

Creekside at Lorson Ranch Filing No.2

PUDSP-22-003

Traffic Impact Study

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Introduction

The Creekside at Lorson Ranch Filing No.2 development, herein referred to as “the site”, is a proposed development located in El Paso County, Colorado. The site includes 38 proposed single-family detached houses. The site is bounded by Lorson Boulevard to the north, Trappe Drive to the east, Luneth Drive to the south, and Jimmy Camp Creek to the west. See Figure 1 for a vicinity map. The overall development was previously analyzed by LSC in the Lorson Ranch Sketch Plan Amendment 2 Traffic Impact and Access Analysis, dated December 17, 2018. Additionally, several individual developments in and surrounding the Baseline development have submitted traffic impact studies. These studies include:

- Creekside at Lorson Ranch Filing No. 1 Traffic Impact and Access Analysis, October 25, 2020
- Creekside at Lorson Ranch South Transportation Memo, March 9, 2020 with minor revisions May 5, 2020

Additionally, Matrix has completed the Corvallis Traffic Impact Study, June 14, 2021 in the vicinity of the Creekside at Lorson Ranch development.

The purpose of this TIS is to analyze the existing conditions within the study area, determine the traffic generated by the site, analyze the build-out year (2025) and horizon year (2040) traffic conditions, and determine the impact of site-generated traffic on the adjacent roadway network. The study area for this TIS includes the following intersections:

- Marksheffel Road/Lorson Boulevard
- Lorson Boulevard/Trappe Drive
- Trappe Drive/Magothy Drive
- Trappe Drive/Luneth Drive
- Luneth Drive/Akela Lane

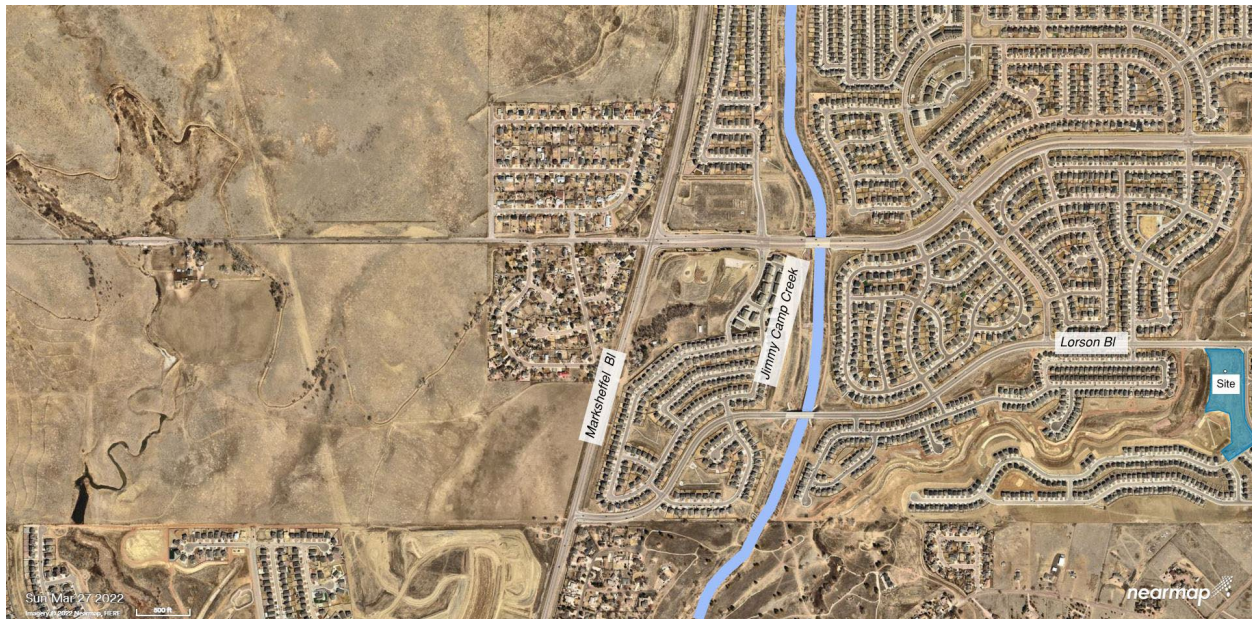
Only the Marksheffel Road/Lorson Boulevard intersection currently has traffic as the other roads and intersections either do not exist yet or are under construction by adjacent developments. The existing intersection volumes at the Marksheffel Road/Lorson Boulevard intersection was taken from the other traffic studies for consistency.

The purpose of this study is to assess the effects this proposed development will have on the surrounding transportation system.

The report is organized as follows:

- **Introduction** – Describes the purpose and intent of this study.
- **Area Conditions** – Describes the study area land uses as well as the existing and future roadway network.
- **Proposed Development** – Describes the proposed development and the location.
- **Projected Traffic** – Identifies the expected number of daily and peak hour trips that will be generated by the Creekside at Lorson Ranch Filing No.2 development. The expected external trip distribution is also shown.

- **Traffic Analysis** – Will analyze the existing conditions in the study area as well as buildout year and horizon year (2040) conditions with and without the project.
- **Findings and Conclusions** – Identifies any deficiencies in the study area roadway network with or without the project and mitigation measures that will alleviate any identified deficiencies.
- **Recommendations** – Provides a summary of the study findings.

Figure 1. Vicinity Map

Existing Conditions

Matrix analyzed the existing traffic conditions at the Marksheffel Road/Lorson Boulevard intersection based on the traffic volumes from previous studies. The proposed land use of the site is shown on the site plan in Figure 2. The existing intersection geometry is shown in Figure 3. The existing AM and PM peak hour traffic volumes are shown in Figures 4 and 5, respectively. Existing conditions turning movements were obtained by reviewing the Corvallis Traffic Impact Study (See Appendix A). A summary of how the Marksheffel Road/Lorson Boulevard intersection currently operates in the AM and PM peak scenarios is shown in Table 1 and Table 2. As shown in the tables, the intersection operates at an acceptable level-of-service (LOS) during both the AM and PM peak hours. For more information on intersection operations see Appendix C.

Figure 2. Creekside at Lorson Ranch Filing No.2 Site Plan

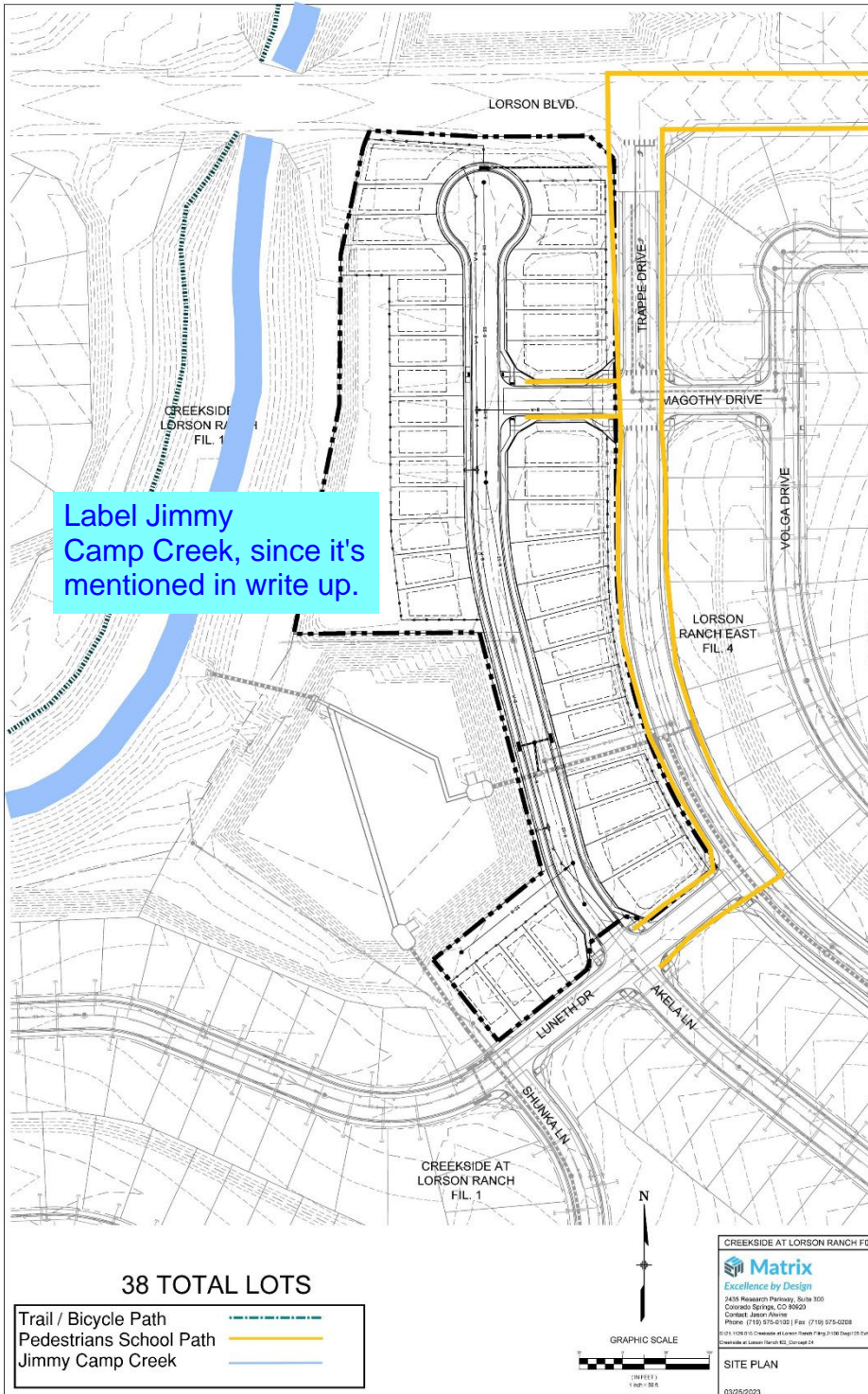
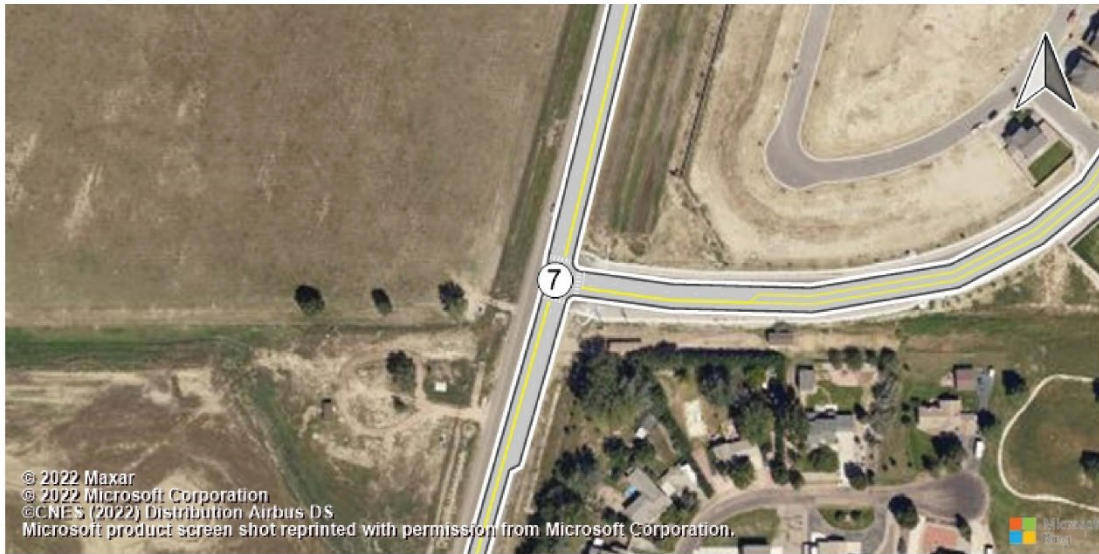


Figure 3. Existing Conditions Intersection Configurations



Marksheffel Rd/Lorson Bl

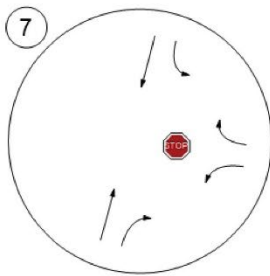


Figure 4. Existing Conditions Traffic Volumes (AM Peak Hour)

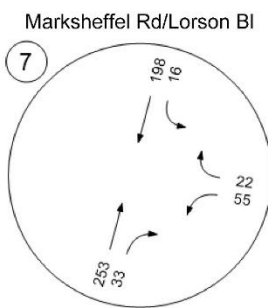
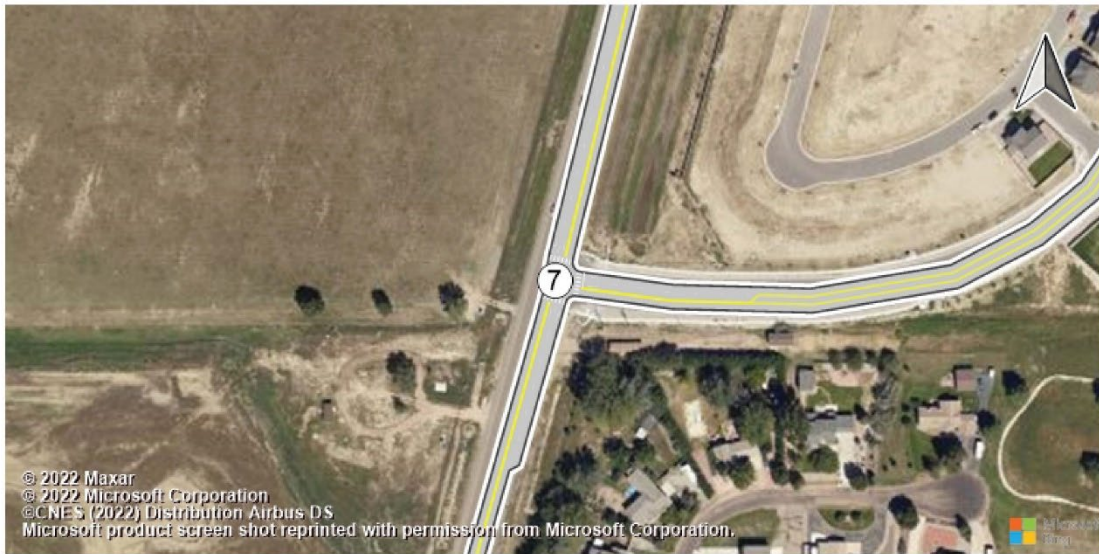
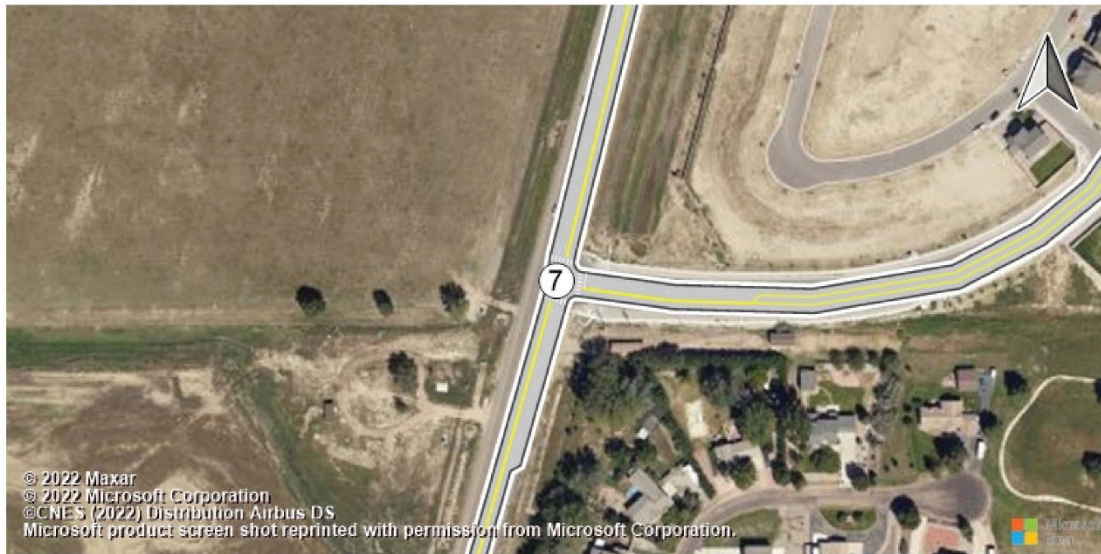


Figure 5. Existing Conditions Traffic Volumes (PM Peak Hour)



Marksheffel Rd/Lorson Bl

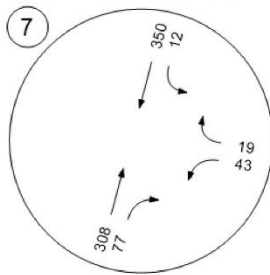


Table 1. Existing Conditions Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 7 | Marksheffel Rd/Lorson Bl | Two-way stop | HCM 6th Edition | WB Left | 0.103 | 12.5 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 2. Existing Conditions Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 7 | Marksheffel Rd/Lorson Bl | Two-way stop | HCM 6th Edition | WB Left | 0.105 | 14.8 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Crash History

CDOT historical crash data for Lorson Boulevard from 2017 to 2020 were used in this step. During the analysis period only one crash occurred within the analyzed segment. The equation below was used to calculate crash rate on this road segment

$$R = \frac{100,000,000 * C}{365 * N * V * L}$$

Where:

R = Crash rate for the road segment expressed as crashes per 100 million vehicle-miles of travel (VMT).

C = Total number of crashes in the study period.

N = Number of years of data.

V = Number of vehicles per day (both directions)

L = Length of the roadway segment in miles*

Table 3 shows the crash rates for the analyzed segment.

Source: FHWA

Table 3. Crash Rate in the vicinity of Lorson Ranch Commercial

| Roadway Segment | Length of the Segment | Crash Rate (Crashes/Year) | | | Crash Rate (Crashes/100 Million vehicle-miles Travel (VMT) |
|------------------|---|---------------------------|--------|-------|--|
| | | PDO | Injury | Fatal | |
| Lorson Boulevard | 0.25 Mile East of Marksheffel Boulevard | 0.25 | 0 | 0 | 57.8 |

Projected Development Traffic

The site proposes 38 detached single-family houses, as shown in Figure 2. The trip generation results for daily trips and both AM and PM peak hours can be found in Table 4.

The site connects to the existing roadway network via Trappe Drive. All project traffic will travel along Lorson Boulevard to Marksheffel Road. At Marksheffel Road, 65% of project traffic will travel to/from the north and 35% will travel to/from the south. See Figure 6 for the anticipated trip distribution of site-generated traffic.

The assignment of the new project trips from the site are shown in Figures 7 and 8 for AM and PM peak hours, respectively.

Trip Generation

The vehicle trips associated with the Project were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. This methodology consists of choosing an independent variable for the land use for a particular time of day. The independent variable correlates to the variation in trip ends and is related to the land use. The value of the independent variable is either multiplied by a weighted average or used in a regression equation to calculate the trips generated by the land use. The *ITE Trip Generation Manual* provides guidance on when to use the weighted average versus the regression equation.

Table 4 shows the trips that are expected to be generated by Creekside at Lorson Ranch Filing No.2 at build out. More information can be found in Appendix B -Trip Generation Calculations

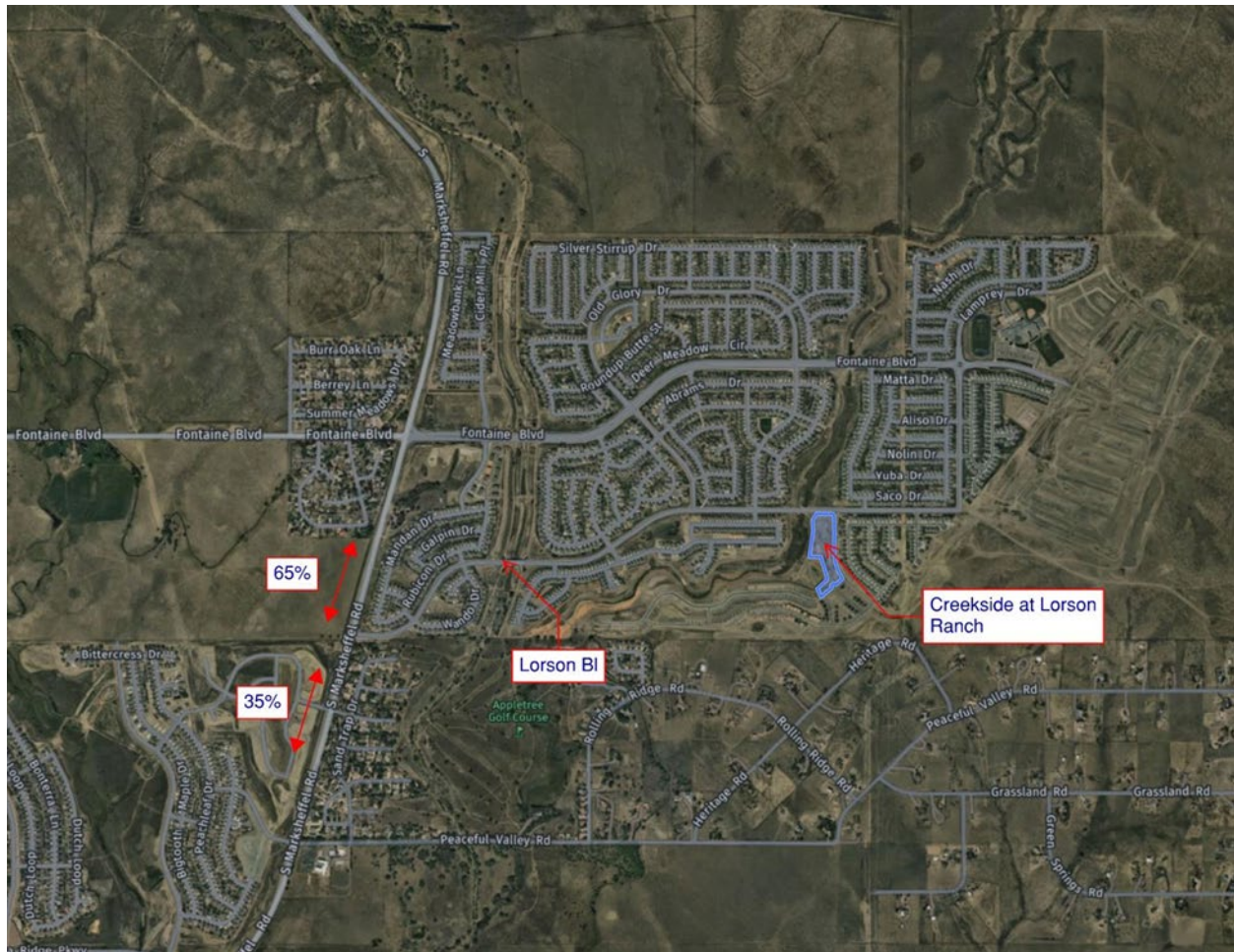
Table 4. Creekside at Lorson Ranch Filing No.2 Trip Generation

| ITE Code | Land Use | Size | Units | Weekday | | | AM Peak Hour | | | PM Peak Hour | | |
|----------|--------------------------------|------|-------|---------|----------|---------|--------------|----------|---------|--------------|----------|---------|
| | | | | Total | Entering | Exiting | Total | Entering | Exiting | Total | Entering | Exiting |
| 210 | Single Family Detached Housing | 38 | DU | 426 | 213 | 213 | 32 | 8 | 24 | 40 | 25 | 15 |

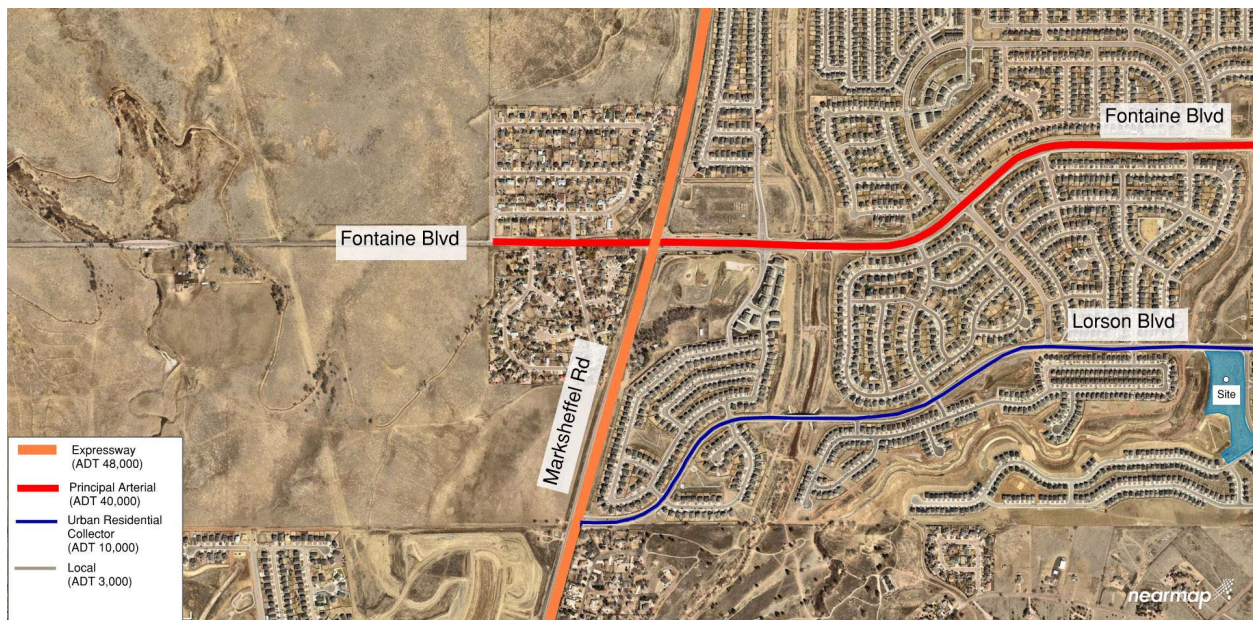
Trip Distribution

Figure 6 illustrates the expected external distribution of travel for the site-generated trips. This distribution was determined by reviewing the total trips on the roadway network

Figure 6. Trip Distribution



Roadways adjacent to the new development were classified based on the 2040 Major Transportation Corridor Plan and are shown in figure 7.

Figure 7. Roadway Classification

Turning movements were obtained by using trip distributions in Figure 6, and assigning the trips generated by the new development to adjacent roadways. The project trips for both the AM and PM peak hours are shown in Figures 8 and 9

Figure 8. Creekside at Lorson Ranch Filing No.2 Project Trips (AM Peak Hour)

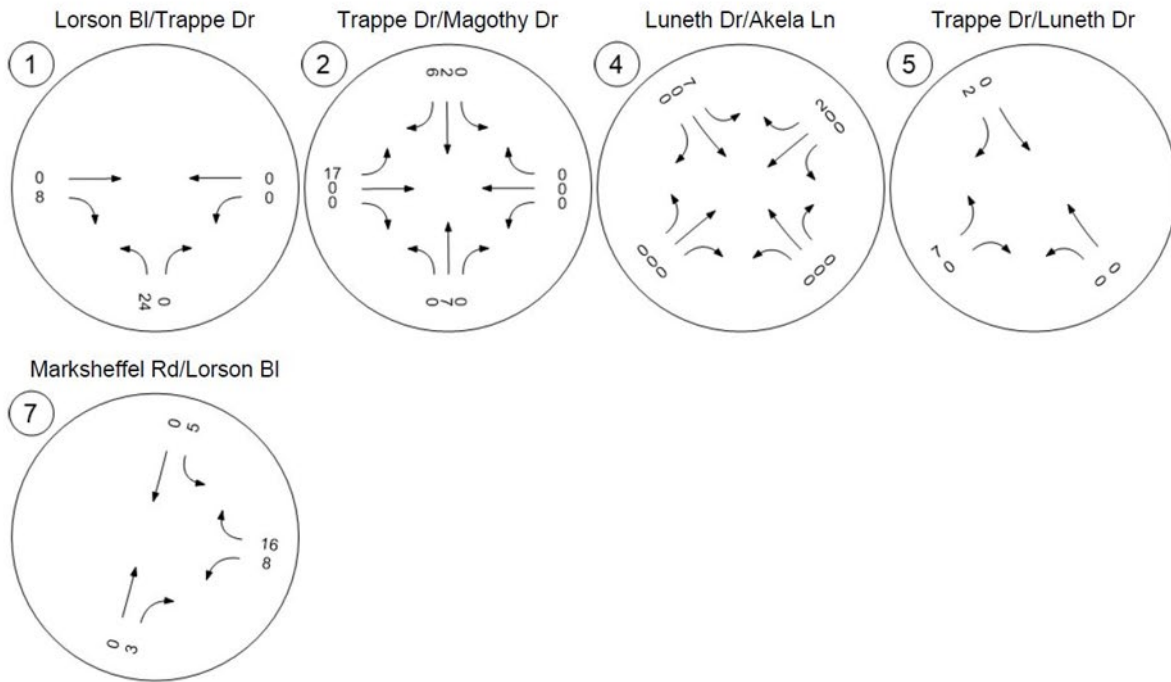
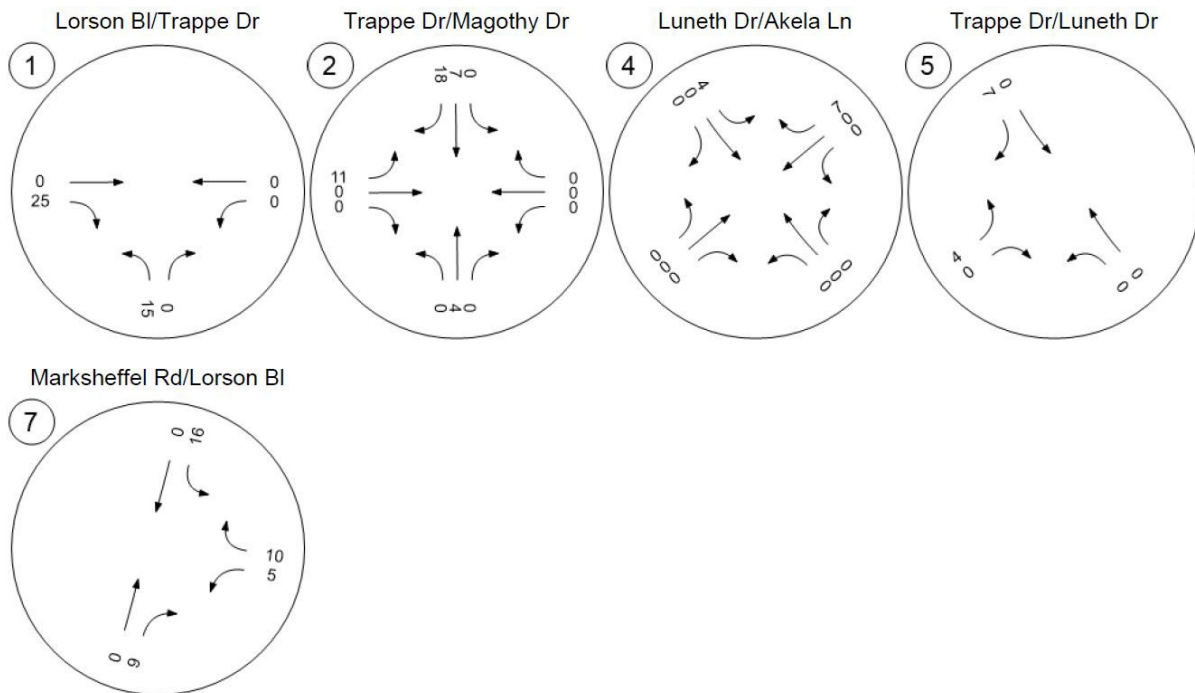


Figure 9. Creekside at Lorson Ranch Filing No.2 Project Trips (PM Peak)



Traffic Analysis

Traffic conditions both with and without the project have been analyzed for buildout year (2025) and horizon year (2040) conditions.

Buildout Background Conditions

The anticipated AM and PM peak hour intersection volumes at build out (2025) without the project are shown in Figures 10 and 11. These volumes were taken directly from The Creekside at Lorson Ranch Filing 1 TIS, October 2018 and The Creekside South at Lorson Ranch TIS, March 2021. By reviewing other Studies (mainly Corvallis TIS, and Lorson Ranch Commercial TIS) it is understood that the signal will be constructed by other Lorson Ranch developments at Marksheffel Road/Lorson Boulevard. Therefore, this intersection is assumed to be a signalized intersection in the Buildout and horizon scenarios. Updated costs and financial responsibility for this intersection is summarized in Conclusions and Recommendations section.

A summary of the anticipated intersection performance during the background AM and PM peak hours at buildout are shown in Tables 5 and 6, respectively.

Figure 10. Build out Background Traffic Volumes (AM Peak Hour)

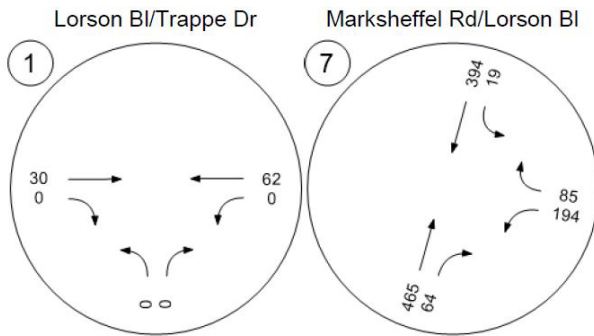


Figure 11. Build out Background Traffic Volumes (PM Peak Hour)

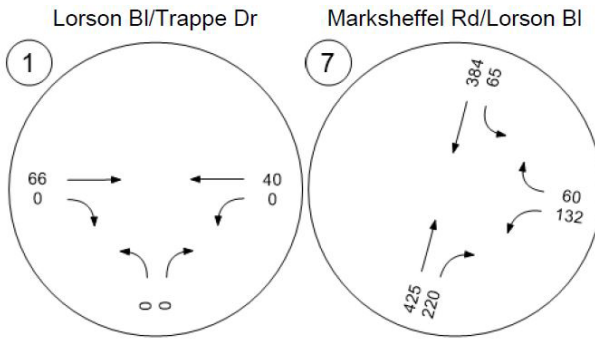


Figure 12. Build Out Background Intersection Configurations

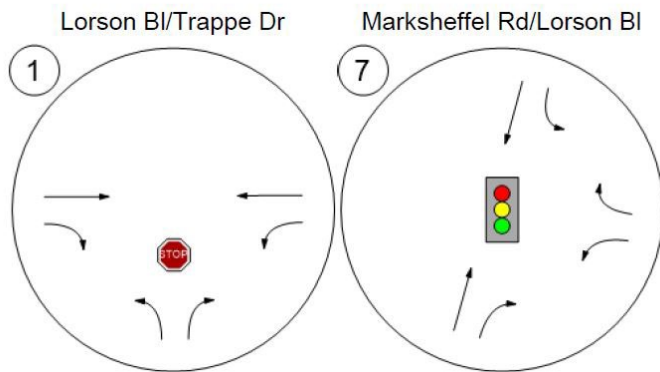


Table 5. Build Out Background Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | WB Thru | 0.001 | 0.0 | A |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | WB Left | 0.404 | 14.9 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 6. Build Out Background Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | EB Thru | 0.001 | 0.0 | A |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | NB Thru | 0.357 | 13.6 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersections are projected to operate at an acceptable LOS at buildout without the project traffic as shown in Tables 5 and 6.

Build Out Total Conditions

The anticipated AM and PM peak hour counts in the total (background and site-generated) traffic scenarios are shown in Figures 13 and 14, respectively. A summary of how each intersection operates in the AM and PM peaks is shown in Tables 7 and 8. As shown in the tables, each of the 5 intersections analyzed are anticipated to operate at an acceptable level-of-service (LOS) during both the AM and PM peak hours.

Figure 13. Build Out Total Traffic Volumes (AM Peak Hour)

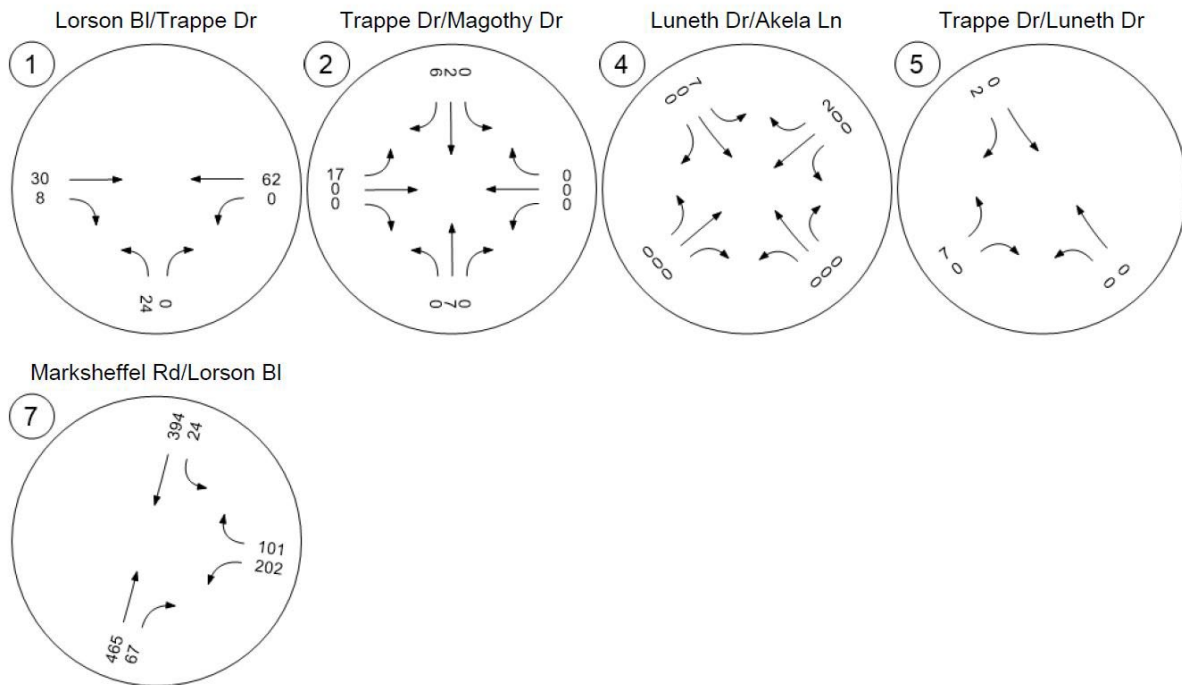
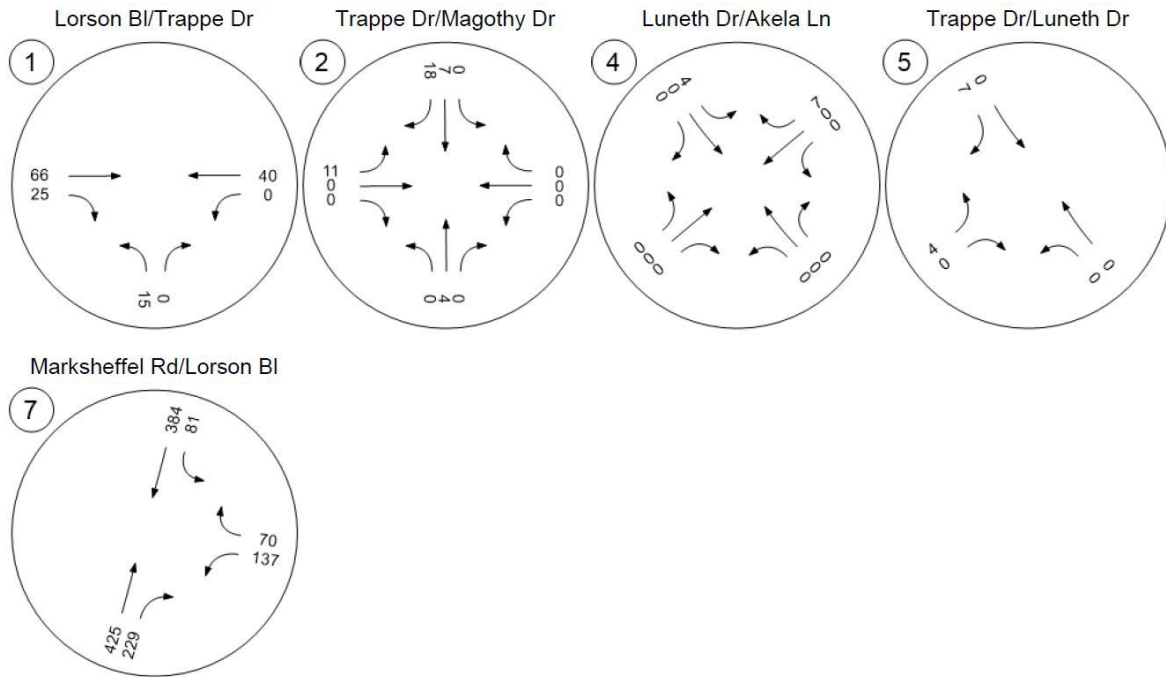


Figure 14. Build Out Total Traffic Volumes (PM Peak Hour)



Assumed intersection configurations for the project intersections are shown in Figure 15.

Figure 15. Build Out Total Project Intersection Configurations

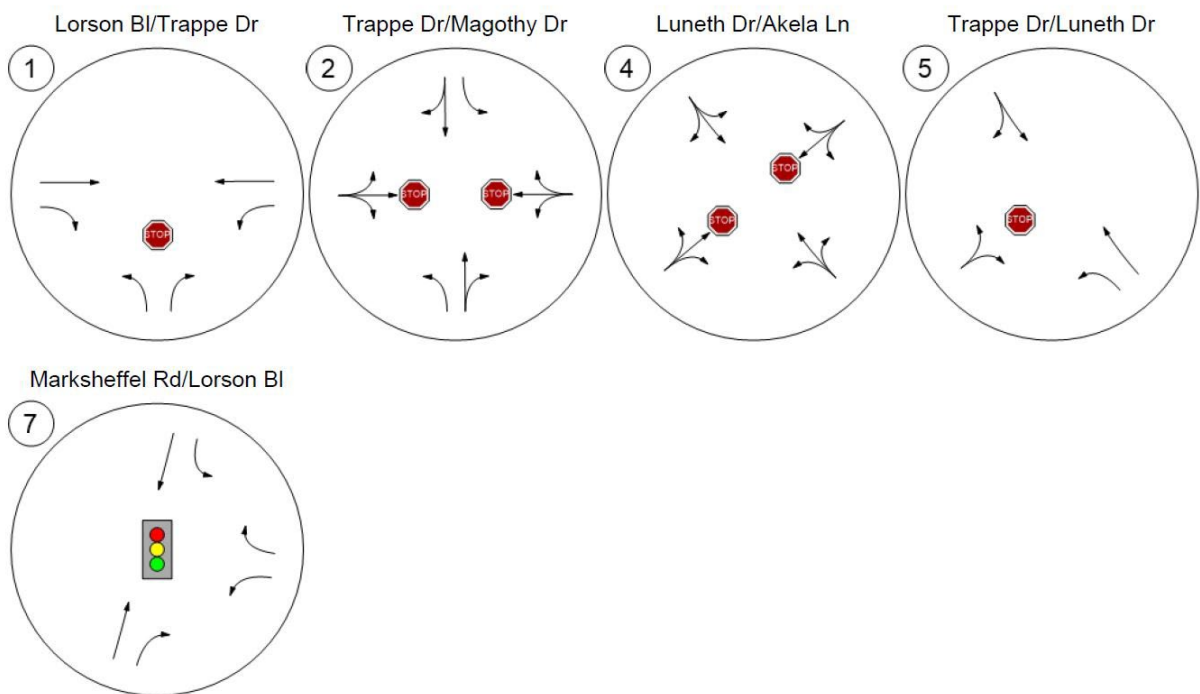


Table 7. Build Out Total Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.026 | 9.1 | A |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | EB Left | 0.017 | 8.6 | A |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | WB Right | 0.002 | 8.3 | A |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.007 | 8.5 | A |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | WB Left | 0.411 | 15.0 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 8. Build Out Total Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.017 | 9.1 | A |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | EB Left | 0.011 | 8.7 | A |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | WB Right | 0.006 | 8.3 | A |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.004 | 8.5 | A |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | WB Left | 0.366 | 13.7 | B |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersections operate at an acceptable level-of-service (LOS) at project build out with the addition of project traffic

Horizon (2040) Year Background Conditions

Matrix analyzed the traffic conditions for the horizon scenario, year 2040. The projected traffic volumes during the 2040 AM and PM background peak hours are shown in Figures 16 and 17, respectively. These

volumes were taken directly from The Creekside at Lorson Ranch Filing 1, October 2018 and The Creekside South at Lorson Ranch, March 2021. A summary of how the study area intersections will operate during the 2040 AM and PM background peak hours are shown in Tables 9 and 10, respectively. The anticipated intersection geometry is shown in Figure 18 based on the geometries shown in the other traffic impact studies that cover this area.

Figure 16. Horizon Year Background Traffic Volumes (AM Peak Hour)

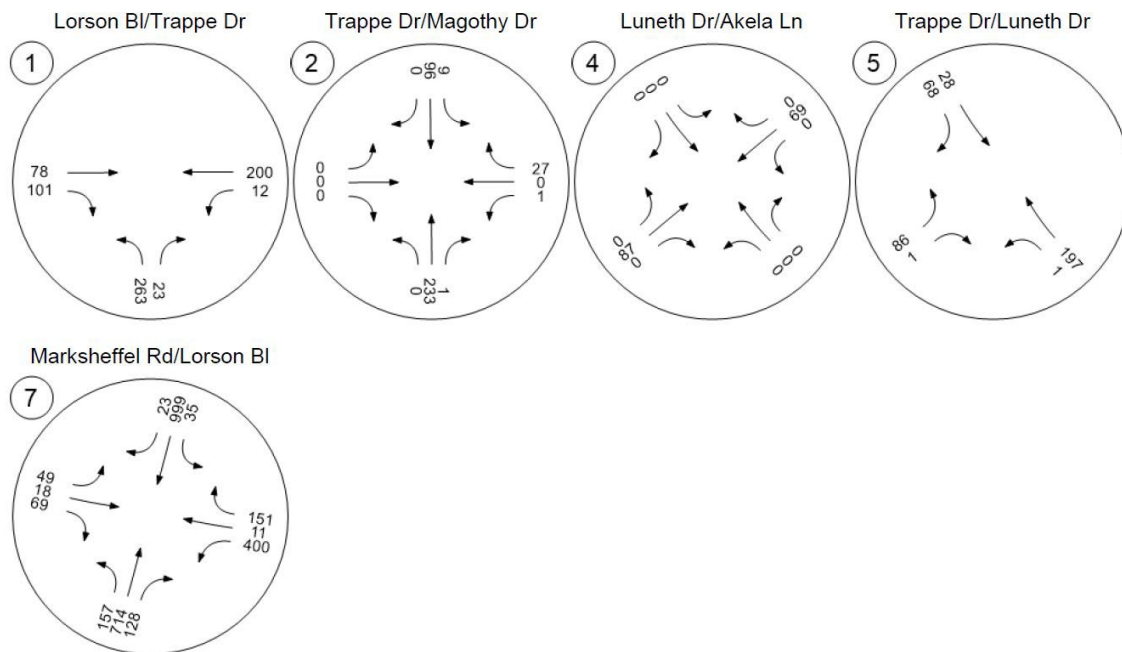
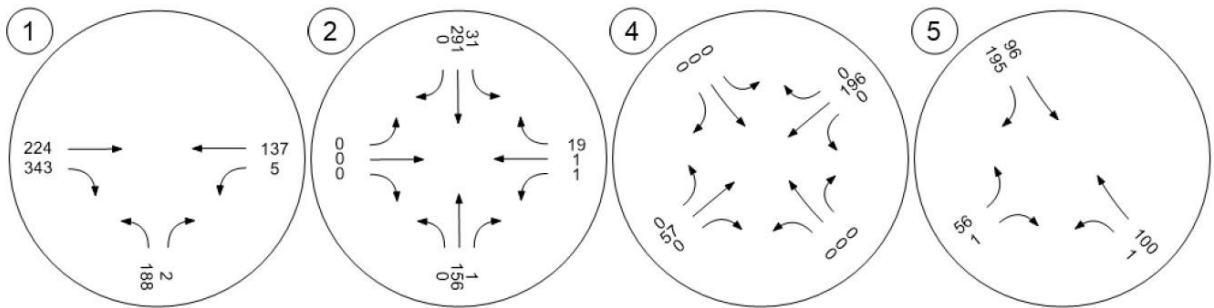
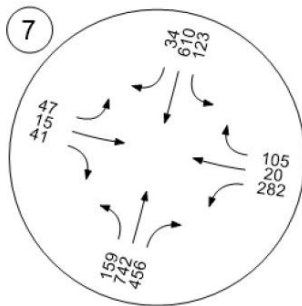


Figure 17. Horizon Year Background Traffic Volumes (PM Peak Hour)



Marksheffel Rd/Lorson Bl



The assumed intersection configurations are shown in Figure 18. The operations of the study area intersections in the horizon background (no project) scenario are shown in Tables 9 and 10.

Figure 18. Horizon Background Intersection Configurations

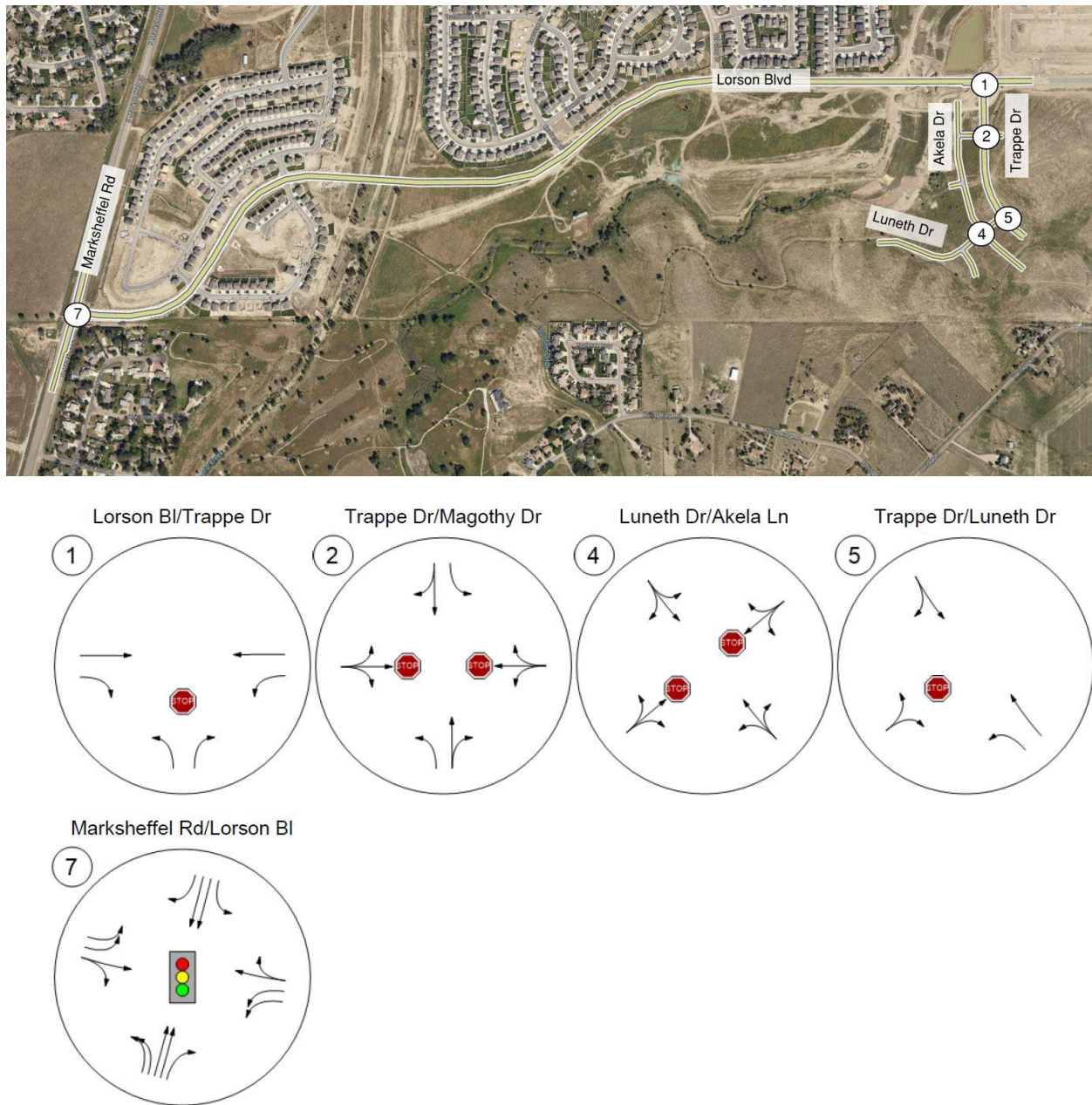


Table 9. Horizon Background Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.385 | 13.5 | B |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | WB Left | 0.002 | 11.1 | B |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | EB Thru | 0.097 | 9.4 | A |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.118 | 10.6 | B |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | SB Left | 0.550 | 24.2 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 10. Horizon Background Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.300 | 13.2 | B |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | WB Thru | 0.002 | 13.0 | B |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | WB Thru | 0.219 | 10.1 | B |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.081 | 10.6 | B |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | SB Left | 0.524 | 21.8 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersections are projected to operate at an acceptable LOS in the horizon year without the project traffic as shown in Tables 9 and 10. All intersection approaches operate at acceptable LOS.

Horizon (2040) Year Total Conditions

The projected traffic volumes during the 2040 AM and PM total (background and site-generated) traffic scenarios are shown in Figures 19 and 20. A summary of how the study area intersections will operate

during the AM and PM peaks is shown in Tables 11 and 12. All study area intersections continue to operate at acceptable LOS with the addition of project traffic and no mitigation is required.

Figure 19. Horizon Total Traffic Volumes (AM Peak Hour)

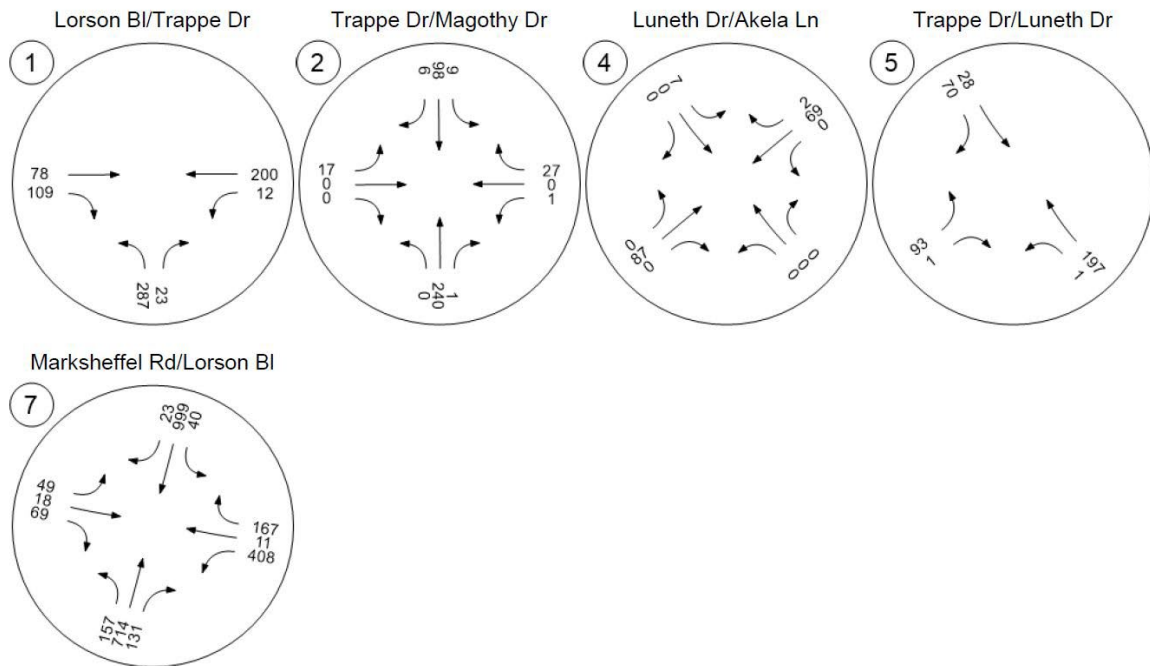
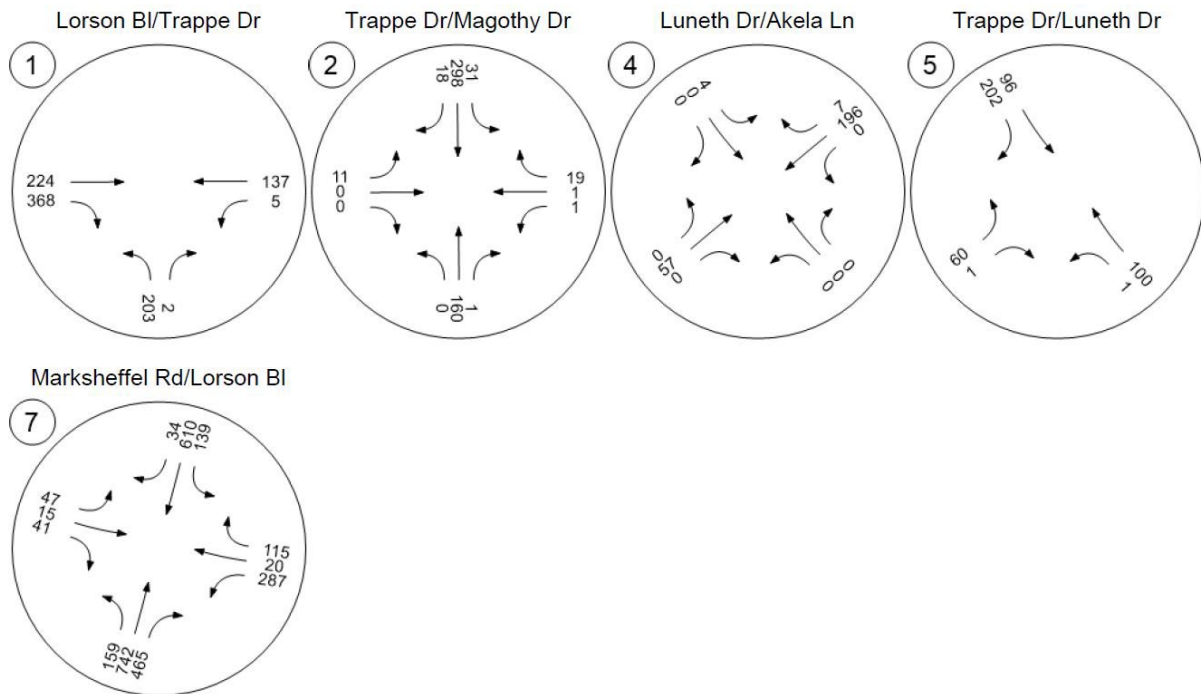
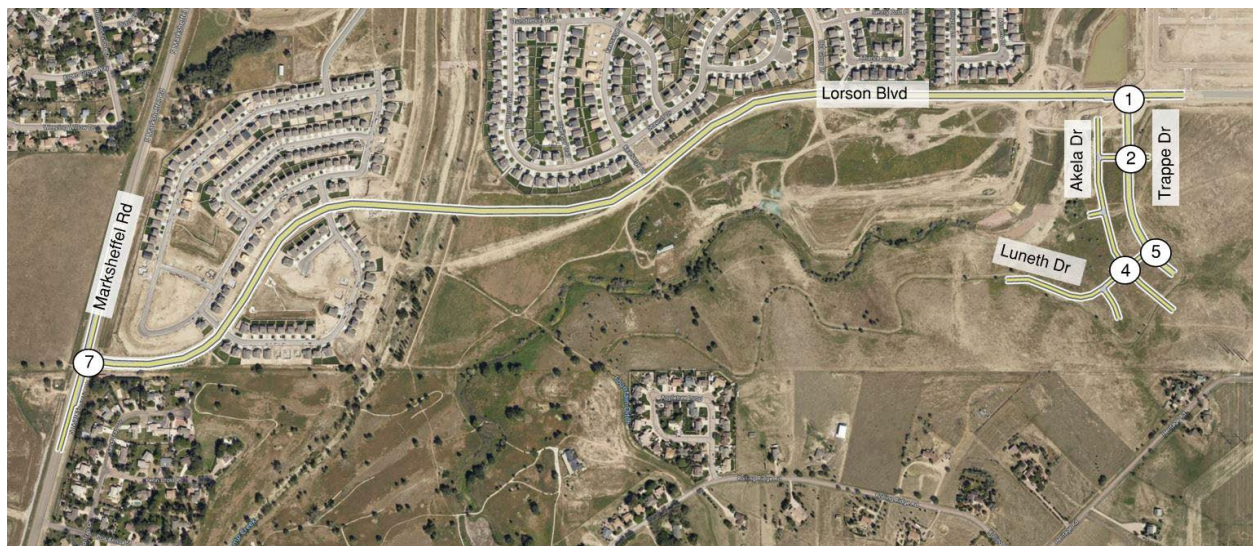


Figure 20. Horizon Total Traffic Volumes (PM Peak Hour)



Assumed intersection configurations for the project intersections are shown in Figure 18.

Analysis of the intersections and roadways for build out conditions with the volumes and configurations shown above results in the operations shown in Tables 11 and 12

Table 11. Horizon Total Intersection Operations (AM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.420 | 14.0 | B |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | EB Left | 0.030 | 11.6 | B |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | EB Thru | 0.099 | 9.6 | A |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.128 | 10.7 | B |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | SB Left | 0.552 | 23.1 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 12. Horizon Total Intersection Operations (PM Peak Hour)

| Intersection Analysis Summary | | | | | | | |
|-------------------------------|--------------------------|--------------|-----------------|------------|-------|---------------|-----|
| ID | Intersection Name | Control Type | Method | Worst Mvmt | V/C | Delay (s/veh) | LOS |
| 1 | Lorson Bl/Trappe Dr | Two-way stop | HCM 6th Edition | NB Left | 0.324 | 13.5 | B |
| 2 | Trappe Dr/Magothy Dr | Two-way stop | HCM 6th Edition | EB Left | 0.025 | 13.5 | B |
| 4 | Luneth Dr/Akela Ln | Two-way stop | HCM 6th Edition | WB Thru | 0.222 | 10.3 | B |
| 5 | Trappe Dr/Luneth Dr | Two-way stop | HCM 6th Edition | EB Left | 0.087 | 10.7 | B |
| 7 | Marksheffel Rd/Lorson Bl | Signalized | HCM 6th Edition | SB Left | 0.542 | 22.4 | C |

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

All study area intersection will operate at acceptable LOS (LOS D or better) in the horizon year (2040) with the addition of project traffic. Therefore, no mitigation is recommended.

The turn lane requirements at the study area intersections were also reviewed based on El Paso County *Engineering Criteria Manual*. Marksheffel Road is classified by El Paso County as a 4-lane Expressway which carries a 60 miles-per-hour (mph) design speed with it. Separate turn lanes are required for all turn movements along Marksheffel Road. Lorson Boulevard at the intersection with Marksheffel Road is an Urban Non-Residential Collector with a 40-mph design speed. Lorson Boulevard at Trappe Drive is classified as an Urban Residential Collector with a 40-mph design speed. Additionally, Trappe Drive is classified as an Urban Residential Collector with a 40-mph design speed. The turn lane requirements are shown below. Deceleration and taper lengths were determined from the *Engineering Criteria Manual*, Table 2-24 and Table 2-30. Where an intersection approach was not signalized or stop-controlled, a 50-ft minimum storage length was used. Where an intersection approach was signalized, the 95% queue length from the traffic analysis was used for storage length.

Lorson Boulevard/Trappe Drive

- Northbound Left – 290-ft storage; 155-ft deceleration length; 160-ft taper length
- Eastbound Right – 100-ft storage; 155-ft deceleration length; 160-ft taper length

Trappe Drive/Magothy Drive

- No turn lanes required, but northbound left possible due to painted median

Trappe Drive/Luneth Drive

- Southbound Right – 50-ft storage; 155-ft deceleration length; 160-ft taper length

Luneth Drive/Akela Lane

- No turn lanes required

Recommended Improvements

Creekside at Lorson Ranch is the last development in Lorson Ranch. All turn lanes and intersections have been built by other projects therefore no additional improvements are required for the development of Creekside at Lorson Ranch. No design deviations are required for this development.

The traffic signal that will be installed at the intersection of Marksheffel Road and Lorson Boulevard has had financial responsibility spread to multiple Lorson Ranch developments based on an estimated cost of \$300,000. However, a recent traffic signal estimate for a similar three-legged intersection was estimated to cost \$590,000. This leaves a \$290,000 funding gap between fair shares collected and estimated construction cost. Matrix is recommending that financial assurances be posted for the estimated difference in construction cost of \$290,000. These financial assurances should be shared between The

Ridge at Lorson Ranch, Hillside at Lorson Ranch and Creekside at Lorson Ranch based on the number of single-family dwelling units in each development.

- The Ridge at Lorson Ranch (944 lots; 66% of remaining lots; \$191,400 financial assurance)
- Hillside at Lorson Ranch (489 lots; 32% of remaining lots; \$92,800 financial assurance)
- Creekside Filing 2 at Lorson Ranch (31 lots; 2% of remaining lots; \$5,800 financial assurance)

The applicant is required to pay road impact fees to El Paso County. The County allows for the applicant to pay three different upfront fee amounts. The applicant can either pay the full fee amount, a smaller upfront fee to the 5 mill Public Improvement District (PID), or an even smaller upfront fee amount to the 10 mill PID. The different fee amounts are shown in Table 12 below, calculated using 38 single-family dwelling units. The applicant has chosen to join the 10 Mill PID . If the applicant chooses one of the PIDs, the PID will collect taxes over time.

| Dwelling Units | Full Fee | 5 Mill PID | 10 Mill PID |
|----------------|-----------|------------|-------------|
| 38 | \$145,540 | \$96,026 | \$46,398 |

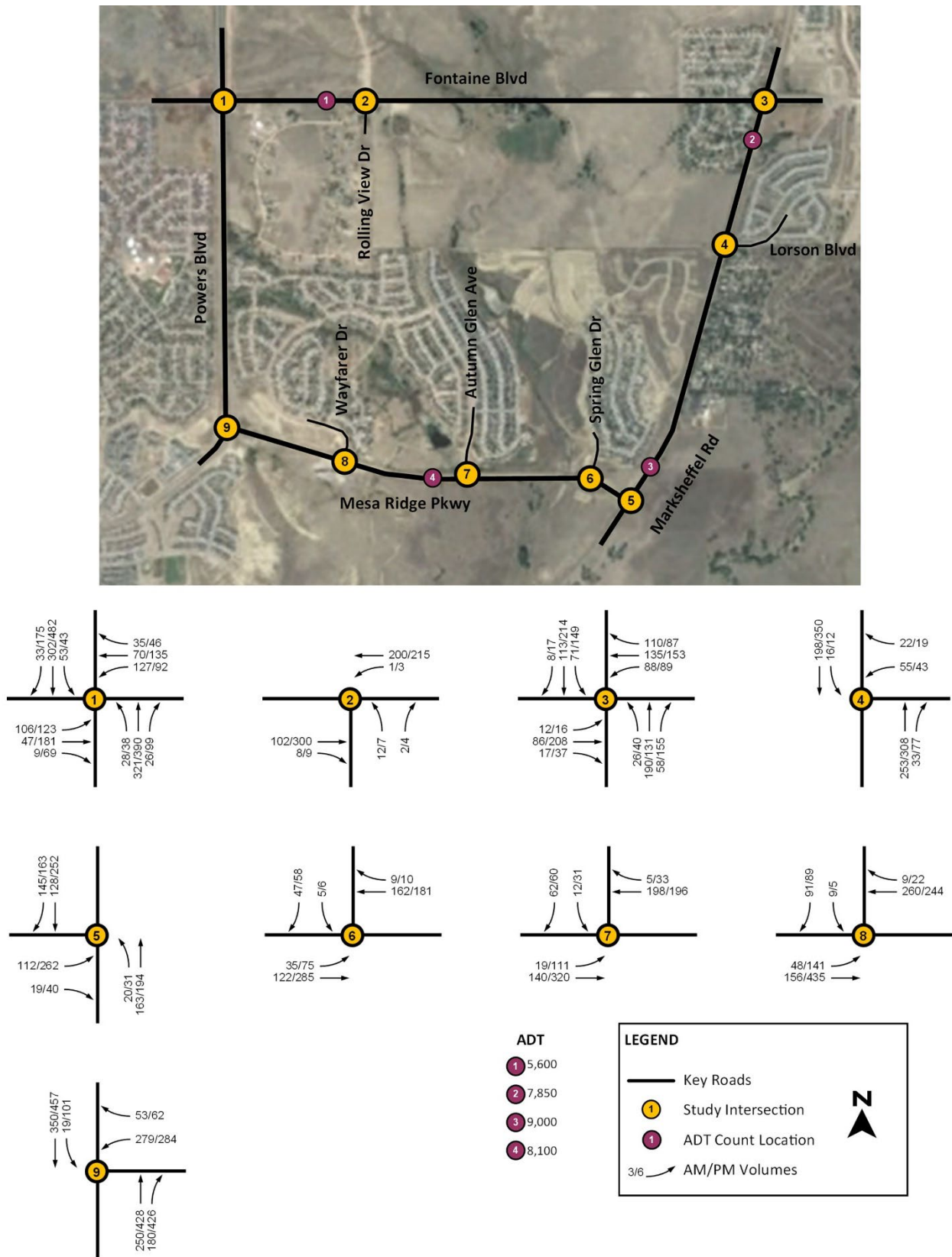
Please include back in signatures for Engineer & Developer

Include
-discussion on pedestrian/bicycle needs and provisions
-school & pedestrian routing plan

Appendix A

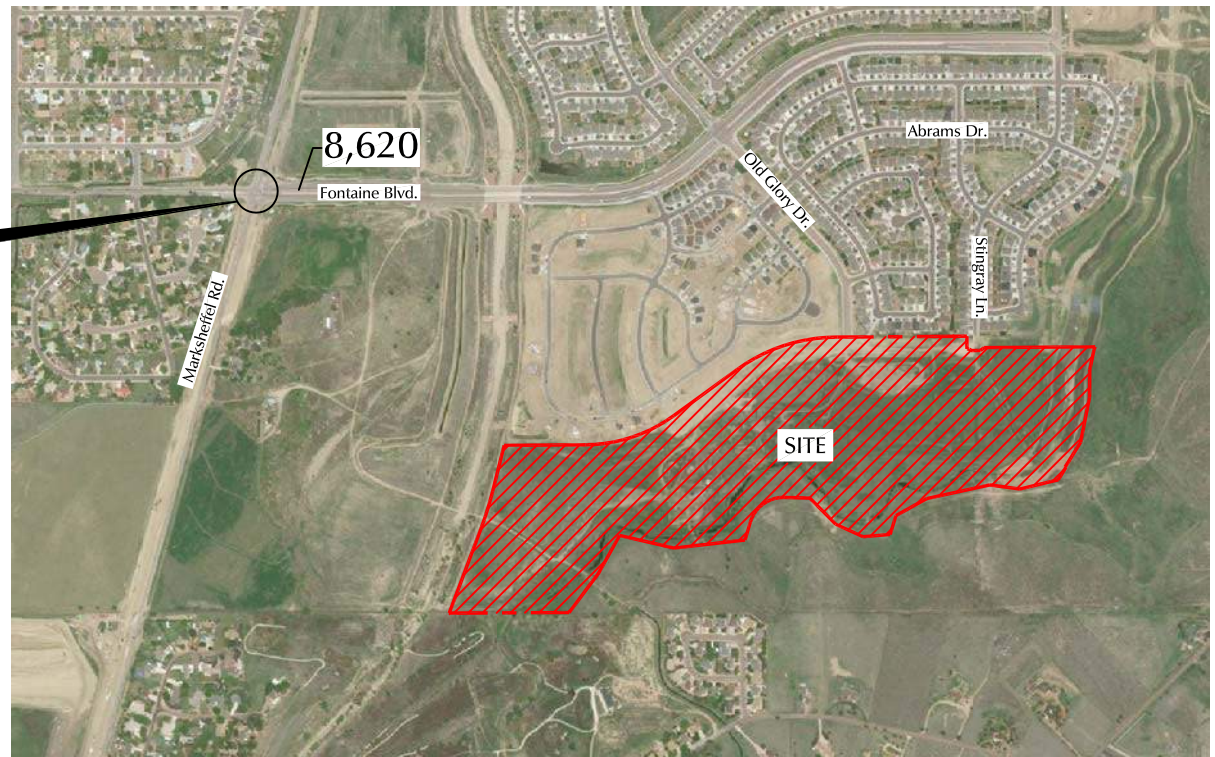
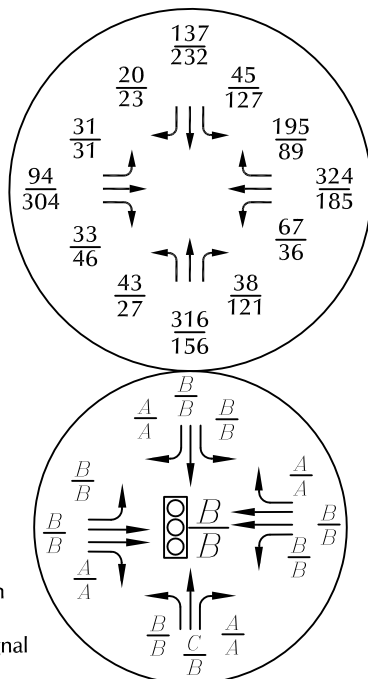
Exiting Traffic Counts

Figure 2 – Existing (2020) Traffic





Approximate Scale
Scale: 1" = 1,200'



LEGEND:

⊥ = Stop Sign

⊞ = Traffic Signal

$\frac{XX}{XX}$ = AM Weekday Peak-Hour Traffic (vehicles per hour)

PM Weekday Peak-Hour Traffic (vehicles per hour) Based on counts by LSC March 2018

$\frac{A}{B}$ = AM Individual Movement Peak-Hour Level of Service

PM Individual Movement Peak-Hour Level of Service

$\frac{C}{C}$ = AM Entire Intersection Peak-Hour Level of Service

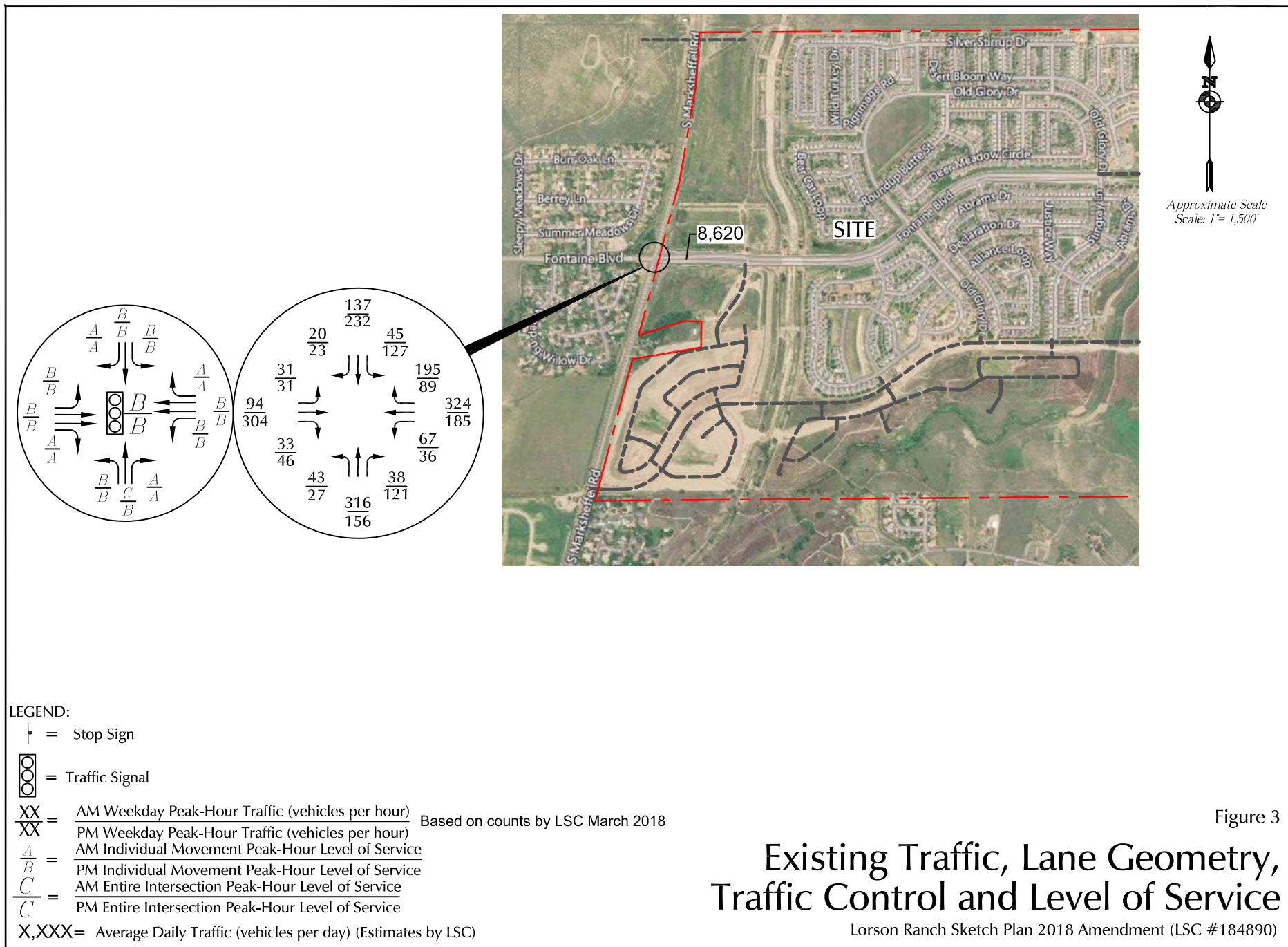
PM Entire Intersection Peak-Hour Level of Service

X,XXX= Average Weekday Traffic (vehicles per day) (estimate by LSC)

Figure 3

Existing Traffic, Lane Geometry, Traffic Control and Level of Service

Creekside at Lorson Ranch Filing No. 1 (LSC #184520)



Appendix B

Trip Generation Calculations

| PROJECT DETAILS | | | |
|------------------|------------------------------|-----------------------|----------------------|
| Project Name: | Creekside at Lorson Ranch F2 | Type of Project: | |
| Project No: | | City: | |
| Country: | | Built-up Area(Sq.ft): | |
| Analyst Name: | Scott Barnhart | Clients Name: | The Landhuis Company |
| Date: | 10/29/2021 | ZIP/Postal Code: | |
| State/Province: | | No. of Scenarios: | 3 |
| Analysis Region: | | | |
| SCENARIO SUMMARY | | | |

| Scenarios | Name | No. of Land Uses | Phases of Development | No. of Years to Project Traffic | User Group | Estimated New Vehicle Trips | | |
|--------------|--------------|------------------|-----------------------|---------------------------------|------------|-----------------------------|------|-------|
| | | | | | | Entry | Exit | Total |
| Scenario - 1 | Daily Trips | 1 | 1 | 0 | | 213 | 213 | 426 |
| Scenario - 2 | AM Peak Hour | 1 | 1 | 0 | | 8 | 24 | 32 |
| Scenario - 3 | PM Peak Hour | 1 | 1 | 0 | | 25 | 15 | 40 |

Scenario - 1

Scenario Name: Daily Trips

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|------------------------|----------------|------|-------------|-------------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General Urban/Suburban | Dwelling Units | 38 | Weekday | Best Fit (LOG) | 213 | 213 | 426 |
| Data Source: Trip Generation Manual, 10th Ed | | | | | Ln(T) =0.92Ln(X) + 2.71 | 50% | 50% | |

VEHICLE TO PERSON TRIP CONVERSION

| BASELINE SITE VEHICLE CHARACTERISTICS: | | | | | | |
|--|----------------------------------|----------|---------------------------------|------|---|----------|
| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 50 | 50 |

| ESTIMATED BASELINE SITE PERSON TRIPS: | | | | | | |
|---------------------------------------|-------------------------|------|-----------------------------|------|----------------------------------|------|
| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 213 | 213 | 0 | 0 | 213 | 213 |
| | 426 | | 0 | | 426 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|--------------------------------------|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 213 | 213 | 426 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 213 | 213 | 426 |
| External Vehicle Trips | 213 | 213 | 426 |
| New Vehicle Trips | 213 | 213 | 426 |

Scenario - 2

Scenario Name: AM Peak Hour

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|------------------------|----------------|------|--|--------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General Urban/Suburban | Dwelling Units | 38 | Weekday, Peak Hour of Adjacent Street Traffic, | Best Fit (LIN) | 8 | 24 | 32 |
| Data Source: Trip Generation Manual, 10th Ed | | | | | T = 0.71(X) + 4.80 | 25% | 75% | |

VEHICLE TO PERSON TRIP CONVERSION

| BASELINE SITE VEHICLE CHARACTERISTICS: | | | | | | |
|--|----------------------------------|----------|---------------------------------|------|---|----------|
| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 25 | 75 |

| ESTIMATED BASELINE SITE PERSON TRIPS: | | | | | | |
|---------------------------------------|-------------------------|------|-----------------------------|------|----------------------------------|------|
| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 8 | 24 | 0 | 0 | 8 | 24 |
| | 32 | | 0 | | 32 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|--------------------------------------|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 8 | 24 | 32 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 8 | 24 | 32 |
| External Vehicle Trips | 8 | 24 | 32 |
| New Vehicle Trips | 8 | 24 | 32 |

Scenario - 3

Scenario Name: PM Peak Hour

User Group:

Dev. phase: 1

No. of Years to Project 0

Analyst Note:

Traffic :

Warning:

VEHICLE TRIPS BEFORE REDUCTION

| Land Use & Data Source | Location | IV | Size | Time Period | Method | Entry | Exit | Total |
|--|------------------------|----------------|------|--|-------------------------|--------|--------|-------|
| | | | | | Rate/Equation | Split% | Split% | |
| 210 - Single-Family Detached Housing | General Urban/Suburban | Dwelling Units | 38 | Weekday, Peak Hour of Adjacent Street Traffic, | Best Fit (LOG) | 25 | 15 | 40 |
| Data Source: Trip Generation Manual, 10th Ed | | | | | Ln(T) =0.96Ln(X) + 0.20 | 63% | 37% | |

VEHICLE TO PERSON TRIP CONVERSION

| BASELINE SITE VEHICLE CHARACTERISTICS: | | | | | | |
|--|----------------------------------|----------|---------------------------------|------|---|----------|
| Land Use | Baseline Site Vehicle Mode Share | | Baseline Site Vehicle Occupancy | | Baseline Site Vehicle Directional Split | |
| | Entry (%) | Exit (%) | Entry | Exit | Entry (%) | Exit (%) |
| 210 - Single-Family Detached Housing | 100 | 100 | 1 | 1 | 63 | 37 |

| ESTIMATED BASELINE SITE PERSON TRIPS: | | | | | | |
|---------------------------------------|-------------------------|------|-----------------------------|------|----------------------------------|------|
| Land Use | Person Trips by Vehicle | | Person Trips by Other Modes | | Total Baseline Site Person Trips | |
| | Entry | Exit | Entry | Exit | Entry | Exit |
| 210 - Single-Family Detached Housing | 25 | 15 | 0 | 0 | 25 | 15 |
| | 40 | | 0 | | 40 | |

NEW VEHICLE TRIPS

| Land Use | New Vehicle Trips | | |
|--------------------------------------|-------------------|------|-------|
| | Entry | Exit | Total |
| 210 - Single-Family Detached Housing | 25 | 15 | 40 |

RESULTS

| Site Totals | Entry | Exit | Total |
|--------------------------------|-------|------|-------|
| Vehicle Trips Before Reduction | 25 | 15 | 40 |
| External Vehicle Trips | 25 | 15 | 40 |
| New Vehicle Trips | 25 | 15 | 40 |

Appendix C

Existing (2021) LOS Reports


Intersection Level Of Service Report

Intersection 7: Marksheffel Rd/Lorson Bl

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 12.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.103

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|---|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 253 | 33 | 16 | 198 | 55 | 22 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 253 | 33 | 16 | 198 | 55 | 22 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 63 | 8 | 4 | 50 | 14 | 6 |
| Total Analysis Volume [veh/h] | 253 | 33 | 16 | 198 | 55 | 22 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Free | Free | Stop |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.10 | 0.03 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 7.86 | 0.00 | 12.49 | 9.71 |
| Movement LOS | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.04 | 0.00 | 0.34 | 0.09 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.95 | 0.00 | 8.53 | 2.16 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.59 | | 11.70 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 1.78 | | | | | |
| Intersection LOS | B | | | | | |

Signal Warrants Report For Intersection 7: Marksheffel Rd/Lorson Bl

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | N | S | E |
| 1 | 214 | 286 | 77 |
| 2 | 208 | 277 | 75 |
| 3 | 203 | 272 | 73 |
| 4 | 190 | 255 | 69 |
| 5 | 169 | 226 | 61 |
| 6 | 167 | 223 | 60 |
| 7 | 165 | 220 | 59 |
| 8 | 150 | 200 | 54 |
| 9 | 148 | 197 | 53 |
| 10 | 146 | 194 | 52 |
| 11 | 126 | 169 | 45 |
| 12 | 118 | 157 | 42 |
| 13 | 116 | 154 | 42 |
| 14 | 86 | 114 | 31 |
| 15 | 86 | 114 | 31 |
| 16 | 60 | 80 | 22 |
| 17 | 34 | 46 | 12 |
| 18 | 34 | 46 | 12 |
| 19 | 19 | 26 | 7 |
| 20 | 11 | 14 | 4 |
| 21 | 6 | 9 | 2 |
| 22 | 2 | 3 | 1 |
| 23 | 2 | 3 | 1 |
| 24 | 2 | 3 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 500 | 2 | 77 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 485 | 2 | 75 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 475 | 2 | 73 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 445 | 2 | 69 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 395 | 2 | 61 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 390 | 2 | 60 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 385 | 2 | 59 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 350 | 2 | 54 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 345 | 2 | 53 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 340 | 2 | 52 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 295 | 2 | 45 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 275 | 2 | 42 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 270 | 2 | 42 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 200 | 2 | 31 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 200 | 2 | 31 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 140 | 2 | 22 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 80 | 2 | 12 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 80 | 2 | 12 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 45 | 2 | 7 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 25 | 2 | 4 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 15 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 5 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 5 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 5 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A


| | |
|--|-----------|
| Orientation | E |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 11.7 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:15 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 77 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 577 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report

Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Two-way stop | Delay (sec / veh): | 14.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.105 |

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|---|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 308 | 77 | 12 | 350 | 43 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 308 | 77 | 12 | 350 | 43 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 77 | 19 | 3 | 88 | 11 | 5 |
| Total Analysis Volume [veh/h] | 308 | 77 | 12 | 350 | 43 | 19 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| Priority Scheme | Free | Free | Stop |
|------------------------------------|------|------|------|
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.01 | 0.00 | 0.10 | 0.03 |
| d_M, Delay for Movement [s/veh] | 0.00 | 0.00 | 8.10 | 0.00 | 14.77 | 10.05 |
| Movement LOS | A | A | A | A | B | B |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.03 | 0.00 | 0.35 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.77 | 0.00 | 8.69 | 2.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | 0.27 | | 13.33 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 1.14 | | | | | |
| Intersection LOS | B | | | | | |

Signal Warrants Report For Intersection 7: Marksheffel Rd/Lorson Bl

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | N, S |
| Minor Approaches | E |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | N | S | E |
| 1 | 362 | 385 | 62 |
| 2 | 351 | 373 | 60 |
| 3 | 344 | 366 | 59 |
| 4 | 322 | 343 | 55 |
| 5 | 286 | 304 | 49 |
| 6 | 282 | 300 | 48 |
| 7 | 279 | 296 | 48 |
| 8 | 253 | 270 | 43 |
| 9 | 250 | 266 | 43 |
| 10 | 246 | 262 | 42 |
| 11 | 214 | 227 | 37 |
| 12 | 199 | 212 | 34 |
| 13 | 195 | 208 | 33 |
| 14 | 145 | 154 | 25 |
| 15 | 145 | 154 | 25 |
| 16 | 101 | 108 | 17 |
| 17 | 58 | 62 | 10 |
| 18 | 58 | 62 | 10 |
| 19 | 33 | 35 | 6 |
| 20 | 18 | 19 | 3 |
| 21 | 11 | 12 | 2 |
| 22 | 4 | 4 | 1 |
| 23 | 4 | 4 | 1 |
| 24 | 4 | 4 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 747 | 2 | 62 | No | No | No | No | No | No | No | Yes | No | No |
| 2 | 2 | 724 | 2 | 60 | No | No | No | No | No | No | No | Yes | No | No |
| 3 | 2 | 710 | 2 | 59 | No | No | No | No | No | No | No | Yes | No | No |
| 4 | 2 | 665 | 2 | 55 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 590 | 2 | 49 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 582 | 2 | 48 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 575 | 2 | 48 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 523 | 2 | 43 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 516 | 2 | 43 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 508 | 2 | 42 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 441 | 2 | 37 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 411 | 2 | 34 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 403 | 2 | 33 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 299 | 2 | 25 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 299 | 2 | 25 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 209 | 2 | 17 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 120 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 120 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 68 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 37 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 23 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 8 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 8 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 8 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | E |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.3 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:13 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 62 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 809 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Appendix D




Build-out (2025) LOS Reports

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.001

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 30 | 0 | 0 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 30 | 0 | 0 | 62 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 8 | 0 | 0 | 16 |
| Total Analysis Volume [veh/h] | 0 | 0 | 30 | 0 | 0 | 62 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |




Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 8.96 | 8.45 | 0.00 | 0.00 | 7.27 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.71 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson BI

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 14.9 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.404 |

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson BI | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|--|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 465 | 64 | 19 | 394 | 194 | 85 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 465 | 64 | 19 | 394 | 194 | 85 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 16 | 5 | 99 | 49 | 21 |
| Total Analysis Volume [veh/h] | 465 | 64 | 19 | 394 | 194 | 85 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 60 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | ProtPerm | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|----------|------------|------------|------------|
| Signal Group | 6 | 0 | 5 | 2 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 5 | 10 | 5 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 29 | 0 | 9 | 38 | 22 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|-------|------|------|-------|-------|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 34 | 34 | 18 | 18 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.57 | 0.57 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.04 | 0.02 | 0.23 | 0.12 | 0.06 |
| s, saturation flow rate [veh/h] | 1683 | 1431 | 955 | 1683 | 1603 | 1431 |
| c, Capacity [veh/h] | 701 | 596 | 539 | 954 | 481 | 429 |
| d1, Uniform Delay [s] | 14.11 | 10.69 | 7.23 | 7.36 | 16.72 | 15.63 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.89 | 0.36 | 0.12 | 1.32 | 2.51 | 1.03 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|------|--------|--------|-------|
| X, volume / capacity | 0.66 | 0.11 | 0.04 | 0.41 | 0.40 | 0.20 |
| d, Delay for Lane Group [s/veh] | 19.00 | 11.05 | 7.35 | 8.68 | 19.23 | 16.66 |
| Lane Group LOS | B | B | A | A | B | B |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.35 | 0.52 | 0.10 | 2.58 | 2.27 | 0.92 |
| 50th-Percentile Queue Length [ft/ln] | 133.67 | 12.96 | 2.54 | 64.55 | 56.84 | 22.92 |
| 95th-Percentile Queue Length [veh/ln] | 9.14 | 0.93 | 0.18 | 4.65 | 4.09 | 1.65 |
| 95th-Percentile Queue Length [ft/ln] | 228.48 | 23.32 | 4.57 | 116.18 | 102.30 | 41.26 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|-------|------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 19.00 | 11.05 | 7.35 | 8.68 | 19.23 | 16.66 |
| Movement LOS | B | B | A | A | B | B |
| d_A, Approach Delay [s/veh] | 18.04 | | 8.62 | | 18.45 | |
| Approach LOS | B | | A | | B | |
| d_I, Intersection Delay [s/veh] | 14.95 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.404 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.68 | 21.68 | 21.68 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.284 | 2.234 | 2.051 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 833 | 1133 | 600 |
| d_b, Bicycle Delay [s] | 10.21 | 5.63 | 14.70 |
| I_b,int, Bicycle LOS Score for Intersection | 2.432 | 2.241 | 1.560 |
| Bicycle LOS | B | B | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | E | W | S |
| 1 | 62 | 30 | 0 |
| 2 | 60 | 29 | 0 |
| 3 | 59 | 29 | 0 |
| 4 | 55 | 27 | 0 |
| 5 | 49 | 24 | 0 |
| 6 | 48 | 23 | 0 |
| 7 | 48 | 23 | 0 |
| 8 | 43 | 21 | 0 |
| 9 | 43 | 21 | 0 |
| 10 | 42 | 20 | 0 |
| 11 | 37 | 18 | 0 |
| 12 | 34 | 17 | 0 |
| 13 | 33 | 16 | 0 |
| 14 | 25 | 12 | 0 |
| 15 | 25 | 12 | 0 |
| 16 | 17 | 8 | 0 |
| 17 | 10 | 5 | 0 |
| 18 | 10 | 5 | 0 |
| 19 | 6 | 3 | 0 |
| 20 | 3 | 2 | 0 |
| 21 | 2 | 1 | 0 |
| 22 | 1 | 0 | 0 |
| 23 | 1 | 0 | 0 |
| 24 | 1 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 92 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 89 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 88 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 82 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 73 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 71 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 71 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 64 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 64 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 62 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 55 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 51 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 49 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 37 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 37 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 25 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 15 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 15 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 9 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 5 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 3 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.7 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 0 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 92 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 0.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.001

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↔↔ | | ↕↔ | | ↔↕ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 66 | 0 | 0 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 66 | 0 | 0 | 40 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 17 | 0 | 0 | 10 |
| Total Analysis Volume [veh/h] | 0 | 0 | 66 | 0 | 0 | 40 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |




Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.04 | 8.61 | 0.00 | 0.00 | 7.34 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 8.82 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.00 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 13.6 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.357 |

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|--|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 425 | 220 | 65 | 384 | 132 | 60 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 425 | 220 | 65 | 384 | 132 | 60 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 106 | 55 | 16 | 96 | 33 | 15 |
| Total Analysis Volume [veh/h] | 425 | 220 | 65 | 384 | 132 | 60 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 60 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | ProtPerm | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|----------|------------|------------|------------|
| Signal Group | 6 | 0 | 5 | 2 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 5 | 10 | 5 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 29 | 0 | 9 | 38 | 22 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|-------|------|------|-------|-------|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 34 | 34 | 18 | 18 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.57 | 0.57 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.15 | 0.07 | 0.23 | 0.08 | 0.04 |
| s, saturation flow rate [veh/h] | 1683 | 1431 | 891 | 1683 | 1603 | 1431 |
| c, Capacity [veh/h] | 701 | 596 | 539 | 954 | 481 | 429 |
| d1, Uniform Delay [s] | 13.66 | 12.06 | 7.15 | 7.30 | 16.02 | 15.34 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.86 | 1.76 | 0.46 | 1.27 | 1.41 | 0.68 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|-------|--------|-------|-------|
| X, volume / capacity | 0.61 | 0.37 | 0.12 | 0.40 | 0.27 | 0.14 |
| d, Delay for Lane Group [s/veh] | 17.52 | 13.82 | 7.61 | 8.56 | 17.43 | 16.02 |
| Lane Group LOS | B | B | A | A | B | B |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.64 | 2.07 | 0.36 | 2.49 | 1.45 | 0.63 |
| 50th-Percentile Queue Length [ft/ln] | 116.02 | 51.71 | 9.06 | 62.34 | 36.29 | 15.78 |
| 95th-Percentile Queue Length [veh/ln] | 8.17 | 3.72 | 0.65 | 4.49 | 2.61 | 1.14 |
| 95th-Percentile Queue Length [ft/ln] | 204.35 | 93.08 | 16.31 | 112.22 | 65.33 | 28.40 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|-------|------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 17.52 | 13.82 | 7.61 | 8.56 | 17.43 | 16.02 |
| Movement LOS | B | B | A | A | B | B |
| d_A, Approach Delay [s/veh] | 16.26 | | 8.43 | | 16.99 | |
| Approach LOS | B | | A | | B | |
| d_I, Intersection Delay [s/veh] | 13.63 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.357 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.68 | 21.68 | 21.68 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.298 | 2.224 | 2.117 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 833 | 1133 | 600 |
| d_b, Bicycle Delay [s] | 10.21 | 5.63 | 14.70 |
| I_b,int, Bicycle LOS Score for Intersection | 2.624 | 2.300 | 1.560 |
| Bicycle LOS | B | B | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | E | W | S |
| 1 | 40 | 66 | 0 |
| 2 | 39 | 64 | 0 |
| 3 | 38 | 63 | 0 |
| 4 | 36 | 59 | 0 |
| 5 | 32 | 52 | 0 |
| 6 | 31 | 51 | 0 |
| 7 | 31 | 51 | 0 |
| 8 | 28 | 46 | 0 |
| 9 | 28 | 46 | 0 |
| 10 | 27 | 45 | 0 |
| 11 | 24 | 39 | 0 |
| 12 | 22 | 36 | 0 |
| 13 | 22 | 36 | 0 |
| 14 | 16 | 26 | 0 |
| 15 | 16 | 26 | 0 |
| 16 | 11 | 18 | 0 |
| 17 | 6 | 11 | 0 |
| 18 | 6 | 11 | 0 |
| 19 | 4 | 6 | 0 |
| 20 | 2 | 3 | 0 |
| 21 | 1 | 2 | 0 |
| 22 | 0 | 1 | 0 |
| 23 | 0 | 1 | 0 |
| 24 | 0 | 1 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 106 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 103 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 101 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 95 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 84 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 82 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 82 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 74 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 74 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 72 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 63 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 58 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 58 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 42 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 42 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 29 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 17 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 17 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 10 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 5 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 3 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.8 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 0 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 106 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.1
 Level Of Service: A
 Volume to Capacity (v/c): 0.026

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↔↔ | | ↕↔ | | ↔↕ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 30 | 0 | 0 | 62 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 0 | 0 | 8 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 24 | 0 | 30 | 8 | 0 | 62 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 6 | 0 | 8 | 2 | 0 | 16 |
| Total Analysis Volume [veh/h] | 24 | 0 | 30 | 8 | 0 | 62 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results





| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.07 | 8.45 | 0.00 | 0.00 | 7.29 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 2.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.07 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 1.76 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.017

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 7 | 0 | 0 | 2 | 6 | 17 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 7 | 0 | 0 | 2 | 6 | 17 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 2 | 0 | 0 | 1 | 2 | 4 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 7 | 0 | 0 | 2 | 6 | 17 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.23 | 0.00 | 0.00 | 7.23 | 0.00 | 0.00 | 8.64 | 9.14 | 8.40 | 8.58 | 9.09 | 8.35 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.29 | 1.29 | 1.29 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.00 | | | 8.64 | | | 8.67 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 4.59 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.3
 Level Of Service: A
 Volume to Capacity (v/c): 0.002

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.23 | 0.00 | 0.00 | 8.62 | 9.11 | 8.32 | 8.61 | 9.11 | 8.32 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.32 | 0.32 | 0.32 | 0.00 | 0.00 | 0.00 | 0.14 | 0.14 | 0.14 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 7.23 | | | 8.68 | | | 8.32 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.47 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.007

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 2 | 7 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 2 | 7 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 1 | 2 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 2 | 7 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |




Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 0.00 | 8.55 | 8.35 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.52 |
| d_A, Approach Delay [s/veh] | 3.61 | | 0.00 | | 8.55 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.65 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson BI

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 15.0 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.411 |

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson BI | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|--|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 465 | 64 | 19 | 394 | 194 | 85 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 3 | 5 | 0 | 8 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 465 | 67 | 24 | 394 | 202 | 101 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 116 | 17 | 6 | 99 | 51 | 25 |
| Total Analysis Volume [veh/h] | 465 | 67 | 24 | 394 | 202 | 101 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 60 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | ProtPerm | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|----------|------------|------------|------------|
| Signal Group | 6 | 0 | 5 | 2 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 5 | 10 | 5 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 29 | 0 | 9 | 38 | 22 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|-------|------|------|-------|-------|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 34 | 34 | 18 | 18 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.57 | 0.57 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.28 | 0.05 | 0.03 | 0.23 | 0.13 | 0.07 |
| s, saturation flow rate [veh/h] | 1683 | 1431 | 953 | 1683 | 1603 | 1431 |
| c, Capacity [veh/h] | 701 | 596 | 539 | 954 | 481 | 429 |
| d1, Uniform Delay [s] | 14.11 | 10.71 | 7.25 | 7.36 | 16.82 | 15.82 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 4.89 | 0.38 | 0.16 | 1.32 | 2.68 | 1.29 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|------|--------|--------|-------|
| X, volume / capacity | 0.66 | 0.11 | 0.04 | 0.41 | 0.42 | 0.24 |
| d, Delay for Lane Group [s/veh] | 19.00 | 11.09 | 7.41 | 8.68 | 19.50 | 17.10 |
| Lane Group LOS | B | B | A | A | B | B |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 5.35 | 0.54 | 0.13 | 2.58 | 2.39 | 1.11 |
| 50th-Percentile Queue Length [ft/ln] | 133.67 | 13.60 | 3.22 | 64.55 | 59.71 | 27.69 |
| 95th-Percentile Queue Length [veh/ln] | 9.14 | 0.98 | 0.23 | 4.65 | 4.30 | 1.99 |
| 95th-Percentile Queue Length [ft/ln] | 228.48 | 24.48 | 5.80 | 116.18 | 107.48 | 49.85 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|-------|------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 19.00 | 11.09 | 7.41 | 8.68 | 19.50 | 17.10 |
| Movement LOS | B | B | A | A | B | B |
| d_A, Approach Delay [s/veh] | 18.00 | | 8.60 | | 18.70 | |
| Approach LOS | B | | A | | B | |
| d_I, Intersection Delay [s/veh] | 15.04 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.411 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.68 | 21.68 | 21.68 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.287 | 2.241 | 2.064 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 833 | 1133 | 600 |
| d_b, Bicycle Delay [s] | 10.21 | 5.63 | 14.70 |
| I_b,int, Bicycle LOS Score for Intersection | 2.437 | 2.249 | 1.560 |
| Bicycle LOS | B | B | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | E | W | S |
| 1 | 62 | 38 | 24 |
| 2 | 60 | 37 | 23 |
| 3 | 59 | 36 | 23 |
| 4 | 55 | 34 | 21 |
| 5 | 49 | 30 | 19 |
| 6 | 48 | 30 | 19 |
| 7 | 48 | 29 | 18 |
| 8 | 43 | 27 | 17 |
| 9 | 43 | 26 | 17 |
| 10 | 42 | 26 | 16 |
| 11 | 37 | 22 | 14 |
| 12 | 34 | 21 | 13 |
| 13 | 33 | 21 | 13 |
| 14 | 25 | 15 | 10 |
| 15 | 25 | 15 | 10 |
| 16 | 17 | 11 | 7 |
| 17 | 10 | 6 | 4 |
| 18 | 10 | 6 | 4 |
| 19 | 6 | 3 | 2 |
| 20 | 3 | 2 | 1 |
| 21 | 2 | 1 | 1 |
| 22 | 1 | 0 | 0 |
| 23 | 1 | 0 | 0 |
| 24 | 1 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 100 | 2 | 24 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 97 | 2 | 23 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 95 | 2 | 23 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 89 | 2 | 21 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 79 | 2 | 19 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 78 | 2 | 19 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 77 | 2 | 18 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 70 | 2 | 17 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 69 | 2 | 17 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 68 | 2 | 16 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 59 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 55 | 2 | 13 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 54 | 2 | 13 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 40 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 40 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 28 | 2 | 7 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 16 | 2 | 4 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 16 | 2 | 4 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 9 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 5 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 3 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.1 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:03 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 24 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 124 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|----|
| | S | N | E | W |
| 1 | 7 | 8 | 0 | 17 |
| 2 | 7 | 8 | 0 | 16 |
| 3 | 7 | 8 | 0 | 16 |
| 4 | 6 | 7 | 0 | 15 |
| 5 | 6 | 6 | 0 | 13 |
| 6 | 5 | 6 | 0 | 13 |
| 7 | 5 | 6 | 0 | 13 |
| 8 | 5 | 6 | 0 | 12 |
| 9 | 5 | 6 | 0 | 12 |
| 10 | 5 | 5 | 0 | 12 |
| 11 | 4 | 5 | 0 | 10 |
| 12 | 4 | 4 | 0 | 9 |
| 13 | 4 | 4 | 0 | 9 |
| 14 | 3 | 3 | 0 | 7 |
| 15 | 3 | 3 | 0 | 7 |
| 16 | 2 | 2 | 0 | 5 |
| 17 | 1 | 1 | 0 | 3 |
| 18 | 1 | 1 | 0 | 3 |
| 19 | 1 | 1 | 0 | 2 |
| 20 | 0 | 0 | 0 | 1 |
| 21 | 0 | 0 | 0 | 1 |
| 22 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 15 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 15 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 15 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 13 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 12 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 11 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 11 | 1 | 13 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 11 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 11 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 10 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 9 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 8 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 8 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 6 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 6 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 4 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 2 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 2 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 2 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.7 | 8.6 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 | 0:02 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 0 | 17 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 32 | 32 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|---|
| | S | N | E | W |
| 1 | 0 | 7 | 2 | 0 |
| 2 | 0 | 7 | 2 | 0 |
| 3 | 0 | 7 | 2 | 0 |
| 4 | 0 | 6 | 2 | 0 |
| 5 | 0 | 6 | 2 | 0 |
| 6 | 0 | 5 | 2 | 0 |
| 7 | 0 | 5 | 2 | 0 |
| 8 | 0 | 5 | 1 | 0 |
| 9 | 0 | 5 | 1 | 0 |
| 10 | 0 | 5 | 1 | 0 |
| 11 | 0 | 4 | 1 | 0 |
| 12 | 0 | 4 | 1 | 0 |
| 13 | 0 | 4 | 1 | 0 |
| 14 | 0 | 3 | 1 | 0 |
| 15 | 0 | 3 | 1 | 0 |
| 16 | 0 | 2 | 1 | 0 |
| 17 | 0 | 1 | 0 | 0 |
| 18 | 0 | 1 | 0 | 0 |
| 19 | 0 | 1 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 7 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 6 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 6 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 5 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 5 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 5 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 1 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 1 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 1 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.3 | 8.7 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 | 0:00 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 2 | 0 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 9 | 9 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|---|---------------|
| | S | N | W |
| 1 | 0 | 2 | 7 |
| 2 | 0 | 2 | 7 |
| 3 | 0 | 2 | 7 |
| 4 | 0 | 2 | 6 |
| 5 | 0 | 2 | 6 |
| 6 | 0 | 2 | 5 |
| 7 | 0 | 2 | 5 |
| 8 | 0 | 1 | 5 |
| 9 | 0 | 1 | 5 |
| 10 | 0 | 1 | 5 |
| 11 | 0 | 1 | 4 |
| 12 | 0 | 1 | 4 |
| 13 | 0 | 1 | 4 |
| 14 | 0 | 1 | 3 |
| 15 | 0 | 1 | 3 |
| 16 | 0 | 1 | 2 |
| 17 | 0 | 0 | 1 |
| 18 | 0 | 0 | 1 |
| 19 | 0 | 0 | 1 |
| 20 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 2 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 2 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 2 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 2 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 2 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 2 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 2 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 1 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 1 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 1 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 1 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 1 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 1 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 1 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 1 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 1 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A




| | |
|--|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 7 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 9 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.1
 Level Of Service: A
 Volume to Capacity (v/c): 0.017

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 66 | 0 | 0 | 40 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 0 | 0 | 25 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 15 | 0 | 66 | 25 | 0 | 40 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 4 | 0 | 17 | 6 | 0 | 10 |
| Total Analysis Volume [veh/h] | 15 | 0 | 66 | 25 | 0 | 40 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 9.11 | 8.61 | 0.00 | 0.00 | 7.39 | 0.00 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 1.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 9.11 | | 0.00 | | 0.00 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 0.94 | | | | | |
| Intersection LOS | A | | | | | |





Intersection Level Of Service Report

Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.7
 Level Of Service: A
 Volume to Capacity (v/c): 0.011

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 4 | 0 | 0 | 7 | 18 | 11 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 4 | 0 | 0 | 7 | 18 | 11 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 1 | 0 | 0 | 2 | 5 | 3 | 0 | 0 | 0 | 0 | 0 |
| Total Analysis Volume [veh/h] | 0 | 4 | 0 | 0 | 7 | 18 | 11 | 0 | 0 | 0 | 0 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.26 | 0.00 | 0.00 | 7.23 | 0.00 | 0.00 | 8.66 | 9.16 | 8.43 | 8.62 | 9.17 | 8.33 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.84 | 0.84 | 0.84 | 0.00 | 0.00 | 0.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.00 | | | 8.66 | | | 8.71 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 2.38 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.3
 Level Of Service: A
 Volume to Capacity (v/c): 0.006

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | ✚ | | | ✚ | | | ✚ | | | ✚ | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.22 | 0.00 | 0.00 | 8.61 | 9.07 | 8.32 | 8.59 | 9.09 | 8.34 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.19 | 0.19 | 0.19 | 0.00 | 0.00 | 0.00 | 0.49 | 0.49 | 0.49 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 7.22 | | | 8.67 | | | 8.34 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 7.93 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.004

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 7 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 7 | 4 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 2 | 1 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 7 | 4 | 0 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |




Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.23 | 0.00 | 0.00 | 0.00 | 8.55 | 8.35 |
| Movement LOS | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.30 |
| d_A, Approach Delay [s/veh] | 3.62 | | 0.00 | | 8.55 | |
| Approach LOS | A | | A | | A | |
| d_I, Intersection Delay [s/veh] | 3.11 | | | | | |
| Intersection LOS | A | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 13.7 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | B |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.366 |

Intersection Setup

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Westbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Thru | Right | Left | Thru | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 1 | 1 | 0 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 245.00 | 400.00 | 100.00 | 250.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Curb Present | No | | No | | No | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Marksheffel Rd | | Marksheffel Rd | | Lorson Bl | |
|--|----------------|--------|----------------|--------|-----------|--------|
| Base Volume Input [veh/h] | 425 | 220 | 65 | 384 | 132 | 60 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 9 | 16 | 0 | 5 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 425 | 229 | 81 | 384 | 137 | 70 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 106 | 57 | 20 | 96 | 34 | 18 |
| Total Analysis Volume [veh/h] | 425 | 229 | 81 | 384 | 137 | 70 |
| Presence of On-Street Parking | No | No | No | No | No | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | 0 | | 0 | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | 0 | | 0 | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |
| Bicycle Volume [bicycles/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 60 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fixed time |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Permissive | Permissive | ProtPerm | Permissive | Permissive | Permissive |
|------------------------------|------------|------------|----------|------------|------------|------------|
| Signal Group | 6 | 0 | 5 | 2 | 7 | 0 |
| Auxiliary Signal Groups | | | | | | |
| Lead / Lag | - | - | Lead | - | Lead | - |
| Minimum Green [s] | 10 | 0 | 5 | 10 | 5 | 0 |
| Maximum Green [s] | 30 | 0 | 30 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 29 | 0 | 9 | 38 | 22 | 0 |
| Vehicle Extension [s] | 3.0 | 0.0 | 3.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 5 | 0 | 0 | 5 | 5 | 0 |
| Pedestrian Clearance [s] | 10 | 0 | 0 | 10 | 10 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | No | | | No | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 0.0 | 2.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | | No | No | No | |
| Maximum Recall | No | | No | No | No | |
| Pedestrian Recall | No | | No | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | C | R | L | C | L | R |
|---|-------|-------|------|------|-------|-------|
| C, Cycle Length [s] | 60 | 60 | 60 | 60 | 60 | 60 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 0.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 25 | 25 | 34 | 34 | 18 | 18 |
| g / C, Green / Cycle | 0.42 | 0.42 | 0.57 | 0.57 | 0.30 | 0.30 |
| (v / s)_i Volume / Saturation Flow Rate | 0.25 | 0.16 | 0.09 | 0.23 | 0.09 | 0.05 |
| s, saturation flow rate [veh/h] | 1683 | 1431 | 886 | 1683 | 1603 | 1431 |
| c, Capacity [veh/h] | 701 | 596 | 538 | 954 | 481 | 429 |
| d1, Uniform Delay [s] | 13.66 | 12.15 | 7.25 | 7.30 | 16.07 | 15.46 |
| k, delay calibration | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.86 | 1.87 | 0.59 | 1.27 | 1.48 | 0.82 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | |
|---------------------------------------|--------|-------|-------|--------|-------|-------|
| X, volume / capacity | 0.61 | 0.38 | 0.15 | 0.40 | 0.28 | 0.16 |
| d, Delay for Lane Group [s/veh] | 17.52 | 14.03 | 7.84 | 8.56 | 17.56 | 16.27 |
| Lane Group LOS | B | B | A | A | B | B |
| Critical Lane Group | Yes | No | Yes | No | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 4.64 | 2.17 | 0.46 | 2.49 | 1.51 | 0.74 |
| 50th-Percentile Queue Length [ft/ln] | 116.02 | 54.36 | 11.47 | 62.34 | 37.85 | 18.59 |
| 95th-Percentile Queue Length [veh/ln] | 8.17 | 3.91 | 0.83 | 4.49 | 2.73 | 1.34 |
| 95th-Percentile Queue Length [ft/ln] | 204.35 | 97.84 | 20.64 | 112.22 | 68.13 | 33.46 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------|-------|-------|------|------|-------|-------|
| d_M, Delay for Movement [s/veh] | 17.52 | 14.03 | 7.84 | 8.56 | 17.56 | 16.27 |
| Movement LOS | B | B | A | A | B | B |
| d_A, Approach Delay [s/veh] | 16.30 | | 8.44 | | 17.12 | |
| Approach LOS | B | | A | | B | |
| d_I, Intersection Delay [s/veh] | 13.67 | | | | | |
| Intersection LOS | B | | | | | |
| Intersection V/C | 0.366 | | | | | |

Other Modes

| | | | |
|--|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 21.68 | 21.68 | 21.68 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.303 | 2.233 | 2.141 |
| Crosswalk LOS | B | B | B |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 833 | 1133 | 600 |
| d_b, Bicycle Delay [s] | 10.21 | 5.63 | 14.70 |
| I_b,int, Bicycle LOS Score for Intersection | 2.639 | 2.327 | 1.560 |
| Bicycle LOS | B | B | A |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | E | W | S |
| 1 | 40 | 91 | 15 |
| 2 | 39 | 88 | 15 |
| 3 | 38 | 86 | 14 |
| 4 | 36 | 81 | 13 |
| 5 | 32 | 72 | 12 |
| 6 | 31 | 71 | 12 |
| 7 | 31 | 70 | 12 |
| 8 | 28 | 64 | 11 |
| 9 | 28 | 63 | 10 |
| 10 | 27 | 62 | 10 |
| 11 | 24 | 54 | 9 |
| 12 | 22 | 50 | 8 |
| 13 | 22 | 49 | 8 |
| 14 | 16 | 36 | 6 |
| 15 | 16 | 36 | 6 |
| 16 | 11 | 25 | 4 |
| 17 | 6 | 15 | 2 |
| 18 | 6 | 15 | 2 |
| 19 | 4 | 8 | 1 |
| 20 | 2 | 5 | 1 |
| 21 | 1 | 3 | 0 |
| 22 | 0 | 1 | 0 |
| 23 | 0 | 1 | 0 |
| 24 | 0 | 1 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 131 | 2 | 15 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 127 | 2 | 15 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 124 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 117 | 2 | 13 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 104 | 2 | 12 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 102 | 2 | 12 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 101 | 2 | 12 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 92 | 2 | 11 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 91 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 89 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 78 | 2 | 9 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 72 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 71 | 2 | 8 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 52 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 52 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 36 | 2 | 4 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 21 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 21 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 12 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 7 | 2 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 4 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 1 | 2 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.1 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 15 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 146 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|----|---------------|----|
| | S | N | E | W |
| 1 | 4 | 25 | 0 | 11 |
| 2 | 4 | 24 | 0 | 11 |
| 3 | 4 | 24 | 0 | 10 |
| 4 | 4 | 22 | 0 | 10 |
| 5 | 3 | 20 | 0 | 9 |
| 6 | 3 | 20 | 0 | 9 |
| 7 | 3 | 19 | 0 | 8 |
| 8 | 3 | 18 | 0 | 8 |
| 9 | 3 | 17 | 0 | 8 |
| 10 | 3 | 17 | 0 | 7 |
| 11 | 2 | 15 | 0 | 6 |
| 12 | 2 | 14 | 0 | 6 |
| 13 | 2 | 14 | 0 | 6 |
| 14 | 2 | 10 | 0 | 4 |
| 15 | 2 | 10 | 0 | 4 |
| 16 | 1 | 7 | 0 | 3 |
| 17 | 1 | 4 | 0 | 2 |
| 18 | 1 | 4 | 0 | 2 |
| 19 | 0 | 2 | 0 | 1 |
| 20 | 0 | 1 | 0 | 1 |
| 21 | 0 | 1 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 29 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 28 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 28 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 26 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 23 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 23 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 22 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 21 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 20 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 20 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 17 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 16 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 16 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 12 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 12 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 8 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 5 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 5 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 1 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.7 | 8.7 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 | 0:01 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 0 | 11 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 40 | 40 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|---|
| | S | N | E | W |
| 1 | 0 | 4 | 7 | 0 |
| 2 | 0 | 4 | 7 | 0 |
| 3 | 0 | 4 | 7 | 0 |
| 4 | 0 | 4 | 6 | 0 |
| 5 | 0 | 3 | 6 | 0 |
| 6 | 0 | 3 | 5 | 0 |
| 7 | 0 | 3 | 5 | 0 |
| 8 | 0 | 3 | 5 | 0 |
| 9 | 0 | 3 | 5 | 0 |
| 10 | 0 | 3 | 5 | 0 |
| 11 | 0 | 2 | 4 | 0 |
| 12 | 0 | 2 | 4 | 0 |
| 13 | 0 | 2 | 4 | 0 |
| 14 | 0 | 2 | 3 | 0 |
| 15 | 0 | 2 | 3 | 0 |
| 16 | 0 | 1 | 2 | 0 |
| 17 | 0 | 1 | 1 | 0 |
| 18 | 0 | 1 | 1 | 0 |
| 19 | 0 | 0 | 1 | 0 |
| 20 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 4 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 4 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 4 | 1 | 7 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 4 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 3 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 3 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 3 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 3 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 3 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 3 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 2 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 2 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 2 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 1 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.3 | 8.7 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 | 0:00 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 7 | 0 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 11 | 11 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|---|---------------|
| | S | N | W |
| 1 | 0 | 7 | 4 |
| 2 | 0 | 7 | 4 |
| 3 | 0 | 7 | 4 |
| 4 | 0 | 6 | 4 |
| 5 | 0 | 6 | 3 |
| 6 | 0 | 5 | 3 |
| 7 | 0 | 5 | 3 |
| 8 | 0 | 5 | 3 |
| 9 | 0 | 5 | 3 |
| 10 | 0 | 5 | 3 |
| 11 | 0 | 4 | 2 |
| 12 | 0 | 4 | 2 |
| 13 | 0 | 4 | 2 |
| 14 | 0 | 3 | 2 |
| 15 | 0 | 3 | 2 |
| 16 | 0 | 2 | 1 |
| 17 | 0 | 1 | 1 |
| 18 | 0 | 1 | 1 |
| 19 | 0 | 1 | 0 |
| 20 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 7 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 7 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 7 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 6 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 6 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 5 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 5 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 5 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 5 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 5 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 4 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 4 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 4 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 3 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 3 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 2 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 1 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 1 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 0 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 8.5 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:00 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 4 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 11 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Appendix E

Horizon (2040) LOS Reports

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.385

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↔↔ | | ↕↔ | | ↔↕ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 263 | 23 | 78 | 101 | 12 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 263 | 23 | 78 | 101 | 12 | 200 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 66 | 6 | 20 | 25 | 3 | 50 |
| Total Analysis Volume [veh/h] | 263 | 23 | 78 | 101 | 12 | 200 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results





| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.38 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.52 | 8.75 | 0.00 | 0.00 | 7.60 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.81 | 0.07 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 45.32 | 1.80 | 0.00 | 0.00 | 0.65 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.14 | | 0.00 | | 0.43 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 5.68 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 11.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.002

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 233 | 1 | 9 | 96 | 0 | 0 | 0 | 0 | 1 | 0 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 233 | 1 | 9 | 96 | 0 | 0 | 0 | 0 | 1 | 0 | 27 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 58 | 0 | 2 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Total Analysis Volume [veh/h] | 0 | 233 | 1 | 9 | 96 | 0 | 0 | 0 | 0 | 1 | 0 | 27 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.40 | 0.00 | 0.00 | 7.72 | 0.00 | 0.00 | 11.30 | 11.30 | 8.75 | 11.13 | 11.46 | 9.63 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.11 | 0.11 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.73 | 2.73 | 2.73 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.66 | | | 10.45 | | | 9.69 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.93 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.4
 Level Of Service: A
 Volume to Capacity (v/c): 0.097

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 17 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.08 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.22 | 0.00 | 0.00 | 9.37 | 9.45 | 8.75 | 9.39 | 9.35 | 8.65 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.32 | 0.32 | 0.25 | 0.25 | 0.25 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8.04 | 8.04 | 8.04 | 6.24 | 6.24 | 6.24 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 2.41 | | | 9.45 | | | 9.35 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.41 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.118

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 1 | 197 | 28 | 68 | 86 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 197 | 28 | 68 | 86 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 49 | 7 | 17 | 22 | 0 |
| Total Analysis Volume [veh/h] | 1 | 197 | 28 | 68 | 86 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |





Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.41 | 0.00 | 0.00 | 0.00 | 10.62 | 9.26 |
| Movement LOS | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.40 |
| 95th-Percentile Queue Length [ft/ln] | 0.05 | 0.00 | 0.00 | 0.00 | 10.10 | 10.10 |
| d_A, Approach Delay [s/veh] | 0.04 | | 0.00 | | 10.60 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 2.44 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 24.2 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.550 |

Intersection Setup

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|------------------------------|---|--------|--------|--|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 245.00 | 400.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|--|----------------|--------|--------|----------------|--------|--------|--------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 157 | 714 | 128 | 35 | 999 | 23 | 49 | 18 | 69 | 400 | 11 | 151 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 714 | 128 | 35 | 999 | 23 | 49 | 18 | 69 | 400 | 11 | 151 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 179 | 32 | 9 | 250 | 6 | 12 | 5 | 17 | 100 | 3 | 38 |
| Total Analysis Volume [veh/h] | 157 | 714 | 128 | 35 | 999 | 23 | 49 | 18 | 69 | 400 | 11 | 151 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 80 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Permis | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 0 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | - | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 0 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 0 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 25 | 0 | 9 | 25 | 0 | 0 | 30 | 0 | 16 | 46 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 0.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 10 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | | No | | No | No | |
| Maximum Recall | No | No | | No | No | | | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | R | L | C | R | L | C | L | C |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 37 | 37 | 3 | 35 | 35 | 12 | 12 | 12 | 28 |
| g / C, Green / Cycle | 0.06 | 0.46 | 0.46 | 0.03 | 0.43 | 0.43 | 0.15 | 0.15 | 0.15 | 0.35 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.22 | 0.09 | 0.02 | 0.31 | 0.02 | 0.02 | 0.06 | 0.13 | 0.11 |
| s, saturation flow rate [veh/h] | 3113 | 3204 | 1431 | 1603 | 3204 | 1431 | 2139 | 1476 | 3113 | 1445 |
| c, Capacity [veh/h] | 196 | 1487 | 664 | 56 | 1396 | 623 | 175 | 223 | 468 | 508 |
| d1, Uniform Delay [s] | 37.03 | 14.80 | 12.64 | 38.16 | 18.53 | 12.96 | 37.78 | 30.66 | 33.19 | 18.97 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.34 | 1.11 | 0.65 | 11.19 | 3.17 | 0.11 | 0.86 | 1.11 | 4.59 | 0.36 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|--------|-------|-------|--------|-------|-------|-------|--------|-------|
| X, volume / capacity | 0.80 | 0.48 | 0.19 | 0.63 | 0.72 | 0.04 | 0.28 | 0.39 | 0.86 | 0.32 |
| d, Delay for Lane Group [s/veh] | 44.38 | 15.92 | 13.28 | 49.35 | 21.70 | 13.07 | 38.63 | 31.76 | 37.78 | 19.33 |
| Lane Group LOS | D | B | B | D | C | B | D | C | D | B |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.68 | 4.39 | 1.39 | 0.84 | 7.64 | 0.25 | 0.48 | 1.54 | 3.97 | 2.15 |
| 50th-Percentile Queue Length [ft/ln] | 42.12 | 109.68 | 34.79 | 20.95 | 191.07 | 6.14 | 12.08 | 38.61 | 99.34 | 53.78 |
| 95th-Percentile Queue Length [veh/ln] | 3.03 | 7.82 | 2.50 | 1.51 | 12.18 | 0.44 | 0.87 | 2.78 | 7.15 | 3.87 |
| 95th-Percentile Queue Length [ft/ln] | 75.81 | 195.55 | 62.62 | 37.70 | 304.41 | 11.05 | 21.75 | 69.49 | 178.82 | 96.80 |

Movement, Approach, & Intersection Results

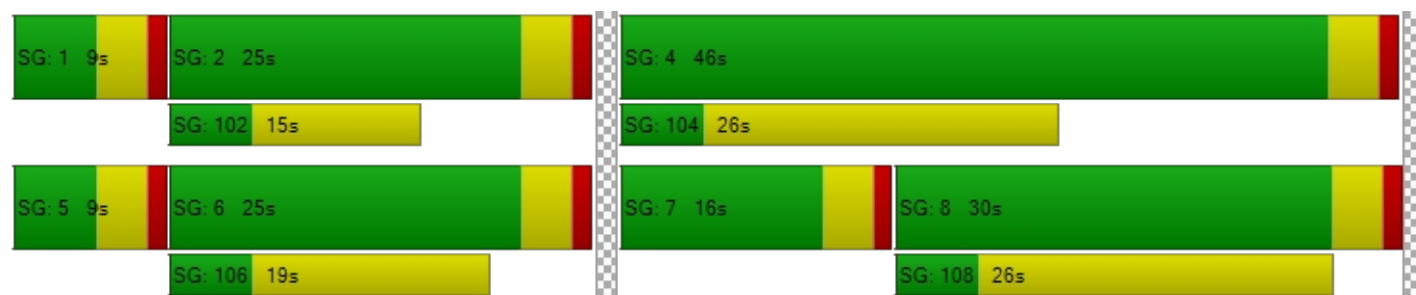
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 44.38 | 15.92 | 13.28 | 49.35 | 21.70 | 13.07 | 38.63 | 31.76 | 31.76 | 37.78 | 19.33 | 19.33 |
| Movement LOS | D | B | B | D | C | B | D | C | C | D | B | B |
| d_A, Approach Delay [s/veh] | 20.05 | | | 22.43 | | | 34.24 | | | 32.46 | | |
| Approach LOS | C | | | C | | | C | | | C | | |
| d_I, Intersection Delay [s/veh] | 24.20 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.550 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 31.53 | | | 31.53 | | | 31.53 | | | 31.53 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.933 | | | 2.839 | | | 2.359 | | | 2.308 | | |
| Crosswalk LOS | C | | | C | | | B | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 525 | | | 525 | | | 650 | | | 1049 | | |
| d_b, Bicycle Delay [s] | 21.78 | | | 21.78 | | | 18.25 | | | 9.04 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.384 | | | 2.432 | | | 1.784 | | | 2.487 | | |
| Bicycle LOS | B | | | B | | | A | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | E | W | S |
| 1 | 212 | 179 | 286 |
| 2 | 206 | 174 | 277 |
| 3 | 201 | 170 | 272 |
| 4 | 189 | 159 | 255 |
| 5 | 167 | 141 | 226 |
| 6 | 165 | 140 | 223 |
| 7 | 163 | 138 | 220 |
| 8 | 148 | 125 | 200 |
| 9 | 146 | 124 | 197 |
| 10 | 144 | 122 | 194 |
| 11 | 125 | 106 | 169 |
| 12 | 117 | 98 | 157 |
| 13 | 114 | 97 | 154 |
| 14 | 85 | 72 | 114 |
| 15 | 85 | 72 | 114 |
| 16 | 59 | 50 | 80 |
| 17 | 34 | 29 | 46 |
| 18 | 34 | 29 | 46 |
| 19 | 19 | 16 | 26 |
| 20 | 11 | 9 | 14 |
| 21 | 6 | 5 | 9 |
| 22 | 2 | 2 | 3 |
| 23 | 2 | 2 | 3 |
| 24 | 2 | 2 | 3 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 391 | 2 | 286 | No | No | No | Yes | No | No | No | No | No | No |
| 2 | 2 | 380 | 2 | 277 | No | No | No | Yes | No | No | No | No | No | No |
| 3 | 2 | 371 | 2 | 272 | No | No | No | Yes | No | No | No | No | No | No |
| 4 | 2 | 348 | 2 | 255 | No | No | No | Yes | No | No | No | No | No | No |
| 5 | 2 | 308 | 2 | 226 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 305 | 2 | 223 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 301 | 2 | 220 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 273 | 2 | 200 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 270 | 2 | 197 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 266 | 2 | 194 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 231 | 2 | 169 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 215 | 2 | 157 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 211 | 2 | 154 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 157 | 2 | 114 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 157 | 2 | 114 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 109 | 2 | 80 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 63 | 2 | 46 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 63 | 2 | 46 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 35 | 2 | 26 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 20 | 2 | 14 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 11 | 2 | 9 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.1 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 1:02 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 286 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 677 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|-----|---------------|---|
| | S | N | E | W |
| 1 | 234 | 105 | 28 | 0 |
| 2 | 227 | 102 | 27 | 0 |
| 3 | 222 | 100 | 27 | 0 |
| 4 | 208 | 93 | 25 | 0 |
| 5 | 185 | 83 | 22 | 0 |
| 6 | 183 | 82 | 22 | 0 |
| 7 | 180 | 81 | 22 | 0 |
| 8 | 164 | 74 | 20 | 0 |
| 9 | 161 | 72 | 19 | 0 |
| 10 | 159 | 71 | 19 | 0 |
| 11 | 138 | 62 | 17 | 0 |
| 12 | 129 | 58 | 15 | 0 |
| 13 | 126 | 57 | 15 | 0 |
| 14 | 94 | 42 | 11 | 0 |
| 15 | 94 | 42 | 11 | 0 |
| 16 | 66 | 29 | 8 | 0 |
| 17 | 37 | 17 | 4 | 0 |
| 18 | 37 | 17 | 4 | 0 |
| 19 | 21 | 9 | 3 | 0 |
| 20 | 12 | 5 | 1 | 0 |
| 21 | 7 | 3 | 1 | 0 |
| 22 | 2 | 1 | 0 | 0 |
| 23 | 2 | 1 | 0 | 0 |
| 24 | 2 | 1 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 339 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 329 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 322 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 301 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 268 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 265 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 261 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 238 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 233 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 230 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 200 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 187 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 183 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 136 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 136 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 95 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 54 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 54 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 30 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 17 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.7 | 10.4 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:04 | 0:00 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 28 | 0 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 367 | 367 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|----|
| | S | N | E | W |
| 1 | 0 | 0 | 69 | 87 |
| 2 | 0 | 0 | 67 | 84 |
| 3 | 0 | 0 | 66 | 83 |
| 4 | 0 | 0 | 61 | 77 |
| 5 | 0 | 0 | 55 | 69 |
| 6 | 0 | 0 | 54 | 68 |
| 7 | 0 | 0 | 53 | 67 |
| 8 | 0 | 0 | 48 | 61 |
| 9 | 0 | 0 | 48 | 60 |
| 10 | 0 | 0 | 47 | 59 |
| 11 | 0 | 0 | 41 | 51 |
| 12 | 0 | 0 | 38 | 48 |
| 13 | 0 | 0 | 37 | 47 |
| 14 | 0 | 0 | 28 | 35 |
| 15 | 0 | 0 | 28 | 35 |
| 16 | 0 | 0 | 19 | 24 |
| 17 | 0 | 0 | 11 | 14 |
| 18 | 0 | 0 | 11 | 14 |
| 19 | 0 | 0 | 6 | 8 |
| 20 | 0 | 0 | 3 | 4 |
| 21 | 0 | 0 | 2 | 3 |
| 22 | 0 | 0 | 1 | 1 |
| 23 | 0 | 0 | 1 | 1 |
| 24 | 0 | 0 | 1 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 0 | 1 | 87 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 0 | 1 | 84 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 0 | 1 | 83 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 0 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 0 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 0 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 0 | 1 | 67 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 0 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 0 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 0 | 1 | 59 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 0 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 0 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 0 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 0 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 0 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 0 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 0 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 0 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 0 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.4 | 9.4 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:10 | 0:13 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 69 | 87 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 156 | 156 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | S | N | W |
| 1 | 198 | 96 | 87 |
| 2 | 192 | 93 | 84 |
| 3 | 188 | 91 | 83 |
| 4 | 176 | 85 | 77 |
| 5 | 156 | 76 | 69 |
| 6 | 154 | 75 | 68 |
| 7 | 152 | 74 | 67 |
| 8 | 139 | 67 | 61 |
| 9 | 137 | 66 | 60 |
| 10 | 135 | 65 | 59 |
| 11 | 117 | 57 | 51 |
| 12 | 109 | 53 | 48 |
| 13 | 107 | 52 | 47 |
| 14 | 79 | 38 | 35 |
| 15 | 79 | 38 | 35 |
| 16 | 55 | 27 | 24 |
| 17 | 32 | 15 | 14 |
| 18 | 32 | 15 | 14 |
| 19 | 18 | 9 | 8 |
| 20 | 10 | 5 | 4 |
| 21 | 6 | 3 | 3 |
| 22 | 2 | 1 | 1 |
| 23 | 2 | 1 | 1 |
| 24 | 2 | 1 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 294 | 1 | 87 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 285 | 1 | 84 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 279 | 1 | 83 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 261 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 232 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 229 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 226 | 1 | 67 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 206 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 203 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 200 | 1 | 59 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 174 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 162 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 159 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 117 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 117 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 82 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 47 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 47 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 27 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 15 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 9 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:15 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 87 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 381 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.300

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↔↔ | | ↕↔ | | ↔↕ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 188 | 2 | 224 | 343 | 5 | 137 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 188 | 2 | 224 | 343 | 5 | 137 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 47 | 1 | 56 | 86 | 1 | 34 |
| Total Analysis Volume [veh/h] | 188 | 2 | 224 | 343 | 5 | 137 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results





| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.19 | 9.43 | 0.00 | 0.00 | 8.60 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.26 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 31.44 | 0.18 | 0.00 | 0.00 | 0.37 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.15 | | 0.00 | | 0.30 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.83 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.002

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 156 | 1 | 31 | 291 | 0 | 0 | 0 | 0 | 1 | 1 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 156 | 1 | 31 | 291 | 0 | 0 | 0 | 0 | 1 | 1 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 39 | 0 | 8 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Total Analysis Volume [veh/h] | 0 | 156 | 1 | 31 | 291 | 0 | 0 | 0 | 0 | 1 | 1 | 19 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 7.83 | 0.00 | 0.00 | 7.59 | 0.00 | 0.00 | 13.02 | 12.89 | 9.81 | 12.84 | 13.00 | 9.17 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 1.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.98 | 1.98 | 1.98 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.73 | | | 11.91 | | | 9.52 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 0.87 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.219

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 0 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 49 | 0 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 0 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|------|------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.22 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.22 | 0.00 | 0.00 | 10.17 | 9.29 | 8.59 | 9.98 | 10.14 | 9.44 |
| Movement LOS | A | A | A | A | A | A | B | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.20 | 0.20 | 0.83 | 0.83 | 0.83 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.09 | 5.09 | 5.09 | 20.80 | 20.80 | 20.80 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 2.41 | | | 9.29 | | | 10.14 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 9.95 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.081

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 1 | 100 | 96 | 195 | 56 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 100 | 96 | 195 | 56 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 25 | 24 | 49 | 14 | 0 |
| Total Analysis Volume [veh/h] | 1 | 100 | 96 | 195 | 56 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |





Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.84 | 0.00 | 0.00 | 0.00 | 10.64 | 9.70 |
| Movement LOS | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.27 |
| 95th-Percentile Queue Length [ft/ln] | 0.06 | 0.00 | 0.00 | 0.00 | 6.66 | 6.66 |
| d_A, Approach Delay [s/veh] | 0.08 | | 0.00 | | 10.62 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 1.37 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 21.8 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.524 |

Intersection Setup

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|------------------------------|---|--------|--------|--|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 245.00 | 400.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|--|----------------|--------|--------|----------------|--------|--------|--------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 159 | 742 | 456 | 123 | 610 | 34 | 47 | 15 | 41 | 282 | 20 | 105 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 159 | 742 | 456 | 123 | 610 | 34 | 47 | 15 | 41 | 282 | 20 | 105 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 186 | 114 | 31 | 153 | 9 | 12 | 4 | 10 | 71 | 5 | 26 |
| Total Analysis Volume [veh/h] | 159 | 742 | 456 | 123 | 610 | 34 | 47 | 15 | 41 | 282 | 20 | 105 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 80 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 18 | 23 | 0 | 14 | 19 | 0 | 10 | 30 | 0 | 13 | 33 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 10 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | R | L | C | R | L | C | L | C |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|
| C, Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 40 | 40 | 8 | 42 | 42 | 3 | 7 | 9 | 13 |
| g / C, Green / Cycle | 0.08 | 0.50 | 0.50 | 0.10 | 0.52 | 0.52 | 0.04 | 0.09 | 0.11 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.23 | 0.32 | 0.08 | 0.19 | 0.02 | 0.02 | 0.04 | 0.09 | 0.09 |
| s, saturation flow rate [veh/h] | 3113 | 3204 | 1431 | 1603 | 3204 | 1431 | 3113 | 1490 | 3113 | 1466 |
| c, Capacity [veh/h] | 240 | 1605 | 716 | 154 | 1666 | 744 | 131 | 135 | 352 | 237 |
| d1, Uniform Delay [s] | 36.01 | 13.01 | 14.68 | 35.50 | 11.42 | 9.47 | 37.37 | 34.47 | 34.68 | 30.82 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.14 | 0.96 | 4.29 | 9.13 | 0.62 | 0.12 | 1.65 | 2.03 | 4.22 | 1.82 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|--------|-------|-------|-------|--------|--------|
| X, volume / capacity | 0.66 | 0.46 | 0.64 | 0.80 | 0.37 | 0.05 | 0.36 | 0.41 | 0.80 | 0.53 |
| d, Delay for Lane Group [s/veh] | 39.15 | 13.97 | 18.97 | 44.63 | 12.05 | 9.59 | 39.01 | 36.50 | 38.91 | 32.63 |
| Lane Group LOS | D | B | B | D | B | A | D | D | D | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | Yes | No |
| 50th-Percentile Queue Length [veh/ln] | 1.59 | 4.17 | 6.33 | 2.69 | 3.07 | 0.29 | 0.47 | 1.09 | 2.82 | 2.28 |
| 50th-Percentile Queue Length [ft/ln] | 39.63 | 104.20 | 158.37 | 67.21 | 76.75 | 7.36 | 11.75 | 27.17 | 70.51 | 56.89 |
| 95th-Percentile Queue Length [veh/ln] | 2.85 | 7.50 | 10.46 | 4.84 | 5.53 | 0.53 | 0.85 | 1.96 | 5.08 | 4.10 |
| 95th-Percentile Queue Length [ft/ln] | 71.33 | 187.55 | 261.57 | 120.98 | 138.15 | 13.25 | 21.16 | 48.90 | 126.91 | 102.41 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 39.15 | 13.97 | 18.97 | 44.63 | 12.05 | 9.59 | 39.01 | 36.50 | 36.50 | 38.91 | 32.63 | 32.63 |
| Movement LOS | D | B | B | D | B | A | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 18.60 | | | 17.16 | | | 37.65 | | | 36.98 | | |
| Approach LOS | B | | | B | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 21.77 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.524 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 31.56 | | | 31.56 | | | 31.56 | | | 31.56 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.909 | | | 2.719 | | | 2.357 | | | 2.371 | | |
| Crosswalk LOS | C | | | B | | | B | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 474 | | | 374 | | | 649 | | | 724 | | |
| d_b, Bicycle Delay [s] | 23.31 | | | 26.46 | | | 18.27 | | | 16.30 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.679 | | | 2.192 | | | 1.730 | | | 2.231 | | |
| Bicycle LOS | B | | | B | | | A | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | E | W | S |
| 1 | 142 | 567 | 190 |
| 2 | 138 | 550 | 184 |
| 3 | 135 | 539 | 181 |
| 4 | 126 | 505 | 169 |
| 5 | 112 | 448 | 150 |
| 6 | 111 | 442 | 148 |
| 7 | 109 | 437 | 146 |
| 8 | 99 | 397 | 133 |
| 9 | 98 | 391 | 131 |
| 10 | 97 | 386 | 129 |
| 11 | 84 | 335 | 112 |
| 12 | 78 | 312 | 105 |
| 13 | 77 | 306 | 103 |
| 14 | 57 | 227 | 76 |
| 15 | 57 | 227 | 76 |
| 16 | 40 | 159 | 53 |
| 17 | 23 | 91 | 30 |
| 18 | 23 | 91 | 30 |
| 19 | 13 | 51 | 17 |
| 20 | 7 | 28 | 10 |
| 21 | 4 | 17 | 6 |
| 22 | 1 | 6 | 2 |
| 23 | 1 | 6 | 2 |
| 24 | 1 | 6 | 2 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 709 | 2 | 190 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 2 | 2 | 688 | 2 | 184 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 3 | 2 | 674 | 2 | 181 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 4 | 2 | 631 | 2 | 169 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 5 | 2 | 560 | 2 | 150 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 6 | 2 | 553 | 2 | 148 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 7 | 2 | 546 | 2 | 146 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 8 | 2 | 496 | 2 | 133 | No | No | No | Yes | No | No | No | No | No | No |
| 9 | 2 | 489 | 2 | 131 | No | No | No | Yes | No | No | No | No | No | No |
| 10 | 2 | 483 | 2 | 129 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 2 | 419 | 2 | 112 | No | No | No | Yes | No | No | No | No | No | No |
| 12 | 2 | 390 | 2 | 105 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 383 | 2 | 103 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 284 | 2 | 76 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 284 | 2 | 76 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 199 | 2 | 53 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 114 | 2 | 30 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 114 | 2 | 30 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 64 | 2 | 17 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 35 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 21 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 4 | 7 | 11 | 0 | 0 | 4 | 7 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.2 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:41 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 190 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 899 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|-----|---------------|---|
| | S | N | E | W |
| 1 | 157 | 322 | 21 | 0 |
| 2 | 152 | 312 | 20 | 0 |
| 3 | 149 | 306 | 20 | 0 |
| 4 | 140 | 287 | 19 | 0 |
| 5 | 124 | 254 | 17 | 0 |
| 6 | 122 | 251 | 16 | 0 |
| 7 | 121 | 248 | 16 | 0 |
| 8 | 110 | 225 | 15 | 0 |
| 9 | 108 | 222 | 14 | 0 |
| 10 | 107 | 219 | 14 | 0 |
| 11 | 93 | 190 | 12 | 0 |
| 12 | 86 | 177 | 12 | 0 |
| 13 | 85 | 174 | 11 | 0 |
| 14 | 63 | 129 | 8 | 0 |
| 15 | 63 | 129 | 8 | 0 |
| 16 | 44 | 90 | 6 | 0 |
| 17 | 25 | 52 | 3 | 0 |
| 18 | 25 | 52 | 3 | 0 |
| 19 | 14 | 29 | 2 | 0 |
| 20 | 8 | 16 | 1 | 0 |
| 21 | 5 | 10 | 1 | 0 |
| 22 | 2 | 3 | 0 | 0 |
| 23 | 2 | 3 | 0 | 0 |
| 24 | 2 | 3 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 479 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 464 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 455 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 427 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 378 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 373 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 369 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 335 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 330 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 326 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 283 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 263 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 259 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 192 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 192 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 134 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 77 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 77 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 43 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 24 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 15 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.5 | 11.9 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:03 | 0:00 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 21 | 0 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 500 | 500 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|----|
| | S | N | E | W |
| 1 | 0 | 0 | 196 | 57 |
| 2 | 0 | 0 | 190 | 55 |
| 3 | 0 | 0 | 186 | 54 |
| 4 | 0 | 0 | 174 | 51 |
| 5 | 0 | 0 | 155 | 45 |
| 6 | 0 | 0 | 153 | 44 |
| 7 | 0 | 0 | 151 | 44 |
| 8 | 0 | 0 | 137 | 40 |
| 9 | 0 | 0 | 135 | 39 |
| 10 | 0 | 0 | 133 | 39 |
| 11 | 0 | 0 | 116 | 34 |
| 12 | 0 | 0 | 108 | 31 |
| 13 | 0 | 0 | 106 | 31 |
| 14 | 0 | 0 | 78 | 23 |
| 15 | 0 | 0 | 78 | 23 |
| 16 | 0 | 0 | 55 | 16 |
| 17 | 0 | 0 | 31 | 9 |
| 18 | 0 | 0 | 31 | 9 |
| 19 | 0 | 0 | 18 | 5 |
| 20 | 0 | 0 | 10 | 3 |
| 21 | 0 | 0 | 6 | 2 |
| 22 | 0 | 0 | 2 | 1 |
| 23 | 0 | 0 | 2 | 1 |
| 24 | 0 | 0 | 2 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 0 | 1 | 196 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 0 | 1 | 190 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 0 | 1 | 186 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 0 | 1 | 174 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 0 | 1 | 155 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 0 | 1 | 153 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 0 | 1 | 151 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 0 | 1 | 137 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 0 | 1 | 135 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 0 | 1 | 133 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 0 | 1 | 116 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 0 | 1 | 108 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 0 | 1 | 106 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 0 | 1 | 78 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 0 | 1 | 78 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 0 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 0 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 0 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 0 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.1 | 9.3 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:33 | 0:08 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 196 | 57 |
| High Minor Volume Condition Met | Yes | No |
| Total Entering Volume on All Approaches During Same Hour | 253 | 253 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | S | N | W |
| 1 | 101 | 291 | 57 |
| 2 | 98 | 282 | 55 |
| 3 | 96 | 276 | 54 |
| 4 | 90 | 259 | 51 |
| 5 | 80 | 230 | 45 |
| 6 | 79 | 227 | 44 |
| 7 | 78 | 224 | 44 |
| 8 | 71 | 204 | 40 |
| 9 | 70 | 201 | 39 |
| 10 | 69 | 198 | 39 |
| 11 | 60 | 172 | 34 |
| 12 | 56 | 160 | 31 |
| 13 | 55 | 157 | 31 |
| 14 | 40 | 116 | 23 |
| 15 | 40 | 116 | 23 |
| 16 | 28 | 81 | 16 |
| 17 | 16 | 47 | 9 |
| 18 | 16 | 47 | 9 |
| 19 | 9 | 26 | 5 |
| 20 | 5 | 15 | 3 |
| 21 | 3 | 9 | 2 |
| 22 | 1 | 3 | 1 |
| 23 | 1 | 3 | 1 |
| 24 | 1 | 3 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 392 | 1 | 57 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 380 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 372 | 1 | 54 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 349 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 310 | 1 | 45 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 306 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 302 | 1 | 44 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 275 | 1 | 40 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 271 | 1 | 39 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 267 | 1 | 39 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 232 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 216 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 212 | 1 | 31 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 156 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 156 | 1 | 23 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 109 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 63 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 63 | 1 | 9 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 35 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 20 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 12 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|---|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.6 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:10 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 57 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 449 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.420

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↵↵ | | ↵↵ | | ↵↵ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 263 | 23 | 78 | 101 | 12 | 200 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 24 | 0 | 0 | 8 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 287 | 23 | 78 | 109 | 12 | 200 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 72 | 6 | 20 | 27 | 3 | 50 |
| Total Analysis Volume [veh/h] | 287 | 23 | 78 | 109 | 12 | 200 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.42 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 14.02 | 8.75 | 0.00 | 0.00 | 7.62 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 2.08 | 0.07 | 0.00 | 0.00 | 0.03 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 52.08 | 1.80 | 0.00 | 0.00 | 0.65 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.63 | | 0.00 | | 0.43 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 6.09 | | | | | |
| Intersection LOS | B | | | | | |





Intersection Level Of Service Report

Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 11.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.030

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 233 | 1 | 9 | 96 | 0 | 0 | 0 | 0 | 1 | 0 | 27 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 7 | 0 | 0 | 2 | 6 | 17 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 240 | 1 | 9 | 98 | 6 | 17 | 0 | 0 | 1 | 0 | 27 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 60 | 0 | 2 | 25 | 2 | 4 | 0 | 0 | 0 | 0 | 7 |
| Total Analysis Volume [veh/h] | 0 | 240 | 1 | 9 | 98 | 6 | 17 | 0 | 0 | 1 | 0 | 27 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| d_M, Delay for Movement [s/veh] | 7.42 | 0.00 | 0.00 | 7.73 | 0.00 | 0.00 | 11.61 | 11.59 | 8.97 | 11.24 | 11.58 | 9.68 |
| Movement LOS | A | A | A | A | A | A | B | B | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.09 | 0.09 | 0.09 | 0.11 | 0.11 | 0.11 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 | 0.00 | 2.34 | 2.34 | 2.34 | 2.76 | 2.76 | 2.76 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.62 | | | 11.61 | | | 9.73 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 1.35 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.6
 Level Of Service: A
 Volume to Capacity (v/c): 0.099

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 2 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 22 | 0 | 0 | 17 | 1 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 87 | 0 | 0 | 69 | 2 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.08 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.23 | 0.00 | 0.00 | 9.50 | 9.56 | 8.77 | 9.52 | 9.46 | 8.68 |
| Movement LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.33 | 0.33 | 0.33 | 0.26 | 0.26 | 0.26 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.32 | 0.32 | 0.32 | 8.24 | 8.24 | 8.24 | 6.55 | 6.55 | 6.55 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 7.23 | | | 9.56 | | | 9.44 | | |
| Approach LOS | A | | | A | | | A | | | A | | |
| d_I, Intersection Delay [s/veh] | 9.41 | | | | | | | | | | | |
| Intersection LOS | A | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.128

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 1 | 197 | 28 | 68 | 86 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 2 | 7 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 197 | 28 | 70 | 93 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 49 | 7 | 18 | 23 | 0 |
| Total Analysis Volume [veh/h] | 1 | 197 | 28 | 70 | 93 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |





Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.41 | 0.00 | 0.00 | 0.00 | 10.69 | 9.32 |
| Movement LOS | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.44 |
| 95th-Percentile Queue Length [ft/ln] | 0.05 | 0.00 | 0.00 | 0.00 | 11.05 | 11.05 |
| d_A, Approach Delay [s/veh] | 0.04 | | 0.00 | | 10.67 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 2.59 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 23.1 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.552 |

Intersection Setup

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|------------------------------|---|--------|--------|--|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 245.00 | 400.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|--|----------------|--------|--------|----------------|--------|--------|--------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 157 | 714 | 128 | 35 | 999 | 23 | 49 | 18 | 69 | 400 | 11 | 151 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 16 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 157 | 714 | 131 | 40 | 999 | 23 | 49 | 18 | 69 | 408 | 11 | 167 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 39 | 179 | 33 | 10 | 250 | 6 | 12 | 5 | 17 | 102 | 3 | 42 |
| Total Analysis Volume [veh/h] | 157 | 714 | 131 | 40 | 999 | 23 | 49 | 18 | 69 | 408 | 11 | 167 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 80 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 9 | 24 | 0 | 9 | 24 | 0 | 9 | 30 | 0 | 17 | 38 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 10 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | R | L | C | R | L | C | L | C | R |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 5 | 40 | 40 | 3 | 38 | 38 | 3 | 9 | 12 | 18 | 18 |
| g / C, Green / Cycle | 0.06 | 0.50 | 0.50 | 0.04 | 0.47 | 0.47 | 0.04 | 0.11 | 0.15 | 0.22 | 0.22 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.22 | 0.09 | 0.02 | 0.31 | 0.02 | 0.02 | 0.06 | 0.13 | 0.01 | 0.12 |
| s, saturation flow rate [veh/h] | 3113 | 3204 | 1431 | 1603 | 3204 | 1431 | 3113 | 1476 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 198 | 1597 | 713 | 62 | 1516 | 677 | 134 | 160 | 484 | 372 | 316 |
| d1, Uniform Delay [s] | 37.04 | 12.99 | 11.12 | 38.03 | 16.18 | 11.32 | 37.32 | 33.89 | 32.91 | 24.51 | 27.57 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 7.03 | 0.91 | 0.57 | 10.93 | 2.26 | 0.09 | 1.66 | 2.86 | 4.06 | 0.03 | 1.37 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|-------|--------|-------|-------|--------|-------|-------|-------|--------|-------|--------|
| X, volume / capacity | 0.79 | 0.45 | 0.18 | 0.65 | 0.66 | 0.03 | 0.37 | 0.54 | 0.84 | 0.03 | 0.53 |
| d, Delay for Lane Group [s/veh] | 44.07 | 13.90 | 11.68 | 48.96 | 18.44 | 11.41 | 38.98 | 36.76 | 36.98 | 24.55 | 28.94 |
| Lane Group LOS | D | B | B | D | B | B | D | D | D | C | C |
| Critical Lane Group | Yes | No | No | No | Yes | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.68 | 3.99 | 1.30 | 0.95 | 6.87 | 0.22 | 0.49 | 1.70 | 4.01 | 0.16 | 2.86 |
| 50th-Percentile Queue Length [ft/ln] | 41.96 | 99.67 | 32.52 | 23.68 | 171.66 | 5.59 | 12.24 | 42.41 | 100.28 | 4.09 | 71.39 |
| 95th-Percentile Queue Length [veh/ln] | 3.02 | 7.18 | 2.34 | 1.70 | 11.16 | 0.40 | 0.88 | 3.05 | 7.22 | 0.29 | 5.14 |
| 95th-Percentile Queue Length [ft/ln] | 75.53 | 179.41 | 58.53 | 42.62 | 279.09 | 10.05 | 22.03 | 76.33 | 180.51 | 7.36 | 128.51 |

Movement, Approach, & Intersection Results

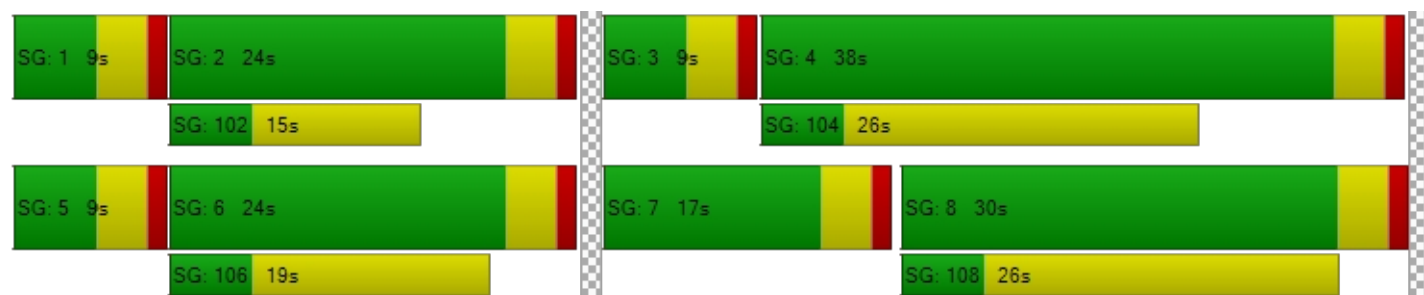
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 44.07 | 13.90 | 11.68 | 48.96 | 18.44 | 11.41 | 38.98 | 36.76 | 36.76 | 36.98 | 24.55 | 28.94 |
| Movement LOS | D | B | B | D | B | B | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 18.34 | | | 19.43 | | | 37.56 | | | 34.45 | | |
| Approach LOS | B | | | B | | | D | | | C | | |
| d_I, Intersection Delay [s/veh] | 23.08 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.552 | | | | | | | | | | | |

Other Modes

| | | | | |
|--|-------|-------|-------|-------|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | 9.0 | 9.0 | 9.0 |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | 0.00 | 0.00 | 0.00 |
| d_p, Pedestrian Delay [s] | 31.56 | 31.56 | 31.56 | 31.56 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.935 | 2.772 | 2.359 | 2.447 |
| Crosswalk LOS | C | C | B | B |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | 2000 | 2000 | 2000 |
| c_b, Capacity of the bicycle lane [bicycles/h] | 499 | 499 | 649 | 849 |
| d_b, Bicycle Delay [s] | 22.55 | 22.55 | 18.27 | 13.27 |
| I_b,int, Bicycle LOS Score for Intersection | 2.386 | 2.436 | 1.784 | 2.527 |
| Bicycle LOS | B | B | A | B |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | E | W | S |
| 1 | 212 | 187 | 310 |
| 2 | 206 | 181 | 301 |
| 3 | 201 | 178 | 295 |
| 4 | 189 | 166 | 276 |
| 5 | 167 | 148 | 245 |
| 6 | 165 | 146 | 242 |
| 7 | 163 | 144 | 239 |
| 8 | 148 | 131 | 217 |
| 9 | 146 | 129 | 214 |
| 10 | 144 | 127 | 211 |
| 11 | 125 | 110 | 183 |
| 12 | 117 | 103 | 171 |
| 13 | 114 | 101 | 167 |
| 14 | 85 | 75 | 124 |
| 15 | 85 | 75 | 124 |
| 16 | 59 | 52 | 87 |
| 17 | 34 | 30 | 50 |
| 18 | 34 | 30 | 50 |
| 19 | 19 | 17 | 28 |
| 20 | 11 | 9 | 16 |
| 21 | 6 | 6 | 9 |
| 22 | 2 | 2 | 3 |
| 23 | 2 | 2 | 3 |
| 24 | 2 | 2 | 3 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 399 | 2 | 310 | No | No | No | Yes | No | No | No | No | No | No |
| 2 | 2 | 387 | 2 | 301 | No | No | No | Yes | No | No | No | No | No | No |
| 3 | 2 | 379 | 2 | 295 | No | No | No | Yes | No | No | No | No | No | No |
| 4 | 2 | 355 | 2 | 276 | No | No | No | Yes | No | No | No | No | No | No |
| 5 | 2 | 315 | 2 | 245 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 311 | 2 | 242 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 307 | 2 | 239 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 279 | 2 | 217 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 275 | 2 | 214 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 271 | 2 | 211 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 235 | 2 | 183 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 220 | 2 | 171 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 215 | 2 | 167 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 160 | 2 | 124 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 160 | 2 | 124 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 111 | 2 | 87 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 64 | 2 | 50 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 64 | 2 | 50 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 36 | 2 | 28 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 20 | 2 | 16 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 12 | 2 | 9 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 4 | 2 | 3 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.6 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 1:10 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 310 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 709 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|-----|---------------|----|
| | S | N | E | W |
| 1 | 241 | 113 | 28 | 17 |
| 2 | 234 | 110 | 27 | 16 |
| 3 | 229 | 107 | 27 | 16 |
| 4 | 214 | 101 | 25 | 15 |
| 5 | 190 | 89 | 22 | 13 |
| 6 | 188 | 88 | 22 | 13 |
| 7 | 186 | 87 | 22 | 13 |
| 8 | 169 | 79 | 20 | 12 |
| 9 | 166 | 78 | 19 | 12 |
| 10 | 164 | 77 | 19 | 12 |
| 11 | 142 | 67 | 17 | 10 |
| 12 | 133 | 62 | 15 | 9 |
| 13 | 130 | 61 | 15 | 9 |
| 14 | 96 | 45 | 11 | 7 |
| 15 | 96 | 45 | 11 | 7 |
| 16 | 67 | 32 | 8 | 5 |
| 17 | 39 | 18 | 4 | 3 |
| 18 | 39 | 18 | 4 | 3 |
| 19 | 22 | 10 | 3 | 2 |
| 20 | 12 | 6 | 1 | 1 |
| 21 | 7 | 3 | 1 | 1 |
| 22 | 2 | 1 | 0 | 0 |
| 23 | 2 | 1 | 0 | 0 |
| 24 | 2 | 1 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 354 | 1 | 28 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 344 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 336 | 1 | 27 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 315 | 1 | 25 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 279 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 276 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 273 | 1 | 22 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 248 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 244 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 241 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 209 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 195 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 191 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 141 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 141 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 99 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 57 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 57 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 32 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 18 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 10 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.7 | 11.6 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:04 | 0:03 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 28 | 17 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 399 | 399 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|----|
| | S | N | E | W |
| 1 | 0 | 7 | 71 | 87 |
| 2 | 0 | 7 | 69 | 84 |
| 3 | 0 | 7 | 67 | 83 |
| 4 | 0 | 6 | 63 | 77 |
| 5 | 0 | 6 | 56 | 69 |
| 6 | 0 | 5 | 55 | 68 |
| 7 | 0 | 5 | 55 | 67 |
| 8 | 0 | 5 | 50 | 61 |
| 9 | 0 | 5 | 49 | 60 |
| 10 | 0 | 5 | 48 | 59 |
| 11 | 0 | 4 | 42 | 51 |
| 12 | 0 | 4 | 39 | 48 |
| 13 | 0 | 4 | 38 | 47 |
| 14 | 0 | 3 | 28 | 35 |
| 15 | 0 | 3 | 28 | 35 |
| 16 | 0 | 2 | 20 | 24 |
| 17 | 0 | 1 | 11 | 14 |
| 18 | 0 | 1 | 11 | 14 |
| 19 | 0 | 1 | 6 | 8 |
| 20 | 0 | 0 | 4 | 4 |
| 21 | 0 | 0 | 2 | 3 |
| 22 | 0 | 0 | 1 | 1 |
| 23 | 0 | 0 | 1 | 1 |
| 24 | 0 | 0 | 1 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 7 | 1 | 87 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 7 | 1 | 84 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 7 | 1 | 83 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 6 | 1 | 77 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 6 | 1 | 69 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 5 | 1 | 68 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 5 | 1 | 67 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 5 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 5 | 1 | 60 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 5 | 1 | 59 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 4 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 4 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 4 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 3 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 3 | 1 | 35 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 2 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 1 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 1 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 1 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 4 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.4 | 9.6 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:11 | 0:13 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 71 | 87 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 165 | 165 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|----|---------------|
| | S | N | W |
| 1 | 198 | 98 | 94 |
| 2 | 192 | 95 | 91 |
| 3 | 188 | 93 | 89 |
| 4 | 176 | 87 | 84 |
| 5 | 156 | 77 | 74 |
| 6 | 154 | 76 | 73 |
| 7 | 152 | 75 | 72 |
| 8 | 139 | 69 | 66 |
| 9 | 137 | 68 | 65 |
| 10 | 135 | 67 | 64 |
| 11 | 117 | 58 | 55 |
| 12 | 109 | 54 | 52 |
| 13 | 107 | 53 | 51 |
| 14 | 79 | 39 | 38 |
| 15 | 79 | 39 | 38 |
| 16 | 55 | 27 | 26 |
| 17 | 32 | 16 | 15 |
| 18 | 32 | 16 | 15 |
| 19 | 18 | 9 | 8 |
| 20 | 10 | 5 | 5 |
| 21 | 6 | 3 | 3 |
| 22 | 2 | 1 | 1 |
| 23 | 2 | 1 | 1 |
| 24 | 2 | 1 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 296 | 1 | 94 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 287 | 1 | 91 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 281 | 1 | 89 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 263 | 1 | 84 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 233 | 1 | 74 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 230 | 1 | 73 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 227 | 1 | 72 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 208 | 1 | 66 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 205 | 1 | 65 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 202 | 1 | 64 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 175 | 1 | 55 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 163 | 1 | 52 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 160 | 1 | 51 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 118 | 1 | 38 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 118 | 1 | 38 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 82 | 1 | 26 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 48 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 48 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 27 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 15 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 9 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 3 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.7 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:16 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 94 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 390 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Intersection Level Of Service Report
Intersection 1: Lorson Bl/Trappe Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.324

Intersection Setup

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|------------------------------|------------|--------|-----------|--------|-----------|--------|
| Approach | Northbound | | Eastbound | | Westbound | |
| Lane Configuration | ↔↔ | | ↕↔ | | ↔↕ | |
| Turning Movement | Left | Right | Thru | Right | Left | Thru |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 1 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Lorson Bl | | Lorson Bl | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 188 | 2 | 224 | 343 | 5 | 137 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 15 | 0 | 0 | 25 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 203 | 2 | 224 | 368 | 5 | 137 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 51 | 1 | 56 | 92 | 1 | 34 |
| Total Analysis Volume [veh/h] | 203 | 2 | 224 | 368 | 5 | 137 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Stop | Free | Free |
| Flared Lane | | | |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | No | | |
| Number of Storage Spaces in Median | 0 | 0 | 0 |

Movement, Approach, & Intersection Results





| | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|
| V/C, Movement V/C Ratio | 0.32 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| d_M, Delay for Movement [s/veh] | 13.48 | 9.43 | 0.00 | 0.00 | 8.68 | 0.00 |
| Movement LOS | B | A | A | A | A | A |
| 95th-Percentile Queue Length [veh/ln] | 1.40 | 0.01 | 0.00 | 0.00 | 0.02 | 0.00 |
| 95th-Percentile Queue Length [ft/ln] | 35.04 | 0.18 | 0.00 | 0.00 | 0.38 | 0.00 |
| d_A, Approach Delay [s/veh] | 13.44 | | 0.00 | | 0.31 | |
| Approach LOS | B | | A | | A | |
| d_I, Intersection Delay [s/veh] | 2.98 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 2: Trappe Dr/Magothy Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.025

Intersection Setup

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|------------------------------|---|--------|--------|---|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Trappe Dr | | | Trappe Dr | | | Magothy Dr | | | Magothy Dr | | |
|---|-----------|--------|--------|-----------|--------|--------|------------|--------|--------|------------|--------|--------|
| Base Volume Input [veh/h] | 0 | 156 | 1 | 31 | 291 | 0 | 0 | 0 | 0 | 1 | 1 | 19 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 4 | 0 | 0 | 7 | 18 | 11 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 160 | 1 | 31 | 298 | 18 | 11 | 0 | 0 | 1 | 1 | 19 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 40 | 0 | 8 | 75 | 5 | 3 | 0 | 0 | 0 | 0 | 5 |
| Total Analysis Volume [veh/h] | 0 | 160 | 1 | 31 | 298 | 18 | 11 | 0 | 0 | 1 | 1 | 19 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results

| | | | | | | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| d_M, Delay for Movement [s/veh] | 7.89 | 0.00 | 0.00 | 7.60 | 0.00 | 0.00 | 13.49 | 13.31 | 10.13 | 13.08 | 13.31 | 9.19 |
| Movement LOS | A | A | A | A | A | A | B | B | B | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 1.68 | 0.00 | 0.00 | 1.94 | 1.94 | 1.94 | 2.00 | 2.00 | 2.00 |
| d_A, Approach Delay [s/veh] | 0.00 | | | 0.68 | | | 13.49 | | | 9.57 | | |
| Approach LOS | A | | | A | | | B | | | A | | |
| d_I, Intersection Delay [s/veh] | 1.08 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 4: Luneth Dr/Akela Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.222

Intersection Setup

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|------------------------------|------------|--------|--------|------------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration | + | | | + | | | + | | | + | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Akela Ln | | | Akela Ln | | | Luneth Dr | | | Luneth Dr | | |
|---|----------|--------|--------|----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 0 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 7 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 14 | 0 | 0 | 49 | 2 |
| Total Analysis Volume [veh/h] | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 57 | 0 | 0 | 196 | 7 |
| Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | | | | |
|------------------------------------|------|------|------|------|
| Priority Scheme | Free | Free | Stop | Stop |
| Flared Lane | | | No | No |
| Storage Area [veh] | 0 | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 | 0 |

Movement, Approach, & Intersection Results




| | | | | | | | | | | | | |
|---------------------------------------|-------|------|------|------|------|------|-------|------|------|-------|-------|-------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.22 | 0.01 |
| d_M, Delay for Movement [s/veh] | 7.22 | 0.00 | 0.00 | 7.22 | 0.00 | 0.00 | 10.32 | 9.35 | 8.60 | 10.10 | 10.26 | 9.51 |
| Movement LOS | A | A | A | A | A | A | B | A | A | B | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.21 | 0.21 | 0.21 | 0.88 | 0.88 | 0.88 |
| 95th-Percentile Queue Length [ft/ln] | 0.00 | 0.00 | 0.00 | 0.19 | 0.19 | 0.19 | 5.15 | 5.15 | 5.15 | 21.92 | 21.92 | 21.92 |
| d_A, Approach Delay [s/veh] | 2.41 | | | 7.22 | | | 9.35 | | | 10.23 | | |
| Approach LOS | A | | | A | | | A | | | B | | |
| d_I, Intersection Delay [s/veh] | 10.00 | | | | | | | | | | | |
| Intersection LOS | B | | | | | | | | | | | |

Intersection Level Of Service Report
Intersection 5: Trappe Dr/Luneth Dr

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.087

Intersection Setup

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|------------------------------|---|--------|---|--------|---|--------|
| Approach | Northbound | | Southbound | | Eastbound | |
| Lane Configuration |  | |  | |  | |
| Turning Movement | Left | Thru | Thru | Right | Left | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 0 | 0 | 0 | 0 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | 30.00 | | 30.00 | |
| Grade [%] | 0.00 | | 0.00 | | 0.00 | |
| Crosswalk | Yes | | Yes | | Yes | |

Volumes

| Name | Trappe Dr | | Trappe Dr | | Luneth Dr | |
|---|-----------|--------|-----------|--------|-----------|--------|
| Base Volume Input [veh/h] | 1 | 100 | 96 | 195 | 56 | 1 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 7 | 4 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 1 | 100 | 96 | 202 | 60 | 1 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 0 | 25 | 24 | 51 | 15 | 0 |
| Total Analysis Volume [veh/h] | 1 | 100 | 96 | 202 | 60 | 1 |
| Pedestrian Volume [ped/h] | 0 | | 0 | | 0 | |

Intersection Settings

| | | | |
|------------------------------------|------|------|------|
| Priority Scheme | Free | Free | Stop |
| Flared Lane | | | No |
| Storage Area [veh] | 0 | 0 | 0 |
| Two-Stage Gap Acceptance | | | No |
| Number of Storage Spaces in Median | 0 | 0 | 0 |





Movement, Approach, & Intersection Results

| | | | | | | |
|---------------------------------------|------|------|------|------|-------|------|
| V/C, Movement V/C Ratio | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| d_M, Delay for Movement [s/veh] | 7.85 | 0.00 | 0.00 | 0.00 | 10.70 | 9.76 |
| Movement LOS | A | A | A | A | B | A |
| 95th-Percentile Queue Length [veh/ln] | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.29 |
| 95th-Percentile Queue Length [ft/ln] | 0.06 | 0.00 | 0.00 | 0.00 | 7.20 | 7.20 |
| d_A, Approach Delay [s/veh] | 0.08 | | 0.00 | | 10.69 | |
| Approach LOS | A | | A | | B | |
| d_I, Intersection Delay [s/veh] | 1.43 | | | | | |
| Intersection LOS | B | | | | | |

Intersection Level Of Service Report
Intersection 7: Marksheffel Rd/Lorson Bl

| | | | |
|------------------|-----------------|---------------------------|-------|
| Control Type: | Signalized | Delay (sec / veh): | 22.4 |
| Analysis Method: | HCM 6th Edition | Level Of Service: | C |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.542 |

Intersection Setup

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|------------------------------|---|--------|--------|--|--------|--------|---|--------|--------|---|--------|--------|
| Approach | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
| Lane Configuration |  | | |  | | |  | | |  | | |
| Turning Movement | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Lane Width [ft] | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 | 12.00 |
| No. of Lanes in Entry Pocket | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 |
| Entry Pocket Length [ft] | 100.00 | 100.00 | 245.00 | 400.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 250.00 | 100.00 | 100.00 |
| No. of Lanes in Exit Pocket | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exit Pocket Length [ft] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Speed [mph] | 30.00 | | | 30.00 | | | 30.00 | | | 30.00 | | |
| Grade [%] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Curb Present | No | | | No | | | No | | | No | | |
| Crosswalk | Yes | | | Yes | | | Yes | | | Yes | | |

Volumes

| Name | Marksheffel Rd | | | Marksheffel Rd | | | | | | Lorson Bl | | |
|--|----------------|--------|--------|----------------|--------|--------|--------|--------|--------|-----------|--------|--------|
| Base Volume Input [veh/h] | 159 | 742 | 456 | 123 | 610 | 34 | 47 | 15 | 41 | 282 | 20 | 105 |
| Base Volume Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Heavy Vehicles Percentage [%] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Growth Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 9 | 16 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 10 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Right Turn on Red Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Hourly Volume [veh/h] | 159 | 742 | 465 | 139 | 610 | 34 | 47 | 15 | 41 | 287 | 20 | 115 |
| Peak Hour Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Other Adjustment Factor | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| Total 15-Minute Volume [veh/h] | 40 | 186 | 116 | 35 | 153 | 9 | 12 | 4 | 10 | 72 | 5 | 29 |
| Total Analysis Volume [veh/h] | 159 | 742 | 465 | 139 | 610 | 34 | 47 | 15 | 41 | 287 | 20 | 115 |
| Presence of On-Street Parking | No | | No | No | | No | No | | No | No | | No |
| On-Street Parking Maneuver Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Local Bus Stopping Rate [/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| v_do, Outbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_di, Inbound Pedestrian Volume crossing major street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_co, Outbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ci, Inbound Pedestrian Volume crossing minor street | 0 | | | 0 | | | 0 | | | 0 | | |
| v_ab, Corner Pedestrian Volume [ped/h] | 0 | | | 0 | | | 0 | | | 0 | | |
| Bicycle Volume [bicycles/h] | 0 | | | 0 | | | 0 | | | 0 | | |

Intersection Settings

| | |
|---------------------------|---------------------------------------|
| Located in CBD | Yes |
| Signal Coordination Group | - |
| Cycle Length [s] | 80 |
| Coordination Type | Time of Day Pattern Coordinated |
| Actuation Type | Fully actuated |
| Offset [s] | 0.0 |
| Offset Reference | Lead Green - Beginning of First Green |
| Permissive Mode | SingleBand |
| Lost time [s] | 0.00 |

Phasing & Timing

| Control Type | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis | Protect | Permis | Permis |
|------------------------------|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Signal Group | 1 | 6 | 0 | 5 | 2 | 0 | 3 | 8 | 0 | 7 | 4 | 0 |
| Auxiliary Signal Groups | | | | | | | | | | | | |
| Lead / Lag | Lead | - | - | Lead | - | - | Lead | - | - | Lead | - | - |
| Minimum Green [s] | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 |
| Maximum Green [s] | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 |
| Amber [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| All red [s] | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 0.0 |
| Split [s] | 18 | 23 | 0 | 14 | 19 | 0 | 10 | 30 | 0 | 13 | 33 | 0 |
| Vehicle Extension [s] | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Walk [s] | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |
| Pedestrian Clearance [s] | 0 | 14 | 0 | 0 | 10 | 0 | 0 | 21 | 0 | 0 | 21 | 0 |
| Delayed Vehicle Green [s] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rest In Walk | | No | | | No | | | No | | | No | |
| I1, Start-Up Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| I2, Clearance Lost Time [s] | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 0.0 |
| Minimum Recall | No | No | | No | No | | No | No | | No | No | |
| Maximum Recall | No | No | | No | No | | No | No | | No | No | |
| Pedestrian Recall | No | No | | No | No | | No | No | | No | No | |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Exclusive Pedestrian Phase

| | |
|--------------------------|---|
| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |

Lane Group Calculations

| Lane Group | L | C | R | L | C | R | L | C | L | C | R |
|---|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| C, Cycle Length [s] | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| L, Total Lost Time per Cycle [s] | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| l1_p, Permitted Start-Up Lost Time [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| l2, Clearance Lost Time [s] | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| g_i, Effective Green Time [s] | 6 | 39 | 39 | 9 | 42 | 42 | 3 | 7 | 9 | 13 | 13 |
| g / C, Green / Cycle | 0.08 | 0.49 | 0.49 | 0.11 | 0.52 | 0.52 | 0.04 | 0.09 | 0.11 | 0.16 | 0.16 |
| (v / s)_i Volume / Saturation Flow Rate | 0.05 | 0.23 | 0.33 | 0.09 | 0.19 | 0.02 | 0.02 | 0.04 | 0.09 | 0.01 | 0.08 |
| s, saturation flow rate [veh/h] | 3113 | 3204 | 1431 | 1603 | 3204 | 1431 | 3113 | 1490 | 3113 | 1683 | 1431 |
| c, Capacity [veh/h] | 240 | 1569 | 701 | 172 | 1666 | 744 | 131 | 135 | 352 | 272 | 231 |
| d1, Uniform Delay [s] | 36.01 | 13.59 | 15.48 | 35.02 | 11.42 | 9.47 | 37.37 | 34.47 | 34.75 | 28.53 | 30.65 |
| k, delay calibration | 0.11 | 0.50 | 0.50 | 0.11 | 0.50 | 0.50 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| l, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| d2, Incremental Delay [s] | 3.14 | 1.02 | 4.91 | 8.76 | 0.62 | 0.12 | 1.65 | 2.03 | 4.59 | 0.11 | 1.65 |
| d3, Initial Queue Delay [s] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rp, platoon ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PF, progression factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Lane Group Results

| | | | | | | | | | | | |
|---------------------------------------|-------|--------|--------|--------|--------|-------|-------|-------|--------|-------|-------|
| X, volume / capacity | 0.66 | 0.47 | 0.66 | 0.81 | 0.37 | 0.05 | 0.36 | 0.41 | 0.81 | 0.07 | 0.50 |
| d, Delay for Lane Group [s/veh] | 39.15 | 14.62 | 20.39 | 43.77 | 12.05 | 9.59 | 39.01 | 36.50 | 39.34 | 28.64 | 32.30 |
| Lane Group LOS | D | B | C | D | B | A | D | D | D | C | C |
| Critical Lane Group | No | No | Yes | Yes | No | No | No | Yes | Yes | No | No |
| 50th-Percentile Queue Length [veh/ln] | 1.59 | 4.30 | 6.77 | 3.01 | 3.07 | 0.29 | 0.47 | 1.09 | 2.89 | 0.33 | 2.08 |
| 50th-Percentile Queue Length [ft/ln] | 39.63 | 107.39 | 169.19 | 75.14 | 76.75 | 7.36 | 11.75 | 27.17 | 72.23 | 8.20 | 51.98 |
| 95th-Percentile Queue Length [veh/ln] | 2.85 | 7.69 | 11.03 | 5.41 | 5.53 | 0.53 | 0.85 | 1.96 | 5.20 | 0.59 | 3.74 |
| 95th-Percentile Queue Length [ft/ln] | 71.33 | 192.37 | 275.85 | 135.24 | 138.15 | 13.25 | 21.16 | 48.90 | 130.02 | 14.76 | 93.56 |

Movement, Approach, & Intersection Results

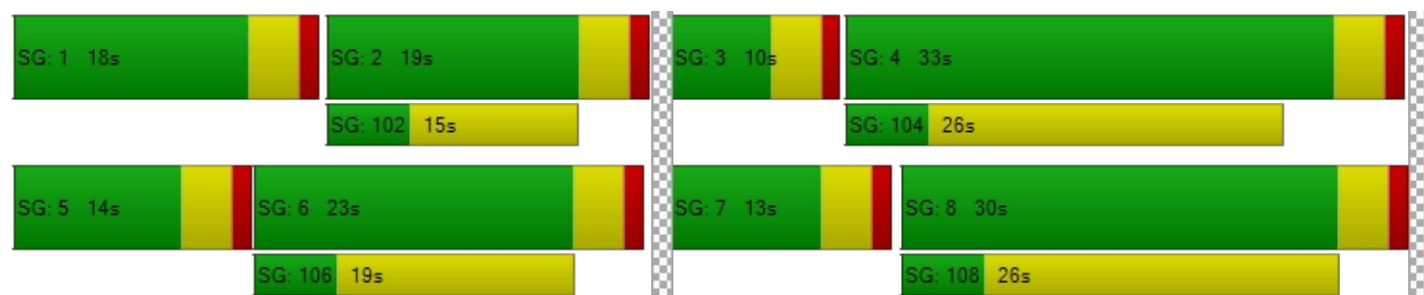
| | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| d_M, Delay for Movement [s/veh] | 39.15 | 14.62 | 20.39 | 43.77 | 12.05 | 9.59 | 39.01 | 36.50 | 36.50 | 39.34 | 28.64 | 32.30 |
| Movement LOS | D | B | C | D | B | A | D | D | D | D | C | C |
| d_A, Approach Delay [s/veh] | 19.44 | | | 17.57 | | | 37.65 | | | 36.91 | | |
| Approach LOS | B | | | B | | | D | | | D | | |
| d_I, Intersection Delay [s/veh] | 22.35 | | | | | | | | | | | |
| Intersection LOS | C | | | | | | | | | | | |
| Intersection V/C | 0.542 | | | | | | | | | | | |

Other Modes

| | | | | | | | | | | | | |
|--|-------|--|--|-------|--|--|-------|--|--|-------|--|--|
| g_Walk,mi, Effective Walk Time [s] | 9.0 | | | 9.0 | | | 9.0 | | | 9.0 | | |
| M_corner, Corner Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| M_CW, Crosswalk Circulation Area [ft ² /ped] | 0.00 | | | 0.00 | | | 0.00 | | | 0.00 | | |
| d_p, Pedestrian Delay [s] | 31.56 | | | 31.56 | | | 31.56 | | | 31.56 | | |
| I_p,int, Pedestrian LOS Score for Intersection | 2.911 | | | 2.723 | | | 2.357 | | | 2.499 | | |
| Crosswalk LOS | C | | | B | | | B | | | B | | |
| s_b, Saturation Flow Rate of the bicycle lane [bicycles/h] | 2000 | | | 2000 | | | 2000 | | | 2000 | | |
| c_b, Capacity of the bicycle lane [bicycles/h] | 474 | | | 374 | | | 649 | | | 724 | | |
| d_b, Bicycle Delay [s] | 23.31 | | | 26.46 | | | 18.27 | | | 16.30 | | |
| I_b,int, Bicycle LOS Score for Intersection | 2.687 | | | 2.206 | | | 1.730 | | | 2.256 | | |
| Bicycle LOS | B | | | B | | | A | | | B | | |

Sequence

| | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 1 | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 5 | 6 | 7 | 8 | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



Signal Warrants Report For Intersection 1: Lorson Bl/Trappe Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | E, W |
| Minor Approaches | S |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | E | W | S |
| 1 | 142 | 592 | 205 |
| 2 | 138 | 574 | 199 |
| 3 | 135 | 562 | 195 |
| 4 | 126 | 527 | 182 |
| 5 | 112 | 468 | 162 |
| 6 | 111 | 462 | 160 |
| 7 | 109 | 456 | 158 |
| 8 | 99 | 414 | 144 |
| 9 | 98 | 408 | 141 |
| 10 | 97 | 403 | 139 |
| 11 | 84 | 349 | 121 |
| 12 | 78 | 326 | 113 |
| 13 | 77 | 320 | 111 |
| 14 | 57 | 237 | 82 |
| 15 | 57 | 237 | 82 |
| 16 | 40 | 166 | 57 |
| 17 | 23 | 95 | 33 |
| 18 | 23 | 95 | 33 |
| 19 | 13 | 53 | 18 |
| 20 | 7 | 30 | 10 |
| 21 | 4 | 18 | 6 |
| 22 | 1 | 6 | 2 |
| 23 | 1 | 6 | 2 |
| 24 | 1 | 6 | 2 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 734 | 2 | 205 | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No |
| 2 | 2 | 712 | 2 | 199 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 3 | 2 | 697 | 2 | 195 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 4 | 2 | 653 | 2 | 182 | No | Yes | Yes | Yes | No | No | Yes | Yes | No | No |
| 5 | 2 | 580 | 2 | 162 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 6 | 2 | 573 | 2 | 160 | No | Yes | Yes | Yes | No | No | No | Yes | No | No |
| 7 | 2 | 565 | 2 | 158 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 8 | 2 | 513 | 2 | 144 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 9 | 2 | 506 | 2 | 141 | No | No | Yes | Yes | No | No | No | Yes | No | No |
| 10 | 2 | 500 | 2 | 139 | No | No | No | Yes | No | No | No | No | No | No |
| 11 | 2 | 433 | 2 | 121 | No | No | No | Yes | No | No | No | No | No | No |
| 12 | 2 | 404 | 2 | 113 | No | No | No | Yes | No | No | No | No | No | No |
| 13 | 2 | 397 | 2 | 111 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 294 | 2 | 82 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 294 | 2 | 82 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 206 | 2 | 57 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 118 | 2 | 33 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 118 | 2 | 33 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 66 | 2 | 18 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 37 | 2 | 10 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 22 | 2 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 7 | 2 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 1 | 6 | 9 | 12 | 0 | 1 | 4 | 9 | 0 | 0 |

Warrant 3 Condition A

| | |
|---|-----------|
| Orientation | S |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 13.4 |
| Number of Lanes on Minor Street Approach | 2 |
| VehicleHours of Stopped Delay on Minor Approach ([h]h:mm) | 0:45 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 205 |
| High Minor Volume Condition Met | Yes |
| Total Entering Volume on All Approaches During Same Hour | 939 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | Yes |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

Signal Warrants Report For Intersection 2: Trappe Dr/Magothy Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|-----|---------------|----|
| | S | N | E | W |
| 1 | 161 | 347 | 21 | 11 |
| 2 | 156 | 337 | 20 | 11 |
| 3 | 153 | 330 | 20 | 10 |
| 4 | 143 | 309 | 19 | 10 |
| 5 | 127 | 274 | 17 | 9 |
| 6 | 126 | 271 | 16 | 9 |
| 7 | 124 | 267 | 16 | 8 |
| 8 | 113 | 243 | 15 | 8 |
| 9 | 111 | 239 | 14 | 8 |
| 10 | 109 | 236 | 14 | 7 |
| 11 | 95 | 205 | 12 | 6 |
| 12 | 89 | 191 | 12 | 6 |
| 13 | 87 | 187 | 11 | 6 |
| 14 | 64 | 139 | 8 | 4 |
| 15 | 64 | 139 | 8 | 4 |
| 16 | 45 | 97 | 6 | 3 |
| 17 | 26 | 56 | 3 | 2 |
| 18 | 26 | 56 | 3 | 2 |
| 19 | 14 | 31 | 2 | 1 |
| 20 | 8 | 17 | 1 | 1 |
| 21 | 5 | 10 | 1 | 0 |
| 22 | 2 | 3 | 0 | 0 |
| 23 | 2 | 3 | 0 | 0 |
| 24 | 2 | 3 | 0 | 0 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 508 | 1 | 21 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 493 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 483 | 1 | 20 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 452 | 1 | 19 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 401 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 397 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 391 | 1 | 16 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 356 | 1 | 15 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 350 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 345 | 1 | 14 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 300 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 280 | 1 | 12 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 274 | 1 | 11 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 203 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 203 | 1 | 8 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 142 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 82 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 82 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 45 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 25 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 15 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 5 | 1 | 0 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 9.6 | 13.5 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:03 | 0:02 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 21 | 11 |
| High Minor Volume Condition Met | No | No |
| Total Entering Volume on All Approaches During Same Hour | 540 | 540 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 4: Luneth Dr/Akela Ln

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | E, W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets | |
|------|---------------|---|---------------|----|
| | S | N | E | W |
| 1 | 0 | 4 | 203 | 57 |
| 2 | 0 | 4 | 197 | 55 |
| 3 | 0 | 4 | 193 | 54 |
| 4 | 0 | 4 | 181 | 51 |
| 5 | 0 | 3 | 160 | 45 |
| 6 | 0 | 3 | 158 | 44 |
| 7 | 0 | 3 | 156 | 44 |
| 8 | 0 | 3 | 142 | 40 |
| 9 | 0 | 3 | 140 | 39 |
| 10 | 0 | 3 | 138 | 39 |
| 11 | 0 | 2 | 120 | 34 |
| 12 | 0 | 2 | 112 | 31 |
| 13 | 0 | 2 | 110 | 31 |
| 14 | 0 | 2 | 81 | 23 |
| 15 | 0 | 2 | 81 | 23 |
| 16 | 0 | 1 | 57 | 16 |
| 17 | 0 | 1 | 32 | 9 |
| 18 | 0 | 1 | 32 | 9 |
| 19 | 0 | 0 | 18 | 5 |
| 20 | 0 | 0 | 10 | 3 |
| 21 | 0 | 0 | 6 | 2 |
| 22 | 0 | 0 | 2 | 1 |
| 23 | 0 | 0 | 2 | 1 |
| 24 | 0 | 0 | 2 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 1 | 4 | 1 | 203 | No | No | No | No | No | No | No | No | No | No |
| 2 | 1 | 4 | 1 | 197 | No | No | No | No | No | No | No | No | No | No |
| 3 | 1 | 4 | 1 | 193 | No | No | No | No | No | No | No | No | No | No |
| 4 | 1 | 4 | 1 | 181 | No | No | No | No | No | No | No | No | No | No |
| 5 | 1 | 3 | 1 | 160 | No | No | No | No | No | No | No | No | No | No |
| 6 | 1 | 3 | 1 | 158 | No | No | No | No | No | No | No | No | No | No |
| 7 | 1 | 3 | 1 | 156 | No | No | No | No | No | No | No | No | No | No |
| 8 | 1 | 3 | 1 | 142 | No | No | No | No | No | No | No | No | No | No |
| 9 | 1 | 3 | 1 | 140 | No | No | No | No | No | No | No | No | No | No |
| 10 | 1 | 3 | 1 | 138 | No | No | No | No | No | No | No | No | No | No |
| 11 | 1 | 2 | 1 | 120 | No | No | No | No | No | No | No | No | No | No |
| 12 | 1 | 2 | 1 | 112 | No | No | No | No | No | No | No | No | No | No |
| 13 | 1 | 2 | 1 | 110 | No | No | No | No | No | No | No | No | No | No |
| 14 | 1 | 2 | 1 | 81 | No | No | No | No | No | No | No | No | No | No |
| 15 | 1 | 2 | 1 | 81 | No | No | No | No | No | No | No | No | No | No |
| 16 | 1 | 1 | 1 | 57 | No | No | No | No | No | No | No | No | No | No |
| 17 | 1 | 1 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 18 | 1 | 1 | 1 | 32 | No | No | No | No | No | No | No | No | No | No |
| 19 | 1 | 0 | 1 | 18 | No | No | No | No | No | No | No | No | No | No |
| 20 | 1 | 0 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 21 | 1 | 0 | 1 | 6 | No | No | No | No | No | No | No | No | No | No |
| 22 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 23 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 24 | 1 | 0 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| Orientation | E | W |
|--|-----------|------|
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.2 | 9.3 |
| Number of Lanes on Minor Street Approach | 1 | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:34 | 0:08 |
| Delay Condition Met | No | No |
| Volume on Minor Street Approach During Same Hour | 203 | 57 |
| High Minor Volume Condition Met | Yes | No |
| Total Entering Volume on All Approaches During Same Hour | 264 | 264 |
| Number of Approaches on Intersection | 4 | 4 |
| Total Volume Condition Met | No | No |
| Warrant Met for Approach | No | No |
| Warrant Met for Intersection | No | |

Signal Warrants Report For Intersection 5: Trappe Dr/Luneth Dr

Warrants Summary

| Warrant | Name | Met? |
|---------|-----------------------------|------|
| #1 | Eight Hour Vehicular Volume | No |
| #2 | Four Hour Vehicular Volume | No |
| #3 | Peak Hour | No |

Intersection Warrants Parameters

| | |
|---------------------|------|
| Major Approaches | S, N |
| Minor Approaches | W |
| Speed > 40mph | No |
| Population < 10,000 | No |
| Warrant Factor | 100% |

Warrant Analysis Traffic Volumes

| Hour | Major Streets | | Minor Streets |
|------|---------------|-----|---------------|
| | S | N | W |
| 1 | 101 | 298 | 61 |
| 2 | 98 | 289 | 59 |
| 3 | 96 | 283 | 58 |
| 4 | 90 | 265 | 54 |
| 5 | 80 | 235 | 48 |
| 6 | 79 | 232 | 48 |
| 7 | 78 | 229 | 47 |
| 8 | 71 | 209 | 43 |
| 9 | 70 | 206 | 42 |
| 10 | 69 | 203 | 41 |
| 11 | 60 | 176 | 36 |
| 12 | 56 | 164 | 34 |
| 13 | 55 | 161 | 33 |
| 14 | 40 | 119 | 24 |
| 15 | 40 | 119 | 24 |
| 16 | 28 | 83 | 17 |
| 17 | 16 | 48 | 10 |
| 18 | 16 | 48 | 10 |
| 19 | 9 | 27 | 5 |
| 20 | 5 | 15 | 3 |
| 21 | 3 | 9 | 2 |
| 22 | 1 | 3 | 1 |
| 23 | 1 | 3 | 1 |
| 24 | 1 | 3 | 1 |

Warrant Analysis by Hour

| Hour | Major Streets | | Minor Street | | Warrant 1 Condition A | | | | Warrant 1 Condition B | | | | Warrant 2 | Warrant 3 |
|-----------|---------------|--------|--------------|--------|-----------------------|-----|-----|-----|-----------------------|-----|-----|-----|-----------|-------------|
| | Number | Volume | Number | Volume | 100% | 80% | 70% | 56% | 100% | 80% | 70% | 56% | | Condition B |
| 1 | 2 | 399 | 1 | 61 | No | No | No | No | No | No | No | No | No | No |
| 2 | 2 | 387 | 1 | 59 | No | No | No | No | No | No | No | No | No | No |
| 3 | 2 | 379 | 1 | 58 | No | No | No | No | No | No | No | No | No | No |
| 4 | 2 | 355 | 1 | 54 | No | No | No | No | No | No | No | No | No | No |
| 5 | 2 | 315 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 6 | 2 | 311 | 1 | 48 | No | No | No | No | No | No | No | No | No | No |
| 7 | 2 | 307 | 1 | 47 | No | No | No | No | No | No | No | No | No | No |
| 8 | 2 | 280 | 1 | 43 | No | No | No | No | No | No | No | No | No | No |
| 9 | 2 | 276 | 1 | 42 | No | No | No | No | No | No | No | No | No | No |
| 10 | 2 | 272 | 1 | 41 | No | No | No | No | No | No | No | No | No | No |
| 11 | 2 | 236 | 1 | 36 | No | No | No | No | No | No | No | No | No | No |
| 12 | 2 | 220 | 1 | 34 | No | No | No | No | No | No | No | No | No | No |
| 13 | 2 | 216 | 1 | 33 | No | No | No | No | No | No | No | No | No | No |
| 14 | 2 | 159 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 15 | 2 | 159 | 1 | 24 | No | No | No | No | No | No | No | No | No | No |
| 16 | 2 | 111 | 1 | 17 | No | No | No | No | No | No | No | No | No | No |
| 17 | 2 | 64 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 18 | 2 | 64 | 1 | 10 | No | No | No | No | No | No | No | No | No | No |
| 19 | 2 | 36 | 1 | 5 | No | No | No | No | No | No | No | No | No | No |
| 20 | 2 | 20 | 1 | 3 | No | No | No | No | No | No | No | No | No | No |
| 21 | 2 | 12 | 1 | 2 | No | No | No | No | No | No | No | No | No | No |
| 22 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 23 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| 24 | 2 | 4 | 1 | 1 | No | No | No | No | No | No | No | No | No | No |
| Hours Met | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Warrant 3 Condition A

| | |
|--|-----------|
| Orientation | W |
| Total Stopped Delay Per Vehicle on Minor Approach (s) | 10.7 |
| Number of Lanes on Minor Street Approach | 1 |
| VehicleHours of Stopped Delay on Minor Approach (h:mm) | 0:10 |
| Delay Condition Met | No |
| Volume on Minor Street Approach During Same Hour | 61 |
| High Minor Volume Condition Met | No |
| Total Entering Volume on All Approaches During Same Hour | 460 |
| Number of Approaches on Intersection | 3 |
| Total Volume Condition Met | No |
| Warrant Met for Approach | No |
| Warrant Met for Intersection | No |

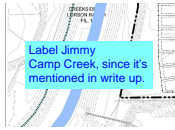
Table 2
Lorson Boulevard/Marksheffel Road Future Traffic Signal Contributions
Creekside South at Lorson Ranch

| Subdivision | Previously Identified Signal Contribution | Remaining Needed (Based on \$300,000 Total Cost) |
|--|---|---|
| Carriage Meadows South at Lorson Ranch Filing No. 1 ⁽¹⁾ | \$115,302 | \$184,698 |
| Lorson Ranch East Filing No. 1 ⁽²⁾ | \$86,003 | \$98,695 |
| Lorson Ranch East Filing No. 2 ⁽³⁾ | \$0 | \$98,695 |
| Lorson Ranch East Filing No. 3 ⁽⁴⁾ | \$0 | \$98,695 |
| Lorson Ranch East Filing No. 4 ⁽⁵⁾ | \$68,801 | \$29,894 |
| Carriage Meadows Townhomes ⁽⁶⁾ | \$10,453 | \$19,441 |
| Creekside at Lorson Ranch Filing No. 1 ⁽⁷⁾ | \$19,441 | \$0 |
| | \$300,000 | |
| Notes: (1) <i>Carriage Meadows South at Lorson Ranch Filing No 1 Updated Traffic Impact Analysis</i> by LSC August 14, (2) <i>Lorson Ranch East Filing No 1 Transportation Memorandum</i> by LSC May 2, 2018 (3) <i>Lorson Ranch East Filing No 2 Transportation Memorandum</i> by LSC September 24, 2018 (4) <i>Lorson Ranch East Filing No 3 Transportation Memorandum</i> by LSC January 22, 2019 (5) <i>Lorson Ranch East Filing No 4 Transportation Memorandum</i> by LSC March 12, 2019 (6) <i>Carriage Meadows Townhomes Traffic Impact Analysis</i> by LSC April 10, 2019 (7) <i>Creekside at Lorson Ranch Filing No. 1 Transportation Memorandum</i> by LSC April 26, 2019 <i>Source: LSC Transportation Consultants, Inc.</i> | | |

Refer to SF224 - Ridge at Lorson Ranch Filing 1 TIS, the cost of signal at Lorson/Marksheffel has been updated to a "today" cost, which is an additional \$290,000. This cost has a portion which Creekside project has a portion to cover. Please update table accordingly. Please confer with remaining Lorson projects to determine what improvements this project will be constructing.

ENG-PUDSP22003-R2-TIS.pdf Markup Summary

CDurham (4)



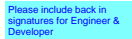
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Label Jimmy
Camp Creek, since it's mentioned in write up.



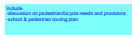
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Refer to SF224 - Ridge at Lorson Ranch Filing 1 TIS, the cost of signal at Lorson/Marksheffel has been updated to a "today" cost, which is an additional \$290,000. This cost has a portion which Creekside project has a portion to cover. Please update table accordingly. Please confer with remaining Lorson projects to determine what improvements this project will be constructing.



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Please include back in signatures for Engineer & Developer



Subject: Text Box
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Author: CDurham
Date: 8/18/2022 5:51:52 PM
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Include
-discussion on pedestrian/bicycle needs and provisions
-school & pedestrian routing plan