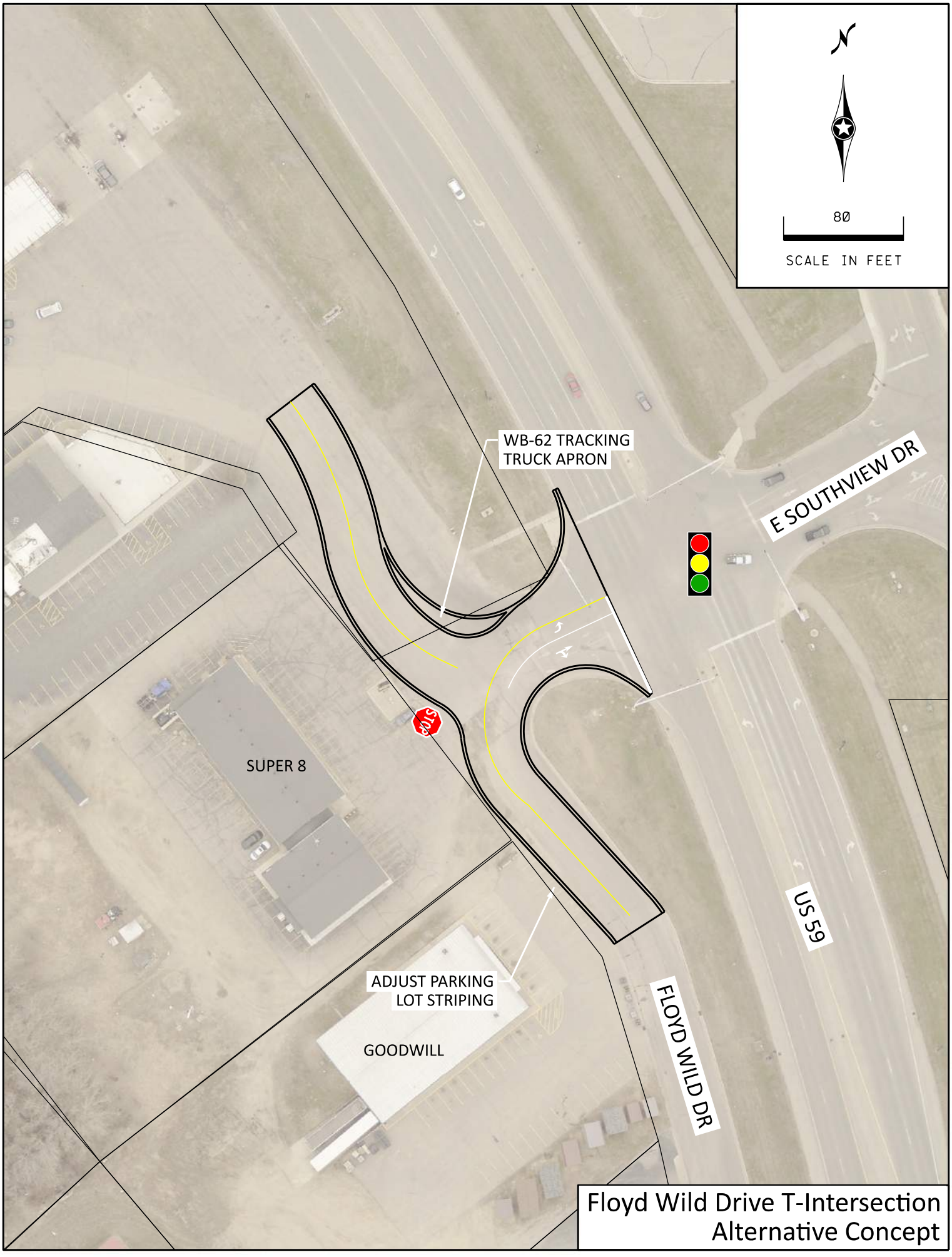

N
80
SCALE IN FEET
SUSAN DR
STOP
STOP
STOP
US 59
MARGARET AVE
Margaret Avenue Closure
Alternative Concept

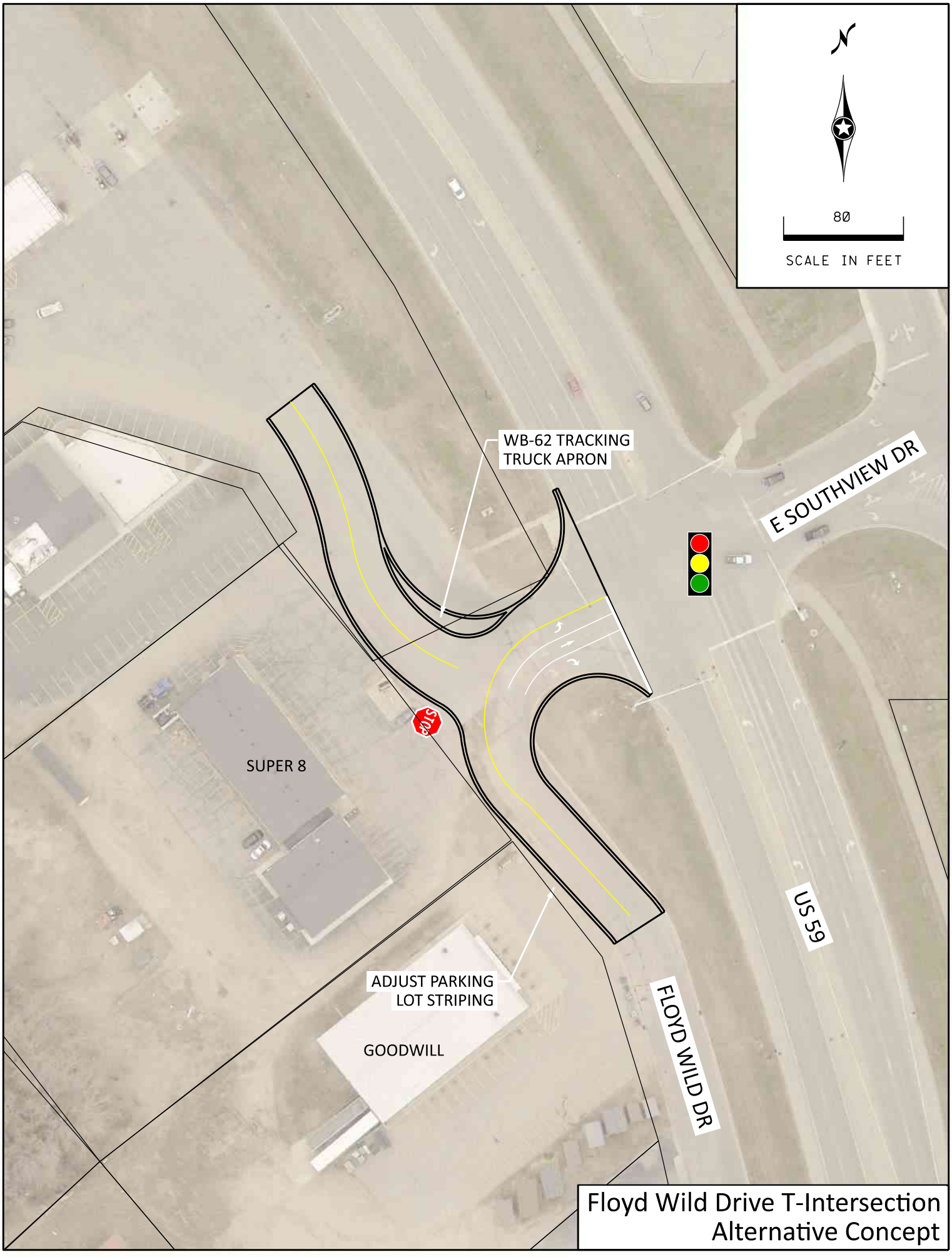

N
80
SCALE IN FEET
SUSAN DR
STOP
STOP
STOP
US 59
MARGARET AVE
Tightened Intersection
Alternative Concept


N
80
SCALE IN FEET
SUSAN DR
STOP
STOP
STOP
US 59
MARGARET AVE
Tightened Intersection
Alternative Concept


N
80
SCALE IN FEET
SUSAN DR
RELOCATE LIGHT
STOP
RELOCATE SIGN
TREE REMOVAL
PROTECT TREE
US 59
MARGARET AVE
Eastbound Free Right Alternative Concept


N
80
SCALE IN FEET
SUSAN DR
STOP
RELOCATE LIGHT
RELOCATE SIGNS
WB-62 TRACKING
TRUCK APRON
TREE REMOVAL
US 59
MARGARET AVE
Susan Dr Realignment
Alternative Concept


N
80
SCALE IN FEET
WB-62 TRACKING
TRUCK APRON
E SOUTHVIEW DR
STOP
SUPER 8
US 59
ADJUST PARKING
LOT STRIPING
GOODWILL
FLOYD WILD DR
Floyd Wild Drive T-Intersection
Alternative Concept


N
80
SCALE IN FEET
WB-62 TRACKING
TRUCK APRON
E SOUTHVIEW DR
STOP
SUPER 8
US 59
ADJUST PARKING
LOT STRIPING
GOODWILL
FLOYD WILD DR
Floyd Wild Drive T-Intersection
Alternative Concept