TRAFFIC IMPACT STUDY

# SUMMIT LIVING TOWNHOMES

## INDEPENDENCE, MISSOURI

Prepared For:
O'Loughlin Development LLC

Prepared By:
Janelle Clayton, PE, PTOE

May 18, 2022


MERGE MIDWEST ENGINEERING

# Table of Contents



# List of Figures

# INTRODUCTION

The proposed Summit Living Townhomes residential development is an age-restricted, multi-family development that consists of a mix of 8-plex, 4-plex, 3-plex, and 2-plex buildings with a total of 123 dwelling units. The development will be marketed and sold to residents aged 55+. The proposed development is located west of Lee's Summit Road across from Glendale Elementary School in Independence, Missouri. The approximate location of the proposed development is shown in the Google Earth image below.


The existing site is generally vacant with one single-family residence in the northeast corner.

This study analyzes the traffic impacts on the surrounding roadway network for the *Existing* and *Existing + Site* traffic-volume scenarios. The following intersections are included in the study network:

- S Lee's Summit Road & E Cogan Drive
- S Lee's Summit Road & School Entrance / Site Driveway
- S Lee's Summit Road & School Exit

## EXISTING CONDITIONS

**Existing Traffic Volumes:** Existing AM and PM peak-hour traffic volumes at the study intersections were recorded by Gewalt-Hamilton Associates (GHA) via video camera during the hours of 7:30-9:30 AM and 3:00-6:00 PM on Wednesday, May 4th, 2022. The counts were processed by Miovision Technologies, Inc. and can be found in the Appendix. In general, the AM peak hour occurred from 8:30 – 9:30 AM and the PM peak hour occurred from 4:15 – 5:15 PM. The existing AM and PM peak-hour volumes are shown on **Figure 1**.

**Existing Roadway Network:** Current roadway characteristics near the study area are summarized in **Table 1.**

***Table 1: Existing Roadway Characteristics***

| Roadway | Classification | Section | Median Type | Posted Speed Limit |
|---|---|---|---|---|
| S Lee's Summit Road | Major Arterial | 4-Lane | Undivided | 35 mph |
| E Cogan Drive | Collector | 2-Lane | Undivided | 25 mph |

*Classifications as listed in the City's Thoroughfare Plan

All of the study intersection are currently stop-controlled on the minor side-street approaches.

## PROPOSED CONDITIONS

**Proposed Land Use:** The proposed Summit Living Townhomes residential development is a townhome development for residents aged 55+. The development consists of a mix of 8-plex, 4-plex, 3-plex, and 2-plex buildings with a total of 123 dwelling units. The site plan for the proposed development is shown on **Exhibit 1.**

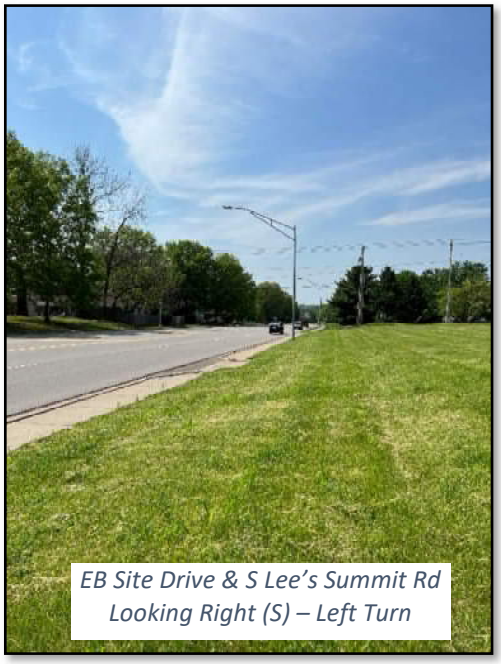
**Proposed Access Plan:** The development will be served by one full-access intersection with S Lee's Summit Road and will line up across from the entrance driveway to Glendale Elementary School.

**Intersection Sight Distance:** Intersection sight-distance measurements were taken in the field at the proposed driveway location. Based on AASHTO's *A Policy on Geometric Design of Highways and Streets*, the amount of sight distance that is desirable for a 35-mph road is 390' for a left-turning vehicle (Case B1) and 335' for a right-turning vehicle (Case B2).

The results of the intersection sight distances recorded in the field are summarized below. It should be noted that if available sight distance was over the recommended value, a field measured value of "*>distance*" is recorded below. If the sight-distance requirements were not easily reached by simple observation, actual distances were recorded.

**Eastbound Site Drive & Lee's Summit Road**

| | AASHTO Recommended | Field Measured |
|---|---|---|
| Left-Turning Vehicle | 390' | >390' |
| Right-Turning Vehicle | 335' | >335' |



*EB Site Drive & S Lee's Summit Rd*
*Looking Right (S) – Left Turn*

*EB Site Drive & S Lee's Summit Rd*
*Looking Left (N) – Right Turn*

**Trip Generation:** The estimated trip generation for the proposed Summit Living Townhome Development was based upon the 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual.* **Table 2** depicts the trip generation for the site.

***Table 2:***
***Proposed Trip Generation***

| | | | | AM Peak Hour (VPH) | | | PM Peak Hour (VPH) | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | Qty | Unit | ADT (VPD) | TOTAL | IN | OUT | TOTAL | IN | OUT |
| 251 – Senior Adult Housing – Single-Family | **123** | **DU** | **707** | **45** | **15** | **30** | **52** | **32** | **20** |

**Trip Distribution**: Estimates of the expected trip distribution to and from the Summit Living Townhome Development were based upon the available and planned street network and existing traffic flow. The trip-distribution patterns that were utilized are as follows:

- To / From the north via S Lee's Summit Rd 75%
- To / From the south via S Lee's Summit Rd 25%

**Existing + Site Traffic Volumes:** The expected Summit Living Townhome development-related traffic volumes were added to the existing volumes and were assigned to the existing and planned street system. The *Existing + Site* AM and PM peak-hour volumes are shown on **Figures 2 & 3,** respectively.

## ANALYSES

A series of intersection capacity analyses were completed at the study intersections to determine the expected levels of service, the lengths of delays, and the vehicle queues experienced by drivers. The study intersections were analyzed based upon the 6th Edition of the Transportation Research Board's (TRB) *Highway Capacity Manual*. A description of the level-of-service criteria used in these analyses is shown below:

| **Level of Service Definitions** | | |
|---|---|---|
| **Level of Service** | **Signalized Intersection Average Control Delay (sec/veh)** | **Unsignalized Intersection Average Control Delay (sec/veh)** |
| A | <10 | <10 |
| B | <20 | <15 |
| C | <35 | <25 |
| D | <55 | <35 |
| E | <80 | <50 |
| F | ≥80 | ≥50 |

The amount of control delay is assigned a level of service based on driver acceptance with LOS "A" representing little or no delay and LOS "F" representing long delays. The queues shown on the figures represent the 95th percentile queue, or the queue that has only a 5% chance of being exceeded during the peak hour

All capacity analysis output is included in the Appendix attached to this report. It should be noted that all completed analyses utilized the Synchro 11 software package.

**Existing Traffic Conditions: Figures 4 & 5** depict the results of the completed analyses for the *Existing* AM and PM peak-hour traffic volume scenarios. As shown on the figures, most individual movements at the study intersections currently operate at LOS "C" or better with minimal queuing. The westbound left-turn approach at the intersection of S Lee's Summit Road & the School Exit Drive currently operates at LOS "D" during the PM peak hour, but with only a 45' queue. It should be noted that it is not uncommon for stop-controlled, side-street approaches to experience longer delays during the peak hours. These delays are typically experienced only for short durations, and traffic-control improvements are not typically necessary.

**Existing + Site Traffic Conditions:** As shown on **Figures 6 & 7,** similar traffic operations at the study intersections would be expected with the addition of the Summit Living Townhome site

development traffic. Most individual movements would be expected to operate at LOS "C" or better with minimal queuing. As with the *Existing* scenario, the westbound left-turn approach at the intersection of S Lee's Summit Road & the School Exit Drive would operate at LOS "D" during the PM peak hour, but with only a 50' queue. The eastbound approach at the intersection of S Lee's Summit Road & the Proposed Site Drive would be expected to operate at LOS "D" during the AM and PM peak hours, but with only a one-car queue. Again, it is not uncommon for stop-controlled, side-street approaches to experience longer delays during the peak hours. These delays are typically experienced only for short durations and traffic control improvements are not typically necessary.

Turn Lane Warrants

Left-turn and right-turn lane warrants at the proposed site driveway intersection were analyzed in conjunction with MoDOT's *Access Management Guidelines* and can be found in the Appendix. The analyses indicated that auxiliary turn lanes would not be warranted at the proposed site driveway.

The warrants were also analyzed for the intersection of S Lee's Summit Road & the School Entrance Driveway. The analysis indicated that a southbound left-turn lane is currently warranted into the School Entrance Driveway.

## SUMMARY & RECOMMENDATIONS

This traffic study summarizes the anticipated traffic impacts of the proposed Summit Living Townhome development. In general, the addition of the development traffic has minimal impact on existing traffic operations.

Left-turn and right-turn lane warrants at the driveway intersection were analyzed in conjunction with MoDOT's *Access Management Guidelines*. The analysis indicated that no turn lanes are warranted at the intersection of S Lee's Summit Road & the Proposed Site Drive.

A southbound left-turn lane is currently warranted at the intersection of S Lee's Summit Road & the School Entrance Drive. The satisfaction of the warrant criteria alone does not necessarily dictate the installation of a turn lane. However, if the City improves S Lee's Summit Road in the future, a turn lane should be considered. It should be noted that the Summit Living Townhome development does not contribute to the need for this turn lane.

We appreciate the opportunity to serve you on this very important project. Please feel free to contact us if you should have any questions.

Respectfully submitted,

**Merge Midwest Engineering, LLC**

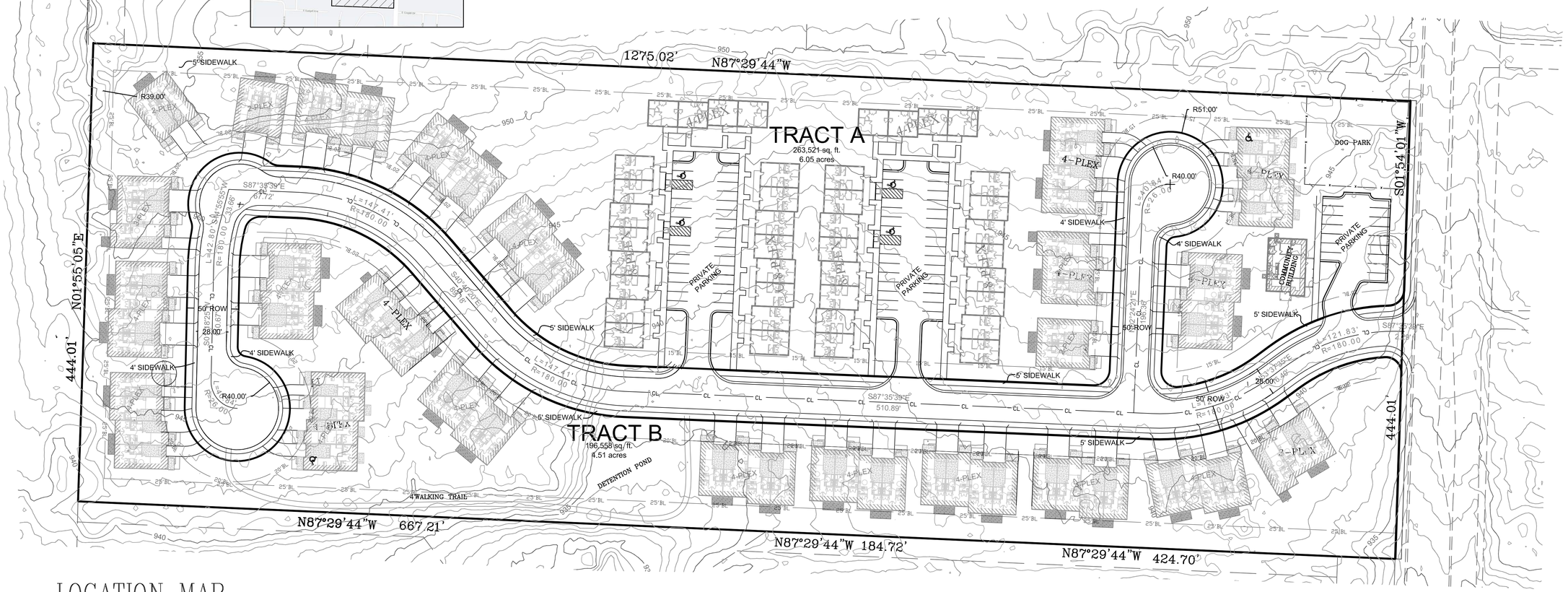
Janelle M. Clayton, P.E., PTOE
Manager / Co-Owner

# PRELIMINARY DEVELOPMENT PLAN FOR SUMMIT LIVING TOWN HOMES

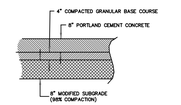
## INDEPENDENT LIVING

## INDEPENDENCE, JACKSON COUNTY, MISSOURI

EXHIBIT 1


## LOCATION MAP


NOTE:
PAVEMENT DESIGN FROM THE SOIL REPORT MAY BE USED WITH CLIENT OR ARCHITECTS APPROVAL

HEAVY CONCRETE PAVEMENT

NOTES:
1. TOATAL AREA OF SITE = 13.00ac
2. TOTAL PROSED UNITS
   - 8-PLEX = 4 - UNITS = 32
   - 4-PLEX = 19 - UNITS = 76
   - 3-PLEX = 3 - UNITS = 9
   - 2-PLEX = 3 - UNITS = 6
   - TOTAL UNITS = 123 UNITS
3. TOAL UNITS PER ACRE = 9.46 UNITS /AC
4. TOAL DEDICATED ROW = 2.45ac
5. TOTAL GREEN SPACE = 50%

UTILITY NOTES:
1. SANITARY SEWER MAIN SHALL BE BUILT TO CITY STANDARDS AND DEDICATED TO THE CITY ALONG WITH A 15' UTILITY EASEMENT.
2. ALL FIRE HYDRANTS AND WATER MAINS SHALL BUILT TO CITY WATERDEPARTMENT STANDARDS AND BE PUBLIC.

PERVIOUS VS IMPERVIOUS CALCULATIONS

| | |
|---|---|
| LOT SIZE | 566,262 SF |
| IMPERVIOUS SURFACES | |
| PUBLIC ROADS | 57,143 SF |
| BUILDINGS (PORCHES) | 177,944 SF |
| DRIVES/PARKING | 26,516SF |
| WALKS/MISC. | 21,500SF |
| TOTAL | 283,103SF |
| CALCULATIONS | |
| -/- = | 50% IMPERVIOUS |
| | 50% PERVIOUS (GREEN) |

N

50 25 0

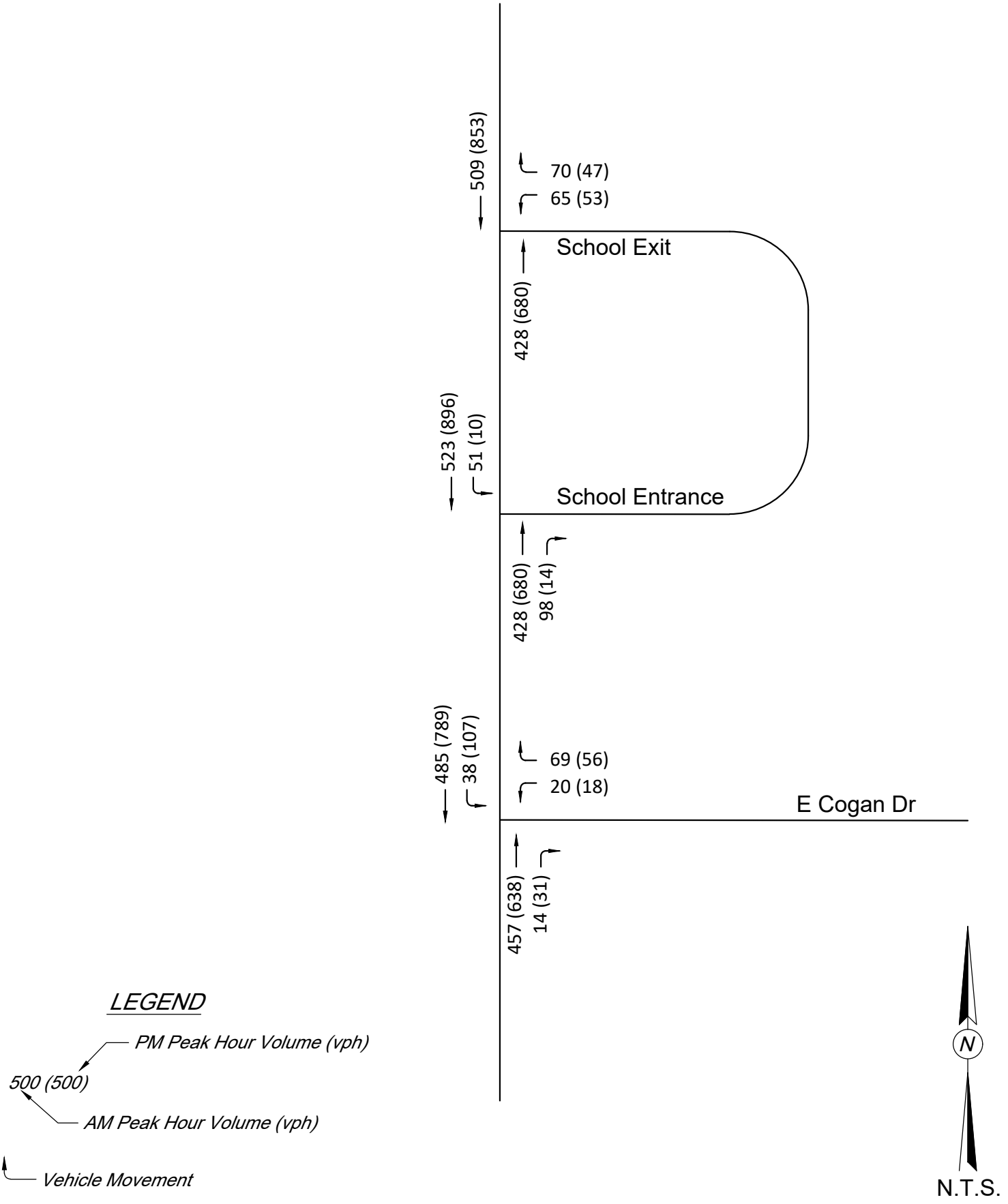
Scale In Feet
1"= 50'

| BY | REVISION | DATE |
|---|---|---|
| - | - | - |

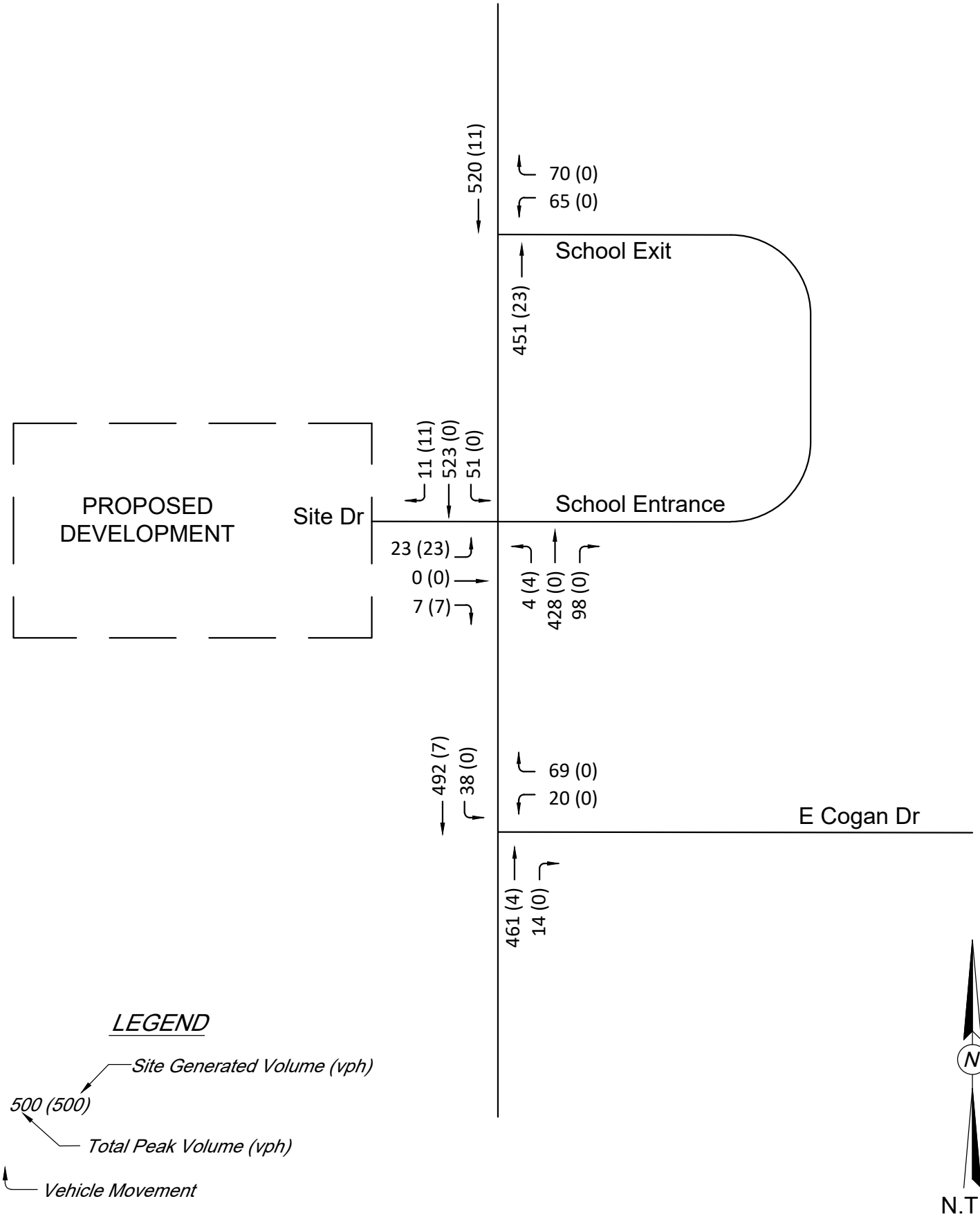

Quist Engineering Inc.
Civil Engineering for Residential & Commercial Site Development
821 NE Columbus ST.
Lee's Summit, Missouri 64063
Phone: (816) 350-5575
e-mail = rwquist@quistengineering.com


PRELIMINARY
DEVELOPMENT PLAN FOR
SUMMIT LIVING TOWN HOMES
CIVIL PLANS FOR
SUMMIT LIVING TOWN HOMES
INDEPENDENCE, JACKSON COUNTY, MISSOURI

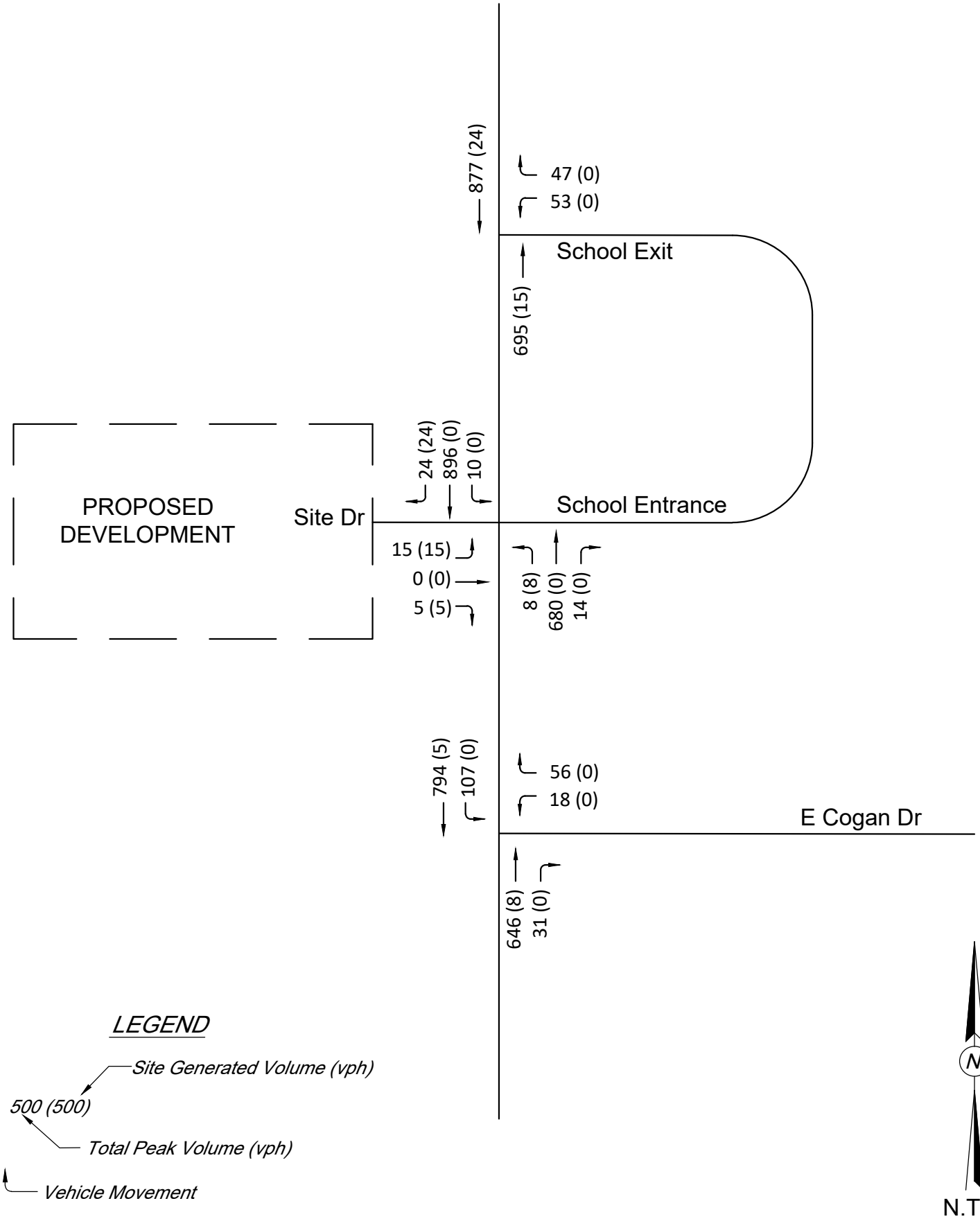
| | |
|---|---|
| DRAWN BY | RAW |
| CHECKED BY | RAW |
| DATE | 1-3-21 |
| PROJECT NO. | E120-307 |
| SCALE | 1"=60' |
| - | - |



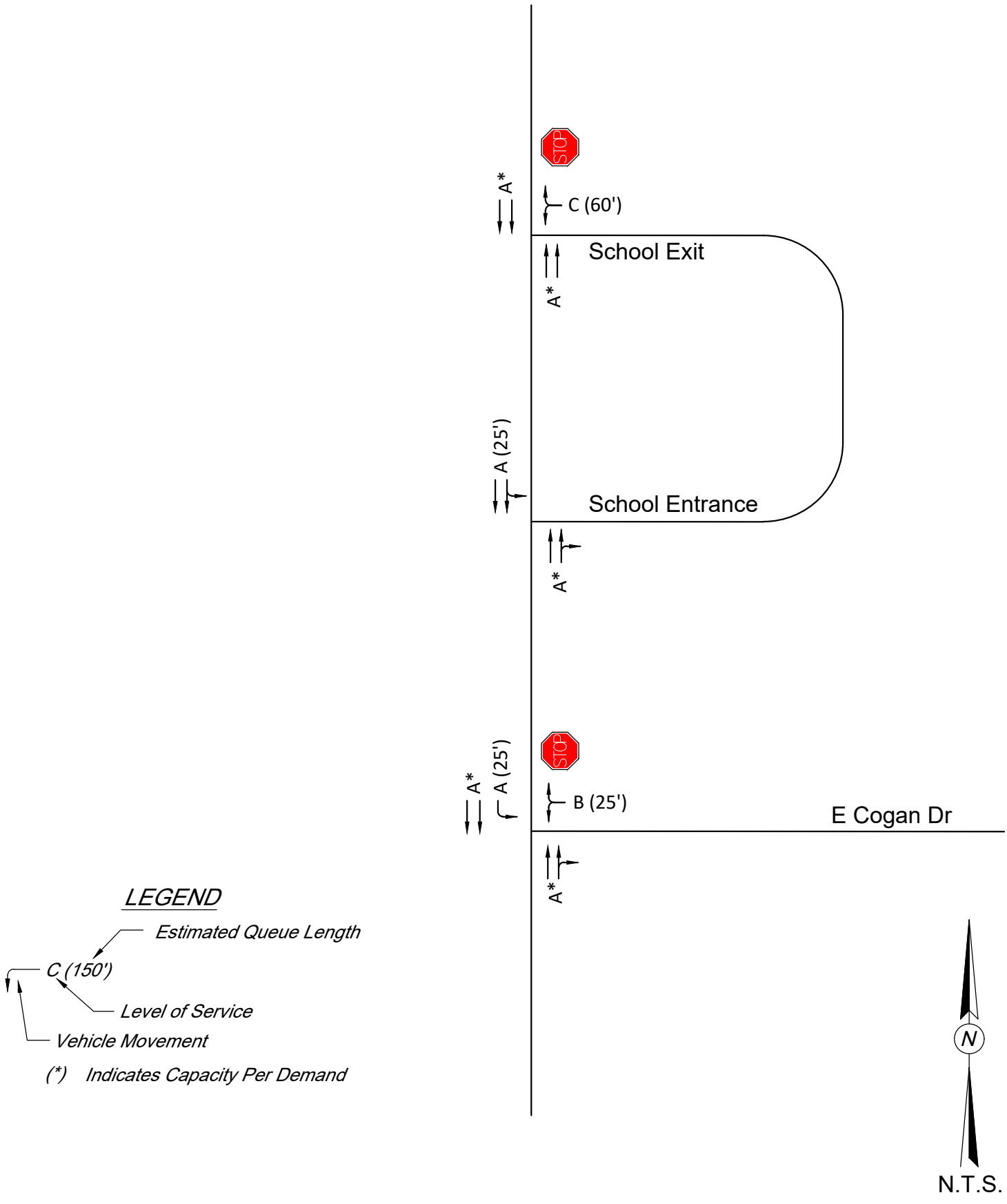

| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025 | EXISTING TRAFFIC VOLUMES | FIGURE 1 |
| | DATE MAY 2022 | | |



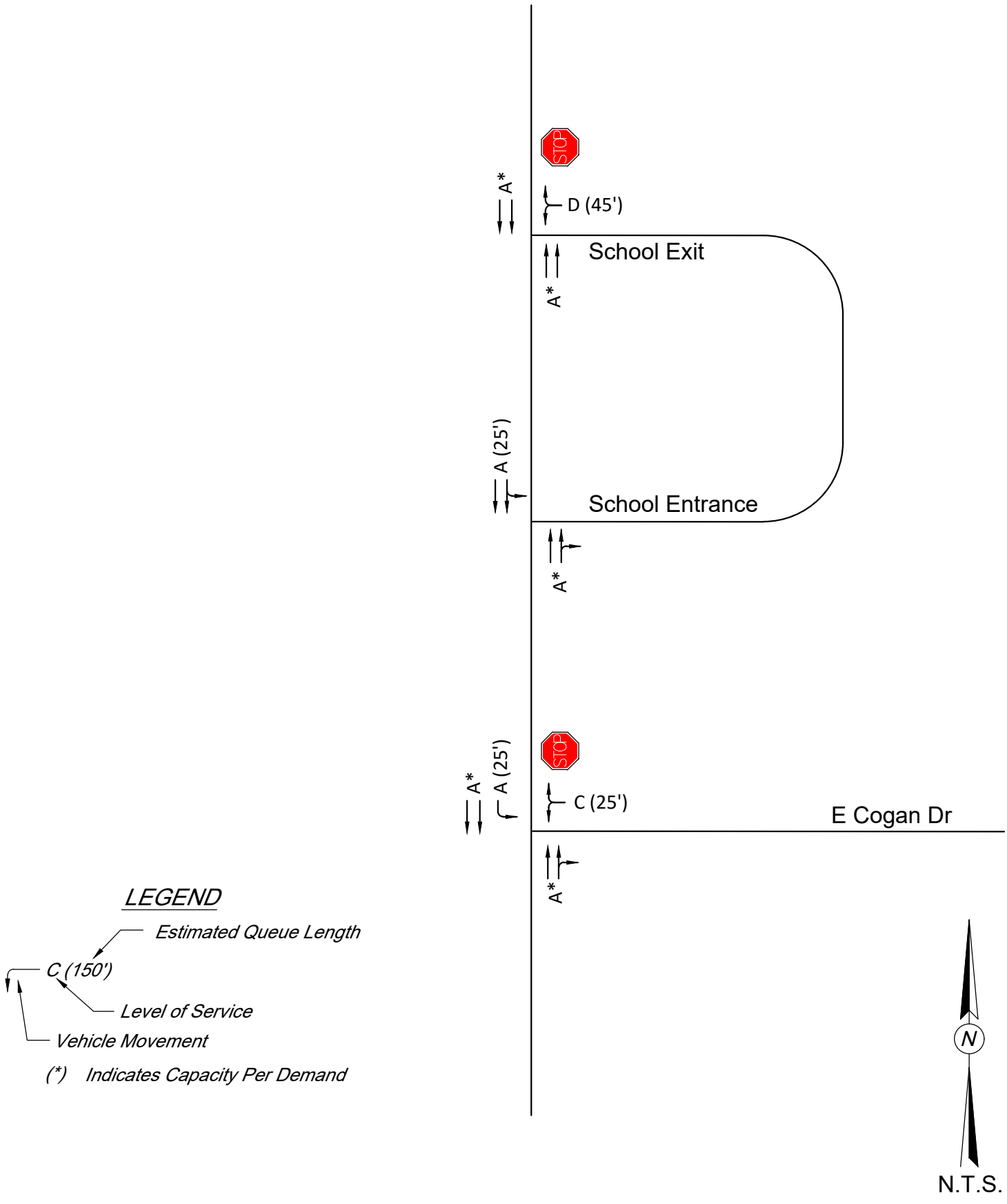

| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING + SITE TRAFFIC VOLUMES AM PEAK HOUR | FIGURE 2 |



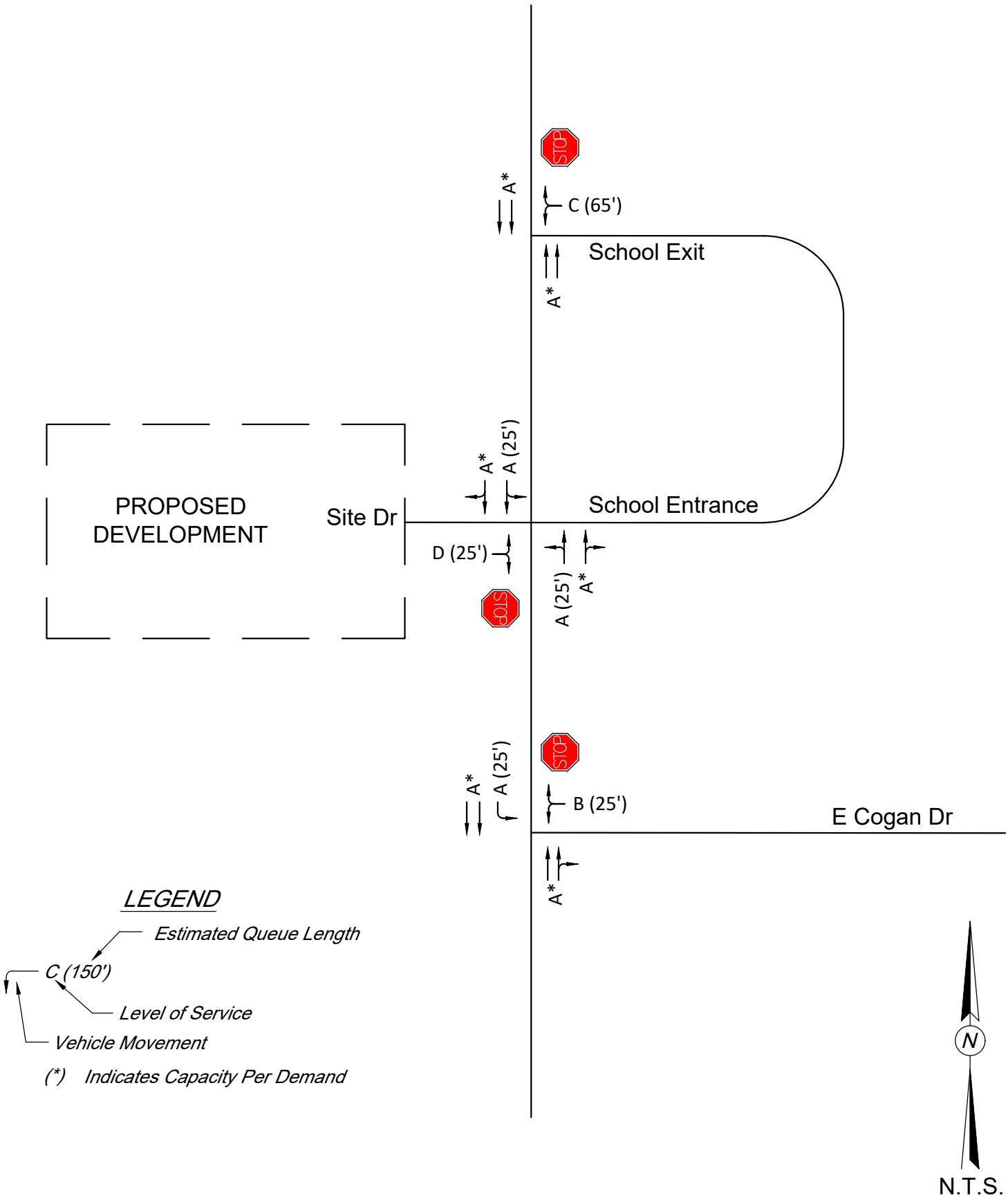

| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING + SITE TRAFFIC VOLUMES PM PEAK HOUR | FIGURE 3 |



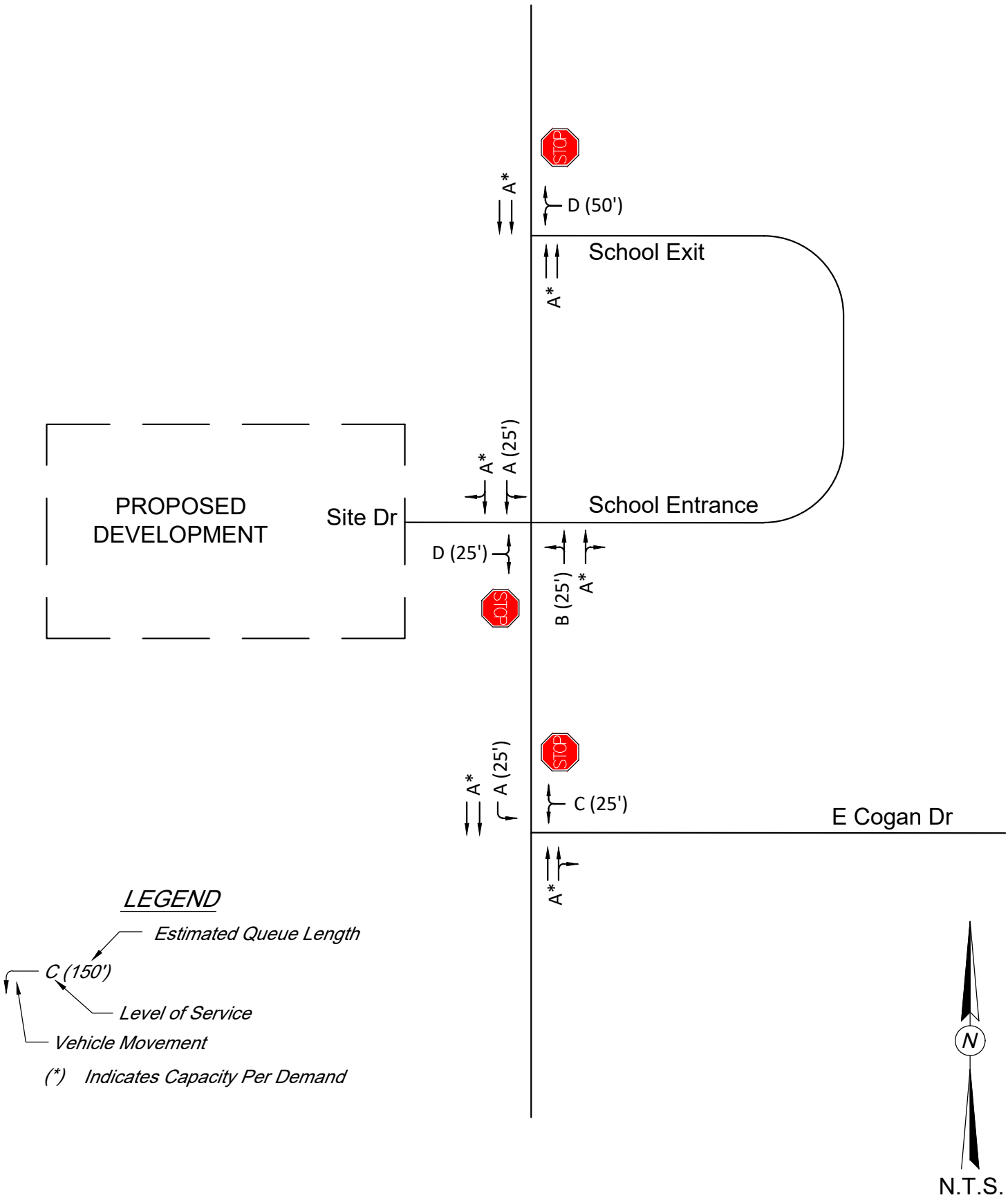

| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING LEVELS OF SERVICE AM PEAK HOUR | FIGURE 4 |




| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING LEVELS OF SERVICE PM PEAK HOUR | FIGURE 5 |




| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING + SITE LEVELS OF SERVICE AM PEAK HOUR | FIGURE 6 |




| | | | |
|---|---|---|---|
| MERGE MIDWEST ENGINEERING | PROJECT NUMBER 22025<br>DATE MAY 2022 | EXISTING + SITE LEVELS OF SERVICE PM PEAK HOUR | FIGURE 7 |

# Appendix

MERGE MIDWEST ENGINEERING

# Traffic Counts

## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

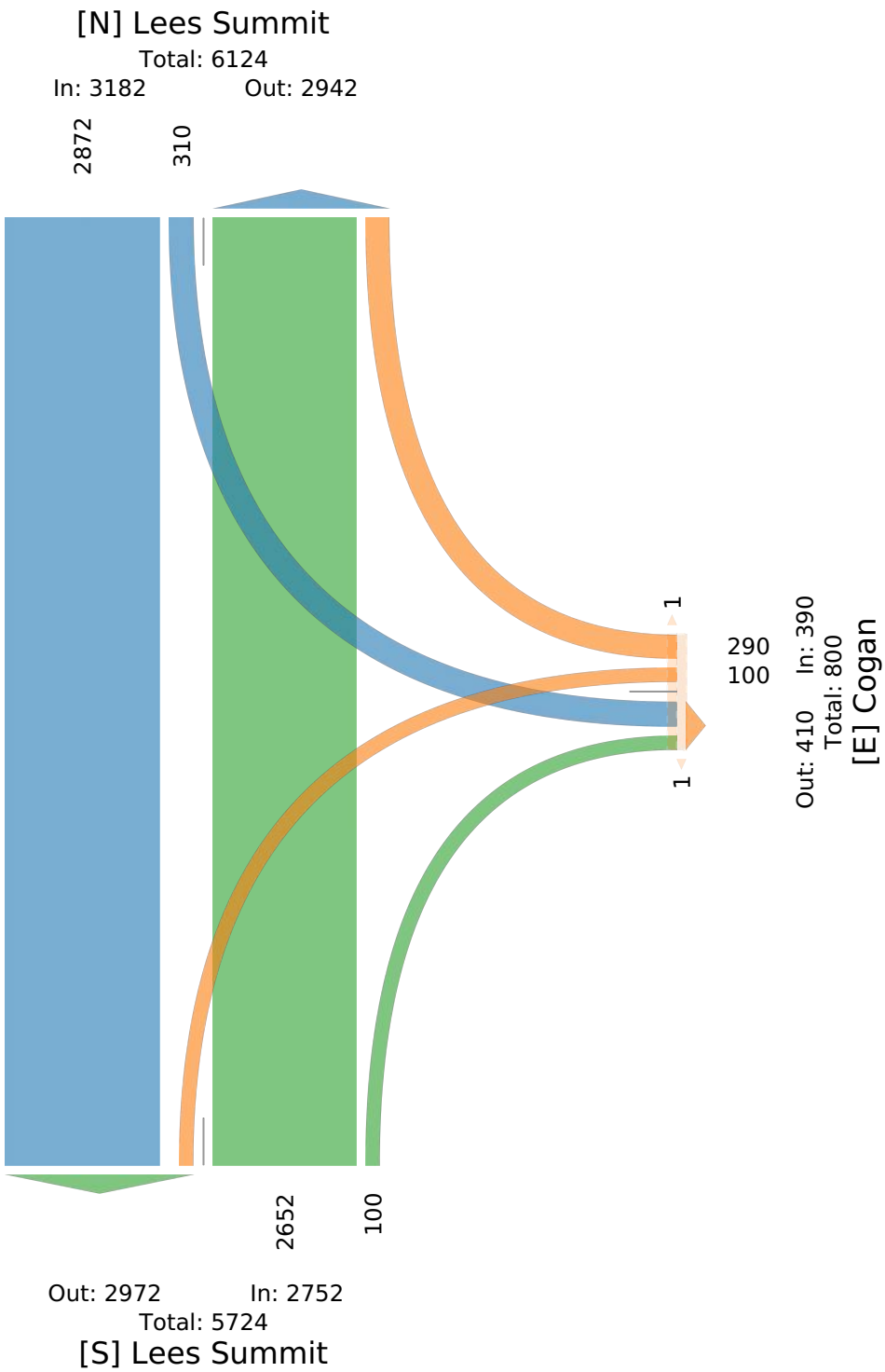
| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Cogan<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 7:30AM | 72 | 9 | 0 | **81** | 0 | 14 | 4 | 0 | **18** | 0 | 5 | 91 | 0 | **96** | 0 | **195** |
| 7:45AM | 89 | 5 | 0 | **94** | 0 | 10 | 3 | 0 | **13** | 0 | 2 | 117 | 0 | **119** | 0 | **226** |
| Hourly Total | 161 | 14 | 0 | **175** | 0 | 24 | 7 | 0 | **31** | 0 | 7 | 208 | 0 | **215** | 0 | **421** |
| 8:00AM | 77 | 8 | 0 | **85** | 0 | 11 | 1 | 0 | **12** | 0 | 3 | 92 | 0 | **95** | 0 | **192** |
| 8:15AM | 109 | 4 | 0 | **113** | 0 | 13 | 3 | 0 | **16** | 0 | 3 | 87 | 0 | **90** | 0 | **219** |
| 8:30AM | 97 | 3 | 0 | **100** | 0 | 21 | 5 | 0 | **26** | 2 | 4 | 105 | 0 | **109** | 0 | **235** |
| 8:45AM | 154 | 11 | 0 | **165** | 0 | 23 | 4 | 0 | **27** | 0 | 3 | 137 | 0 | **140** | 0 | **332** |
| Hourly Total | 437 | 26 | 0 | **463** | 0 | 68 | 13 | 0 | **81** | 2 | 13 | 421 | 0 | **434** | 0 | **978** |
| 9:00AM | 128 | 15 | 0 | **143** | 0 | 11 | 7 | 0 | **18** | 0 | 5 | 107 | 0 | **112** | 0 | **273** |
| 9:15AM | 106 | 9 | 0 | **115** | 0 | 14 | 4 | 0 | **18** | 0 | 2 | 88 | 0 | **90** | 0 | **223** |
| Hourly Total | 234 | 24 | 0 | **258** | 0 | 25 | 11 | 0 | **36** | 0 | 7 | 195 | 0 | **202** | 0 | **496** |
| 3:00PM | 121 | 7 | 0 | **128** | 0 | 18 | 4 | 0 | **22** | 0 | 9 | 150 | 0 | **159** | 0 | **309** |
| 3:15PM | 124 | 20 | 0 | **144** | 0 | 12 | 3 | 0 | **15** | 0 | 5 | 142 | 0 | **147** | 0 | **306** |
| 3:30PM | 178 | 12 | 0 | **190** | 0 | 12 | 11 | 0 | **23** | 0 | 4 | 131 | 0 | **135** | 0 | **348** |
| 3:45PM | 186 | 16 | 0 | **202** | 0 | 13 | 8 | 0 | **21** | 0 | 1 | 166 | 0 | **167** | 0 | **390** |
| Hourly Total | 609 | 55 | 0 | **664** | 0 | 55 | 26 | 0 | **81** | 0 | 19 | 589 | 0 | **608** | 0 | **1353** |
| 4:00PM | 160 | 20 | 0 | **180** | 0 | 12 | 2 | 0 | **14** | 0 | 7 | 159 | 0 | **166** | 0 | **360** |
| 4:15PM | 208 | 28 | 0 | **236** | 0 | 13 | 2 | 0 | **15** | 0 | 6 | 149 | 0 | **155** | 0 | **406** |
| 4:30PM | 192 | 22 | 0 | **214** | 0 | 20 | 5 | 0 | **25** | 0 | 11 | 179 | 0 | **190** | 0 | **429** |
| 4:45PM | 195 | 28 | 0 | **223** | 0 | 10 | 6 | 0 | **16** | 0 | 10 | 158 | 0 | **168** | 0 | **407** |
| Hourly Total | 755 | 98 | 0 | **853** | 0 | 55 | 15 | 0 | **70** | 0 | 34 | 645 | 0 | **679** | 0 | **1602** |
| 5:00PM | 183 | 29 | 0 | **212** | 0 | 13 | 5 | 0 | **18** | 0 | 4 | 152 | 0 | **156** | 0 | **386** |
| 5:15PM | 190 | 29 | 0 | **219** | 0 | 20 | 5 | 0 | **25** | 0 | 6 | 152 | 0 | **158** | 0 | **402** |
| 5:30PM | 155 | 20 | 0 | **175** | 0 | 14 | 9 | 0 | **23** | 0 | 6 | 141 | 0 | **147** | 0 | **345** |
| 5:45PM | 148 | 15 | 0 | **163** | 0 | 16 | 9 | 0 | **25** | 0 | 4 | 149 | 0 | **153** | 0 | **341** |
| Hourly Total | 676 | 93 | 0 | **769** | 0 | 63 | 28 | 0 | **91** | 0 | 20 | 594 | 0 | **614** | 0 | **1474** |
| **Total** | 2872 | 310 | 0 | **3182** | 0 | 290 | 100 | 0 | **390** | 2 | 100 | 2652 | 0 | **2752** | 0 | **6324** |
| **% Approach** | 90.3% | 9.7% | 0% | **-** | - | 74.4% | 25.6% | 0% | **-** | - | 3.6% | 96.4% | 0% | **-** | - | - |
| **% Total** | 45.4% | 4.9% | 0% | **50.3%** | - | 4.6% | 1.6% | 0% | **6.2%** | - | 1.6% | 41.9% | 0% | **43.5%** | - | - |
| **Lights** | 2833 | 305 | 0 | **3138** | - | 288 | 99 | 0 | **387** | - | 99 | 2627 | 0 | **2726** | - | 6251 |
| **% Lights** | 98.6% | 98.4% | 0% | **98.6%** | - | 99.3% | 99.0% | 0% | **99.2%** | - | 99.0% | 99.1% | 0% | **99.1%** | - | 98.8% |
| **Articulated Trucks** | 5 | 0 | 0 | **5** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 5 |
| **% Articulated Trucks** | 0.2% | 0% | 0% | **0.2%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 34 | 5 | 0 | **39** | - | 2 | 1 | 0 | **3** | - | 1 | 25 | 0 | **26** | - | 68 |
| **% Buses and Single-Unit Trucks** | 1.2% | 1.6% | 0% | **1.2%** | - | 0.7% | 1.0% | 0% | **0.8%** | - | 1.0% | 0.9% | 0% | **0.9%** | - | 1.1% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 2 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

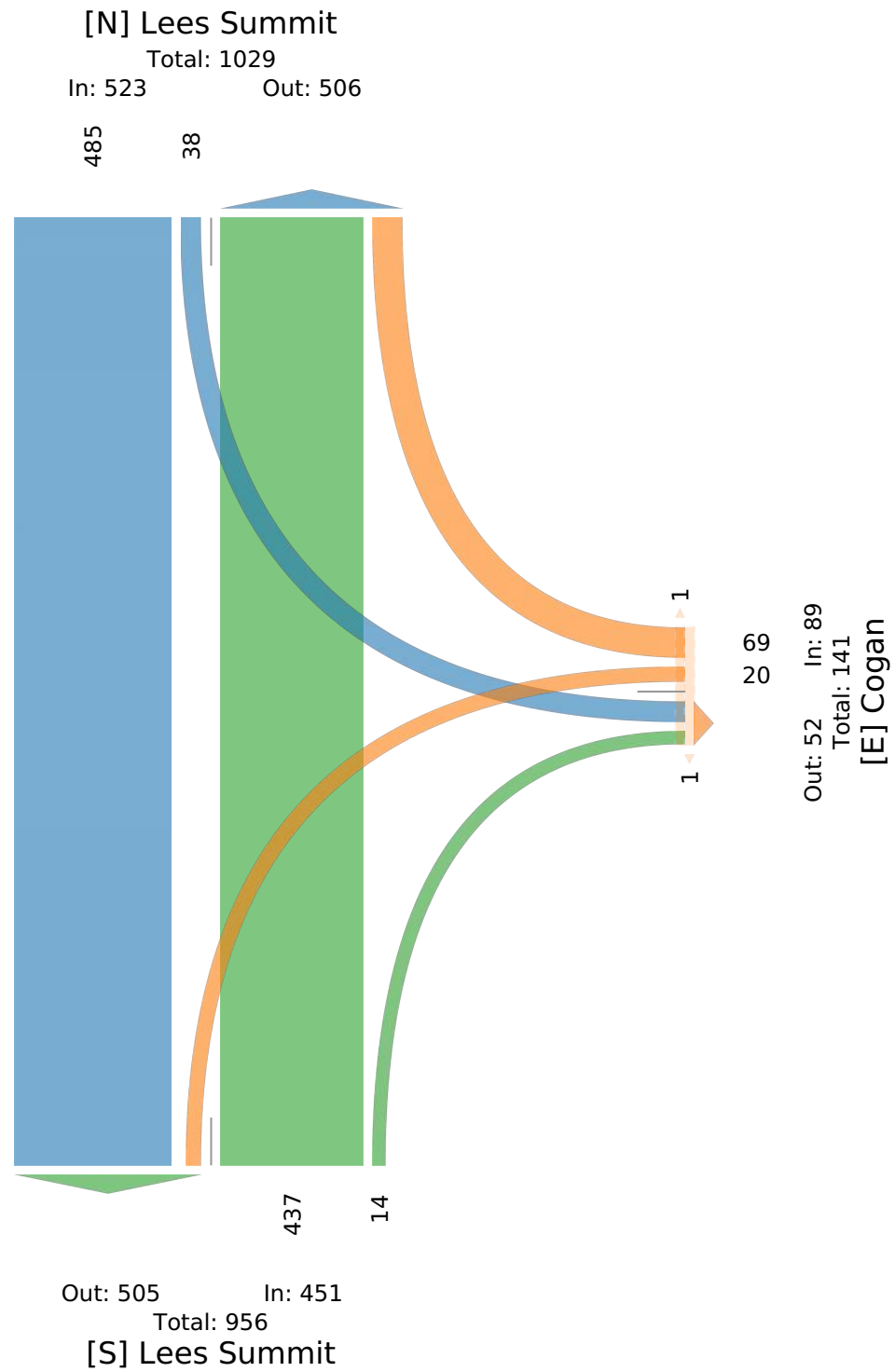
| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Cogan<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 8:30AM | 97 | 3 | 0 | **100** | 0 | 21 | 5 | 0 | **26** | 2 | 4 | 105 | 0 | **109** | 0 | **235** |
| 8:45AM | 154 | 11 | 0 | **165** | 0 | 23 | 4 | 0 | **27** | 0 | 3 | 137 | 0 | **140** | 0 | **332** |
| 9:00AM | 128 | 15 | 0 | **143** | 0 | 11 | 7 | 0 | **18** | 0 | 5 | 107 | 0 | **112** | 0 | **273** |
| 9:15AM | 106 | 9 | 0 | **115** | 0 | 14 | 4 | 0 | **18** | 0 | 2 | 88 | 0 | **90** | 0 | **223** |
| **Total** | 485 | 38 | 0 | **523** | 0 | 69 | 20 | 0 | **89** | 2 | 14 | 437 | 0 | **451** | 0 | **1063** |
| **% Approach** | 92.7% | 7.3% | 0% | **-** | - | 77.5% | 22.5% | 0% | **-** | - | 3.1% | 96.9% | 0% | **-** | - | **-** |
| **% Total** | 45.6% | 3.6% | 0% | **49.2%** | - | 6.5% | 1.9% | 0% | **8.4%** | - | 1.3% | 41.1% | 0% | **42.4%** | - | **-** |
| **PHF** | 0.787 | 0.633 | - | **0.792** | - | 0.750 | 0.714 | - | **0.824** | - | 0.700 | 0.797 | - | **0.805** | - | 0.800 |
| **Lights** | 477 | 37 | 0 | **514** | - | 68 | 20 | 0 | **88** | - | 14 | 429 | 0 | **443** | - | 1045 |
| **% Lights** | 98.4% | 97.4% | 0% | **98.3%** | - | 98.6% | 100% | 0% | **98.9%** | - | 100% | 98.2% | 0% | **98.2%** | - | 98.3% |
| **Articulated Trucks** | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 0 |
| **% Articulated Trucks** | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0% |
| **Buses and Single-Unit Trucks** | 8 | 1 | 0 | **9** | - | 1 | 0 | 0 | **1** | - | 0 | 8 | 0 | **8** | - | 18 |
| **% Buses and Single-Unit Trucks** | 1.6% | 2.6% | 0% | **1.7%** | - | 1.4% | 0% | 0% | **1.1%** | - | 0% | 1.8% | 0% | **1.8%** | - | 1.7% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 2 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

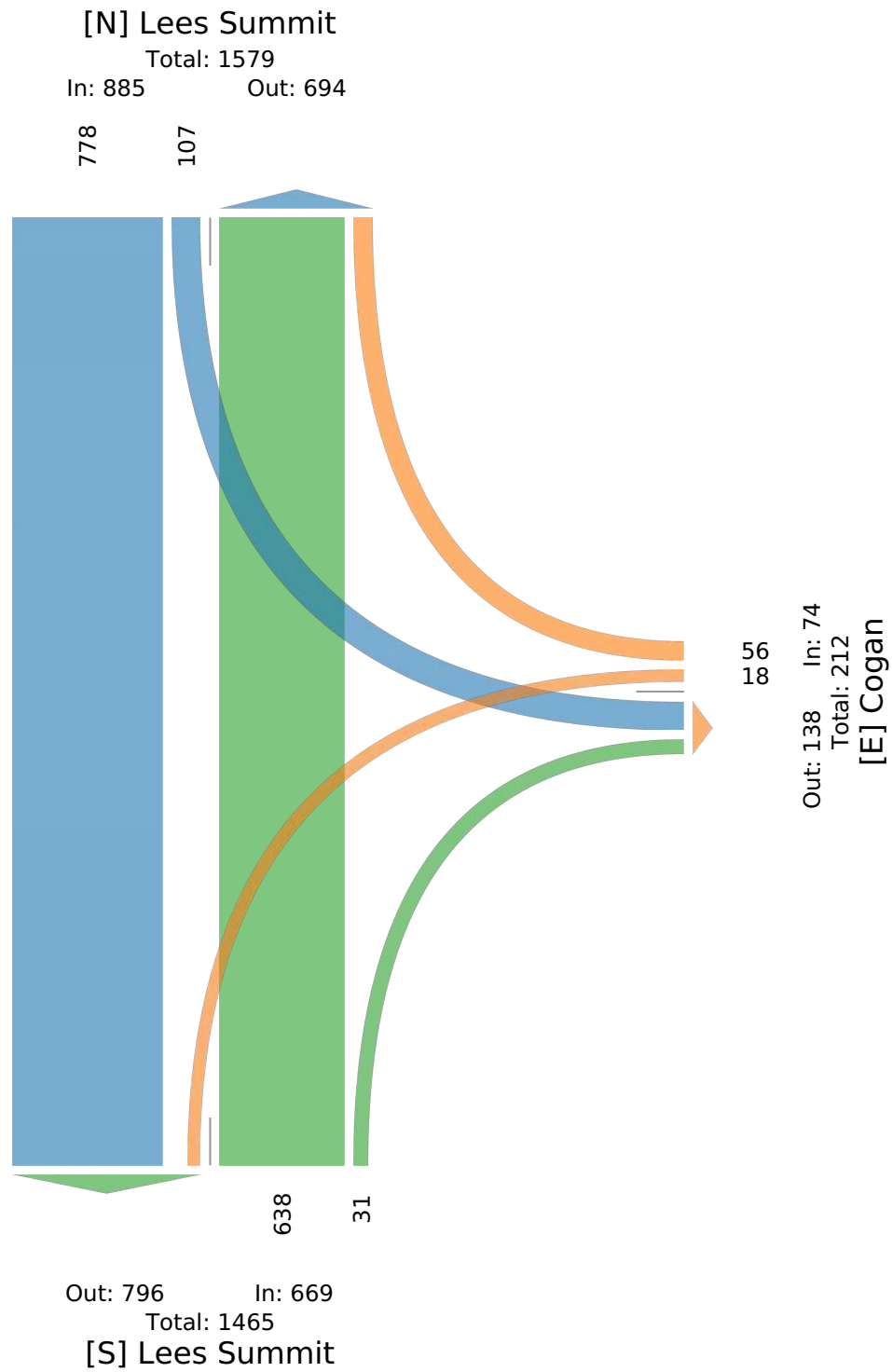
| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Cogan<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 4:15PM | 208 | 28 | 0 | **236** | 0 | 13 | 2 | 0 | **15** | 0 | 6 | 149 | 0 | **155** | 0 | **406** |
| 4:30PM | 192 | 22 | 0 | **214** | 0 | 20 | 5 | 0 | **25** | 0 | 11 | 179 | 0 | **190** | 0 | **429** |
| 4:45PM | 195 | 28 | 0 | **223** | 0 | 10 | 6 | 0 | **16** | 0 | 10 | 158 | 0 | **168** | 0 | **407** |
| 5:00PM | 183 | 29 | 0 | **212** | 0 | 13 | 5 | 0 | **18** | 0 | 4 | 152 | 0 | **156** | 0 | **386** |
| **Total** | 778 | 107 | 0 | **885** | 0 | 56 | 18 | 0 | **74** | 0 | 31 | 638 | 0 | **669** | 0 | **1628** |
| **% Approach** | 87.9% | 12.1% | 0% | **-** | - | 75.7% | 24.3% | 0% | **-** | - | 4.6% | 95.4% | 0% | **-** | - | **-** |
| **% Total** | 47.8% | 6.6% | 0% | **54.4%** | - | 3.4% | 1.1% | 0% | **4.5%** | - | 1.9% | 39.2% | 0% | **41.1%** | - | **-** |
| **PHF** | 0.935 | 0.922 | - | **0.938** | - | 0.700 | 0.750 | - | **0.740** | - | 0.705 | 0.891 | - | **0.880** | - | 0.949 |
| **Lights** | 769 | 107 | 0 | **876** | - | 56 | 18 | 0 | **74** | - | 30 | 630 | 0 | **660** | - | 1610 |
| **% Lights** | 98.8% | 100% | 0% | **99.0%** | - | 100% | 100% | 0% | **100%** | - | 96.8% | 98.7% | 0% | **98.7%** | - | 98.9% |
| **Articulated Trucks** | 2 | 0 | 0 | **2** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 2 |
| **% Articulated Trucks** | 0.3% | 0% | 0% | **0.2%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 7 | 0 | 0 | **7** | - | 0 | 0 | 0 | **0** | - | 1 | 8 | 0 | **9** | - | 16 |
| **% Buses and Single-Unit Trucks** | 0.9% | 0% | 0% | **0.8%** | - | 0% | 0% | 0% | **0%** | - | 3.2% | 1.3% | 0% | **1.3%** | - | 1.0% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## S Lee's Summit Road & E Cogan Drive - TMC

Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944941, Location: 39.070649, -94.390968

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Entran... - TMC

Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

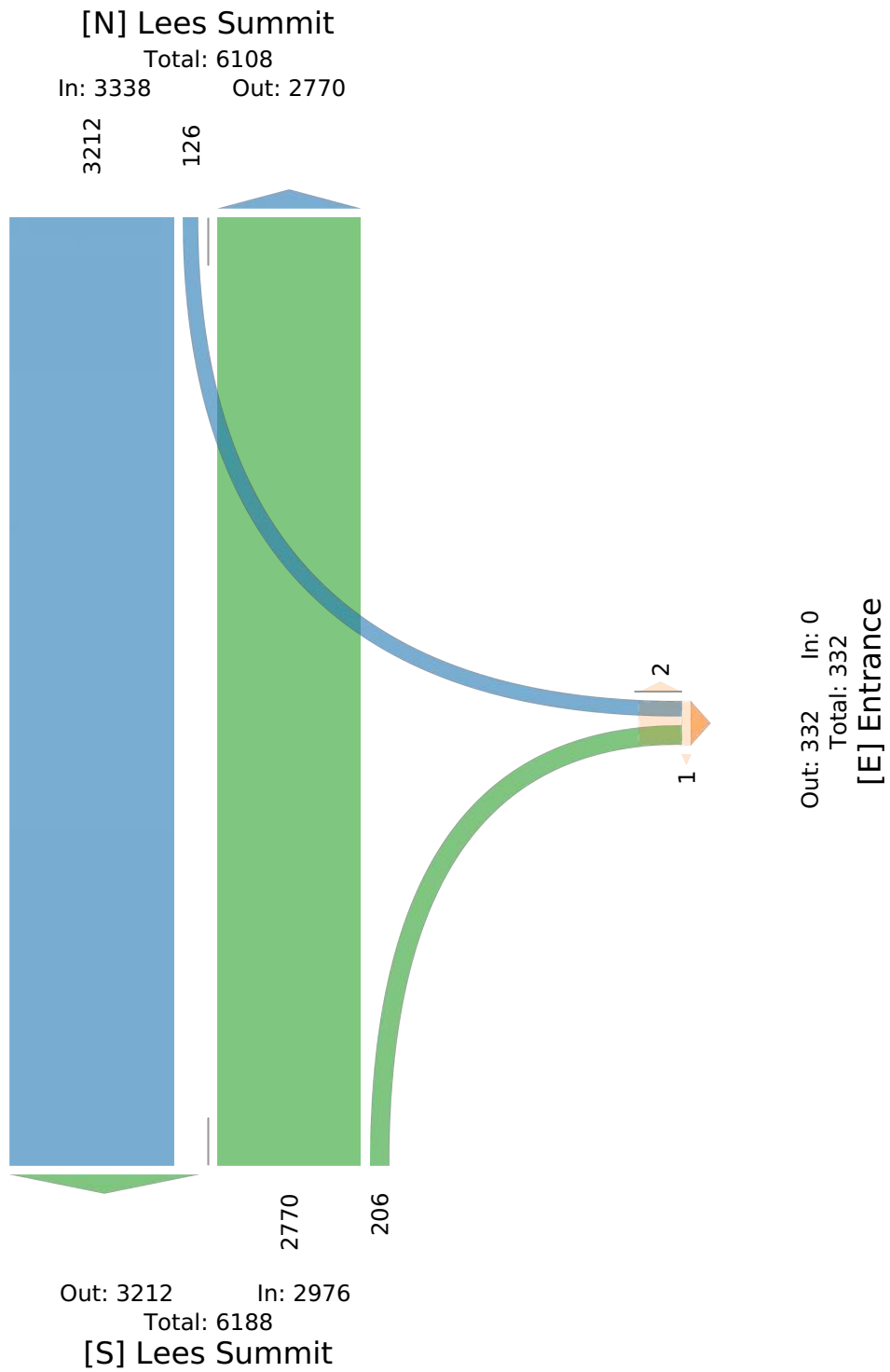
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Entrance<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 7:30AM | 82 | 2 | 0 | **84** | 0 | 0 | 0 | 0 | **0** | 0 | 3 | 102 | 0 | **105** | 0 | **189** |
| 7:45AM | 94 | 5 | 0 | **99** | 0 | 0 | 0 | 0 | **0** | 0 | 10 | 122 | 0 | **132** | 0 | **231** |
| Hourly Total | 176 | 7 | 0 | **183** | 0 | 0 | 0 | 0 | **0** | 0 | 13 | 224 | 0 | **237** | 0 | **420** |
| 8:00AM | 88 | 8 | 0 | **96** | 0 | 0 | 0 | 0 | **0** | 0 | 5 | 102 | 0 | **107** | 0 | **203** |
| 8:15AM | 110 | 7 | 0 | **117** | 0 | 0 | 0 | 0 | **0** | 0 | 11 | 92 | 0 | **103** | 0 | **220** |
| 8:30AM | 99 | 17 | 0 | **116** | 0 | 0 | 0 | 0 | **0** | 2 | 39 | 89 | 0 | **128** | 0 | **244** |
| 8:45AM | 165 | 25 | 0 | **190** | 0 | 0 | 0 | 0 | **0** | 0 | 40 | 127 | 0 | **167** | 0 | **357** |
| Hourly Total | 462 | 57 | 0 | **519** | 0 | 0 | 0 | 0 | **0** | 2 | 95 | 410 | 0 | **505** | 0 | **1024** |
| 9:00AM | 146 | 2 | 0 | **148** | 0 | 0 | 0 | 0 | **0** | 0 | 8 | 113 | 0 | **121** | 0 | **269** |
| 9:15AM | 114 | 2 | 0 | **116** | 0 | 0 | 0 | 0 | **0** | 0 | 5 | 99 | 0 | **104** | 0 | **220** |
| Hourly Total | 260 | 4 | 0 | **264** | 0 | 0 | 0 | 0 | **0** | 0 | 13 | 212 | 0 | **225** | 0 | **489** |
| 3:00PM | 129 | 2 | 0 | **131** | 0 | 0 | 0 | 0 | **0** | 0 | 5 | 163 | 0 | **168** | 0 | **299** |
| 3:15PM | 147 | 1 | 0 | **148** | 0 | 0 | 0 | 0 | **0** | 0 | 7 | 148 | 0 | **155** | 0 | **303** |
| 3:30PM | 193 | 10 | 0 | **203** | 0 | 0 | 0 | 0 | **0** | 0 | 13 | 131 | 0 | **144** | 0 | **347** |
| 3:45PM | 207 | 16 | 0 | **223** | 0 | 0 | 0 | 0 | **0** | 0 | 13 | 170 | 0 | **183** | 0 | **406** |
| Hourly Total | 676 | 29 | 0 | **705** | 0 | 0 | 0 | 0 | **0** | 0 | 38 | 612 | 0 | **650** | 0 | **1355** |
| 4:00PM | 178 | 12 | 0 | **190** | 0 | 0 | 0 | 0 | **0** | 0 | 20 | 152 | 0 | **172** | 0 | **362** |
| 4:15PM | 241 | 6 | 0 | **247** | 0 | 0 | 0 | 0 | **0** | 0 | 10 | 153 | 0 | **163** | 0 | **410** |
| 4:30PM | 215 | 0 | 0 | **215** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 198 | 0 | **198** | 0 | **413** |
| 4:45PM | 229 | 2 | 0 | **231** | 0 | 0 | 0 | 0 | **0** | 0 | 1 | 164 | 0 | **165** | 0 | **396** |
| Hourly Total | 863 | 20 | 0 | **883** | 0 | 0 | 0 | 0 | **0** | 0 | 31 | 667 | 0 | **698** | 0 | **1581** |
| 5:00PM | 211 | 2 | 0 | **213** | 0 | 0 | 0 | 0 | **0** | 0 | 3 | 165 | 0 | **168** | 0 | **381** |
| 5:15PM | 223 | 4 | 0 | **227** | 0 | 0 | 0 | 0 | **0** | 0 | 7 | 166 | 0 | **173** | 0 | **400** |
| 5:30PM | 178 | 0 | 0 | **178** | 0 | 0 | 0 | 0 | **0** | 0 | 3 | 152 | 0 | **155** | 0 | **333** |
| 5:45PM | 163 | 3 | 0 | **166** | 0 | 0 | 0 | 0 | **0** | 1 | 3 | 162 | 0 | **165** | 0 | **331** |
| Hourly Total | 775 | 9 | 0 | **784** | 0 | 0 | 0 | 0 | **0** | 1 | 16 | 645 | 0 | **661** | 0 | **1445** |
| **Total** | 3212 | 126 | 0 | **3338** | 0 | 0 | 0 | 0 | **0** | 3 | 206 | 2770 | 0 | **2976** | 0 | **6314** |
| **% Approach** | 96.2% | 3.8% | 0% | **-** | - | 0% | 0% | 0% | **-** | - | 6.9% | 93.1% | 0% | **-** | - | - |
| **% Total** | 50.9% | 2.0% | 0% | **52.9%** | - | 0% | 0% | 0% | **0%** | - | 3.3% | 43.9% | 0% | **47.1%** | - | - |
| **Lights** | 3168 | 118 | 0 | **3286** | - | 0 | 0 | 0 | **0** | - | 203 | 2749 | 0 | **2952** | - | 6238 |
| **% Lights** | 98.6% | 93.7% | 0% | **98.4%** | - | 0% | 0% | 0% | **-** | - | 98.5% | 99.2% | 0% | **99.2%** | - | 98.8% |
| **Articulated Trucks** | 4 | 0 | 0 | **4** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 4 |
| **% Articulated Trucks** | 0.1% | 0% | 0% | **0.1%** | - | 0% | 0% | 0% | **-** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 40 | 8 | 0 | **48** | - | 0 | 0 | 0 | **0** | - | 3 | 21 | 0 | **24** | - | 72 |
| **% Buses and Single-Unit Trucks** | 1.2% | 6.3% | 0% | **1.4%** | - | 0% | 0% | 0% | **-** | - | 1.5% | 0.8% | 0% | **0.8%** | - | 1.1% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 3 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**S Lee's Summit Road & Glendale School Entran... - TMC**
Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Entran... - TMC

Wed May 4, 2022
AM Peak (8:15 AM - 9:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

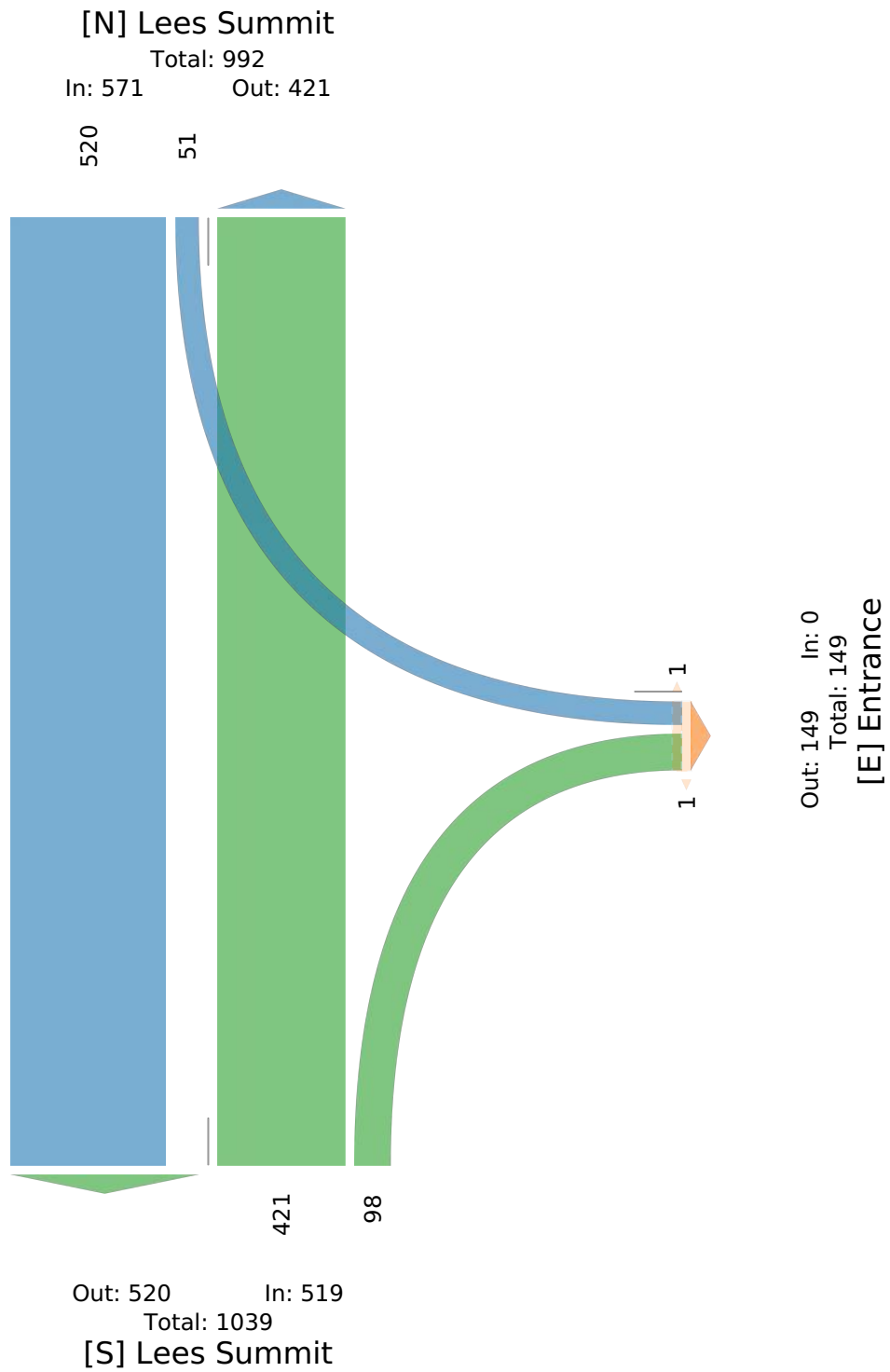
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

| Leg / Direction | Lees Summit Southbound | | | | | Entrance Westbound | | | | | Lees Summit Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 8:15AM | 110 | 7 | 0 | **117** | 0 | 0 | 0 | 0 | **0** | 0 | 11 | 92 | 0 | **103** | 0 | **220** |
| 8:30AM | 99 | 17 | 0 | **116** | 0 | 0 | 0 | 0 | **0** | 2 | 39 | 89 | 0 | **128** | 0 | **244** |
| 8:45AM | 165 | 25 | 0 | **190** | 0 | 0 | 0 | 0 | **0** | 0 | 40 | 127 | 0 | **167** | 0 | **357** |
| 9:00AM | 146 | 2 | 0 | **148** | 0 | 0 | 0 | 0 | **0** | 0 | 8 | 113 | 0 | **121** | 0 | **269** |
| **Total** | 520 | 51 | 0 | **571** | 0 | 0 | 0 | 0 | **0** | 2 | 98 | 421 | 0 | **519** | 0 | **1090** |
| **% Approach** | 91.1% | 8.9% | 0% | **-** | - | 0% | 0% | 0% | **-** | - | 18.9% | 81.1% | 0% | **-** | - | **-** |
| **% Total** | 47.7% | 4.7% | 0% | **52.4%** | - | 0% | 0% | 0% | **0%** | - | 9.0% | 38.6% | 0% | **47.6%** | - | **-** |
| **PHF** | 0.788 | 0.510 | - | **0.751** | - | - | - | - | **-** | - | 0.613 | 0.829 | - | **0.777** | - | 0.763 |
| **Lights** | 511 | 49 | 0 | **560** | - | 0 | 0 | 0 | **0** | - | 95 | 417 | 0 | **512** | - | 1072 |
| **% Lights** | 98.3% | 96.1% | 0% | **98.1%** | - | 0% | 0% | 0% | **-** | - | 96.9% | 99.0% | 0% | **98.7%** | - | 98.3% |
| **Articulated Trucks** | 1 | 0 | 0 | **1** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 1 |
| **% Articulated Trucks** | 0.2% | 0% | 0% | **0.2%** | - | 0% | 0% | 0% | **-** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 8 | 2 | 0 | **10** | - | 0 | 0 | 0 | **0** | - | 3 | 4 | 0 | **7** | - | 17 |
| **% Buses and Single-Unit Trucks** | 1.5% | 3.9% | 0% | **1.8%** | - | 0% | 0% | 0% | **-** | - | 3.1% | 1.0% | 0% | **1.3%** | - | 1.6% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 2 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**S Lee's Summit Road & Glendale School Entran... - TMC**
Wed May 4, 2022
AM Peak (8:15 AM - 9:15 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Entran... - TMC

Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

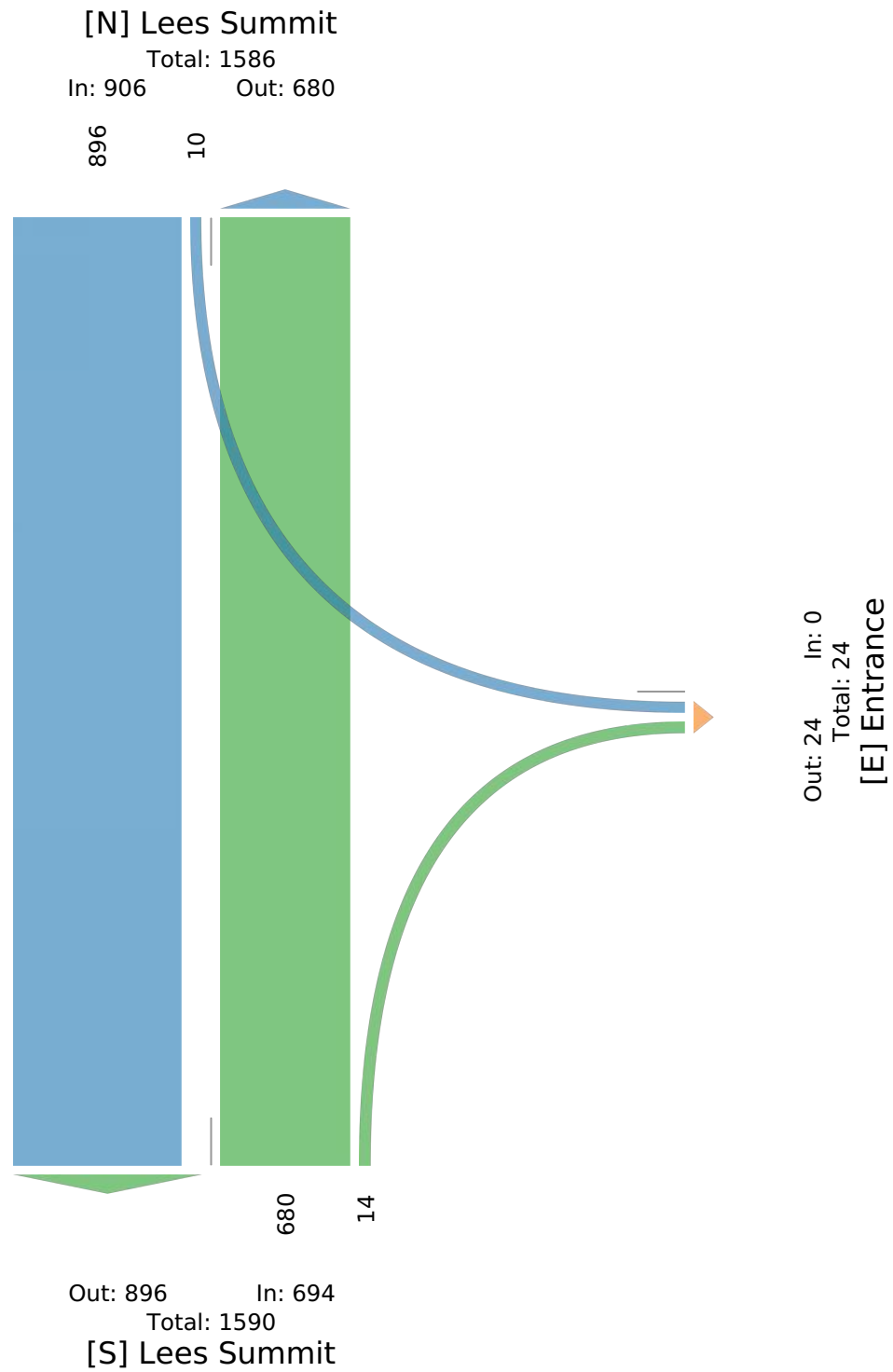
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Entrance<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 4:15PM | 241 | 6 | 0 | **247** | 0 | 0 | 0 | 0 | **0** | 0 | 10 | 153 | 0 | **163** | 0 | **410** |
| 4:30PM | 215 | 0 | 0 | **215** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 198 | 0 | **198** | 0 | **413** |
| 4:45PM | 229 | 2 | 0 | **231** | 0 | 0 | 0 | 0 | **0** | 0 | 1 | 164 | 0 | **165** | 0 | **396** |
| 5:00PM | 211 | 2 | 0 | **213** | 0 | 0 | 0 | 0 | **0** | 0 | 3 | 165 | 0 | **168** | 0 | **381** |
| **Total** | 896 | 10 | 0 | **906** | 0 | 0 | 0 | 0 | **0** | 0 | 14 | 680 | 0 | **694** | 0 | **1600** |
| **% Approach** | 98.9% | 1.1% | 0% | **-** | - | 0% | 0% | 0% | **-** | - | 2.0% | 98.0% | 0% | **-** | - | **-** |
| **% Total** | 56.0% | 0.6% | 0% | **56.6%** | - | 0% | 0% | 0% | **0%** | - | 0.9% | 42.5% | 0% | **43.4%** | - | **-** |
| **PHF** | 0.929 | 0.417 | - | **0.917** | - | - | - | - | **-** | - | 0.350 | 0.859 | - | **0.876** | - | 0.969 |
| **Lights** | 888 | 10 | 0 | **898** | - | 0 | 0 | 0 | **0** | - | 14 | 672 | 0 | **686** | - | 1584 |
| **% Lights** | 99.1% | 100% | 0% | **99.1%** | - | 0% | 0% | 0% | **-** | - | 100% | 98.8% | 0% | **98.8%** | - | 99.0% |
| **Articulated Trucks** | 1 | 0 | 0 | **1** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 1 |
| **% Articulated Trucks** | 0.1% | 0% | 0% | **0.1%** | - | 0% | 0% | 0% | **-** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 7 | 0 | 0 | **7** | - | 0 | 0 | 0 | **0** | - | 0 | 8 | 0 | **8** | - | 15 |
| **% Buses and Single-Unit Trucks** | 0.8% | 0% | 0% | **0.8%** | - | 0% | 0% | 0% | **-** | - | 0% | 1.2% | 0% | **1.2%** | - | 0.9% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**S Lee's Summit Road & Glendale School Entran... - TMC**
Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944942, Location: 39.071643, -94.390901

GEWALT HAMILTON ASSOCIATES, INC.
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Exit - TMC

Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

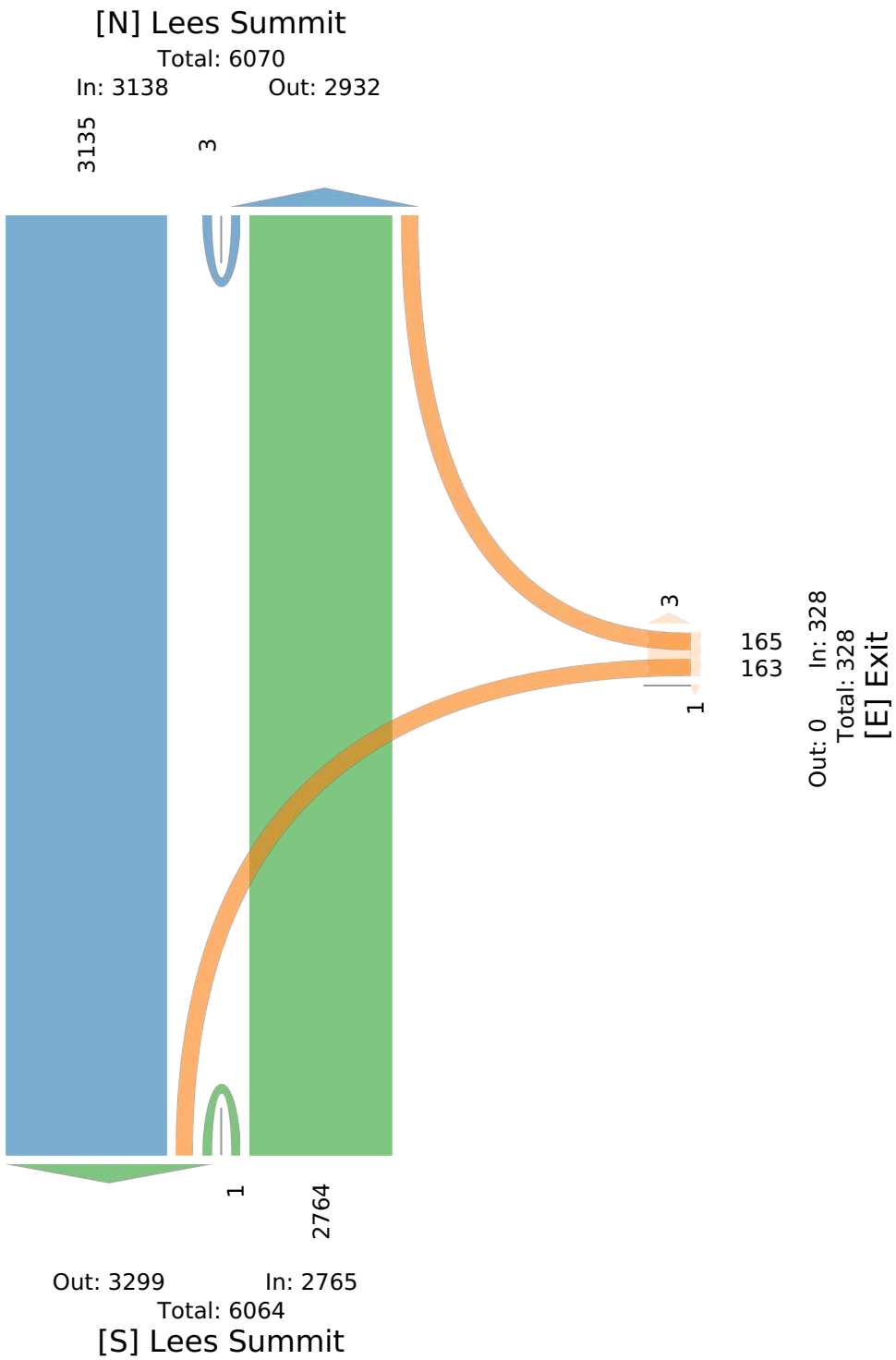
| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Exit<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 7:30AM | 84 | 0 | 0 | **84** | 0 | 3 | 0 | 0 | **3** | 0 | 0 | 99 | 0 | **99** | 0 | **186** |
| 7:45AM | 94 | 0 | 0 | **94** | 0 | 2 | 5 | 0 | **7** | 0 | 0 | 125 | 0 | **125** | 0 | **226** |
| Hourly Total | 178 | 0 | 0 | **178** | 0 | 5 | 5 | 0 | **10** | 0 | 0 | 224 | 0 | **224** | 0 | **412** |
| 8:00AM | 92 | 0 | 1 | **93** | 0 | 0 | 0 | 0 | **0** | 0 | 0 | 101 | 0 | **101** | 0 | **194** |
| 8:15AM | 116 | 0 | 0 | **116** | 0 | 0 | 2 | 0 | **2** | 0 | 0 | 91 | 0 | **91** | 0 | **209** |
| 8:30AM | 115 | 0 | 0 | **115** | 0 | 0 | 2 | 0 | **2** | 2 | 0 | 91 | 1 | **92** | 0 | **209** |
| 8:45AM | 135 | 0 | 0 | **135** | 0 | 54 | 46 | 0 | **100** | 0 | 0 | 124 | 0 | **124** | 0 | **359** |
| Hourly Total | 458 | 0 | 1 | **459** | 0 | 54 | 50 | 0 | **104** | 2 | 0 | 407 | 1 | **408** | 0 | **971** |
| 9:00AM | 135 | 0 | 0 | **135** | 0 | 14 | 14 | 0 | **28** | 0 | 0 | 113 | 0 | **113** | 0 | **276** |
| 9:15AM | 108 | 0 | 0 | **108** | 0 | 2 | 3 | 0 | **5** | 0 | 0 | 99 | 0 | **99** | 0 | **212** |
| Hourly Total | 243 | 0 | 0 | **243** | 0 | 16 | 17 | 0 | **33** | 0 | 0 | 212 | 0 | **212** | 0 | **488** |
| 3:00PM | 128 | 0 | 0 | **128** | 0 | 1 | 1 | 0 | **2** | 0 | 0 | 162 | 0 | **162** | 0 | **292** |
| 3:15PM | 144 | 0 | 0 | **144** | 0 | 2 | 2 | 0 | **4** | 0 | 0 | 148 | 0 | **148** | 0 | **296** |
| 3:30PM | 197 | 0 | 0 | **197** | 0 | 2 | 1 | 0 | **3** | 0 | 0 | 131 | 0 | **131** | 0 | **331** |
| 3:45PM | 219 | 0 | 0 | **219** | 0 | 0 | 2 | 0 | **2** | 0 | 0 | 171 | 0 | **171** | 0 | **392** |
| Hourly Total | 688 | 0 | 0 | **688** | 0 | 5 | 6 | 0 | **11** | 0 | 0 | 612 | 0 | **612** | 0 | **1311** |
| 4:00PM | 167 | 0 | 0 | **167** | 0 | 29 | 19 | 0 | **48** | 0 | 0 | 150 | 0 | **150** | 0 | **365** |
| 4:15PM | 212 | 0 | 0 | **212** | 0 | 32 | 37 | 0 | **69** | 1 | 0 | 154 | 0 | **154** | 0 | **435** |
| 4:30PM | 204 | 0 | 1 | **205** | 0 | 9 | 7 | 0 | **16** | 0 | 0 | 197 | 0 | **197** | 0 | **418** |
| 4:45PM | 222 | 0 | 0 | **222** | 0 | 2 | 7 | 0 | **9** | 0 | 0 | 166 | 0 | **166** | 0 | **397** |
| Hourly Total | 805 | 0 | 1 | **806** | 0 | 72 | 70 | 0 | **142** | 1 | 0 | 667 | 0 | **667** | 0 | **1615** |
| 5:00PM | 209 | 0 | 0 | **209** | 0 | 4 | 2 | 0 | **6** | 0 | 0 | 162 | 0 | **162** | 0 | **377** |
| 5:15PM | 218 | 0 | 1 | **219** | 0 | 5 | 4 | 0 | **9** | 0 | 0 | 161 | 0 | **161** | 0 | **389** |
| 5:30PM | 172 | 0 | 0 | **172** | 0 | 2 | 5 | 0 | **7** | 0 | 0 | 155 | 0 | **155** | 0 | **334** |
| 5:45PM | 164 | 0 | 0 | **164** | 0 | 2 | 4 | 0 | **6** | 1 | 0 | 164 | 0 | **164** | 0 | **334** |
| Hourly Total | 763 | 0 | 1 | **764** | 0 | 13 | 15 | 0 | **28** | 1 | 0 | 642 | 0 | **642** | 0 | **1434** |
| **Total** | 3135 | 0 | 3 | **3138** | 0 | 165 | 163 | 0 | **328** | 4 | 0 | 2764 | 1 | **2765** | 0 | **6231** |
| **% Approach** | 99.9% | 0% | 0.1% | **-** | - | 50.3% | 49.7% | 0% | **-** | - | 0% | 100.0% | 0% | **-** | - | **-** |
| **% Total** | 50.3% | 0% | 0% | **50.4%** | - | 2.6% | 2.6% | 0% | **5.3%** | - | 0% | 44.4% | 0% | **44.4%** | - | **-** |
| **Lights** | 3079 | 0 | 3 | **3082** | - | 157 | 161 | 0 | **318** | - | 0 | 2743 | 1 | **2744** | - | 6144 |
| **% Lights** | 98.2% | 0% | 100% | **98.2%** | - | 95.2% | 98.8% | 0% | **97.0%** | - | 0% | 99.2% | 100% | **99.2%** | - | 98.6% |
| **Articulated Trucks** | 4 | 0 | 0 | **4** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 4 |
| **% Articulated Trucks** | 0.1% | 0% | 0% | **0.1%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 52 | 0 | 0 | **52** | - | 8 | 2 | 0 | **10** | - | 0 | 21 | 0 | **21** | - | 83 |
| **% Buses and Single-Unit Trucks** | 1.7% | 0% | 0% | **1.7%** | - | 4.8% | 1.2% | 0% | **3.0%** | - | 0% | 0.8% | 0% | **0.8%** | - | 1.3% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 4 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## S Lee's Summit Road & Glendale School Exit - TMC

Wed May 4, 2022
Full Length (7:30 AM-9:30 AM, 3 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Exit - TMC

Wed May 4, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

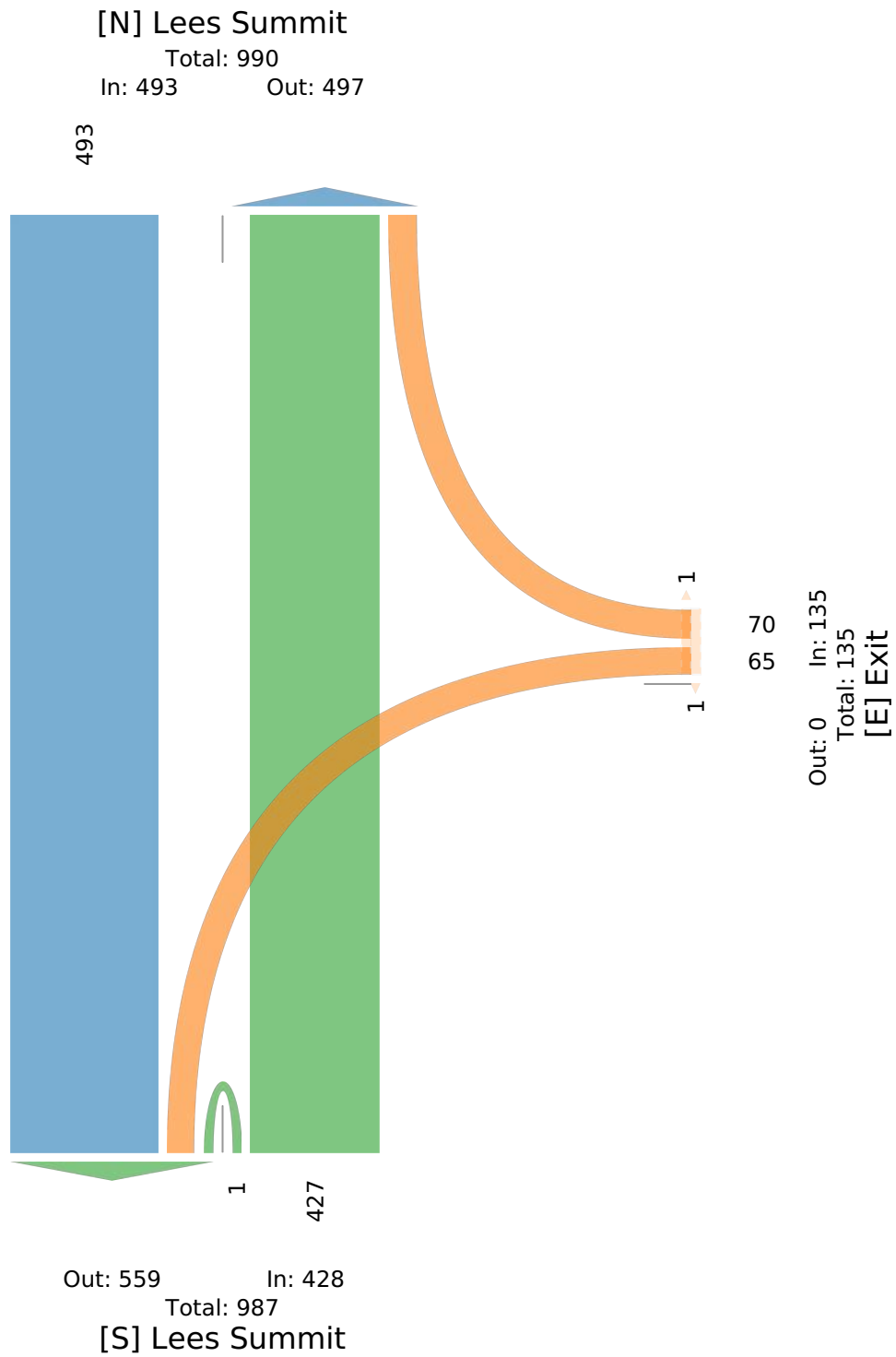
Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

| Leg | Lees Summit | | | | | Exit | | | | | Lees Summit | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Southbound | | | | | Westbound | | | | | Northbound | | | | | |
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 8:30AM | 115 | 0 | 0 | **115** | 0 | 0 | 2 | 0 | **2** | 2 | 0 | 91 | 1 | **92** | 0 | **209** |
| 8:45AM | 135 | 0 | 0 | **135** | 0 | 54 | 46 | 0 | **100** | 0 | 0 | 124 | 0 | **124** | 0 | **359** |
| 9:00AM | 135 | 0 | 0 | **135** | 0 | 14 | 14 | 0 | **28** | 0 | 0 | 113 | 0 | **113** | 0 | **276** |
| 9:15AM | 108 | 0 | 0 | **108** | 0 | 2 | 3 | 0 | **5** | 0 | 0 | 99 | 0 | **99** | 0 | **212** |
| **Total** | 493 | 0 | 0 | **493** | 0 | 70 | 65 | 0 | **135** | 2 | 0 | 427 | 1 | **428** | 0 | **1056** |
| **% Approach** | 100% | 0% | 0% | **-** | - | 51.9% | 48.1% | 0% | **-** | - | 0% | 99.8% | 0.2% | **-** | - | **-** |
| **% Total** | 46.7% | 0% | 0% | **46.7%** | - | 6.6% | 6.2% | 0% | **12.8%** | - | 0% | 40.4% | 0.1% | **40.5%** | - | **-** |
| **PHF** | 0.913 | - | - | **0.913** | - | 0.324 | 0.353 | - | **0.338** | - | - | 0.861 | 0.250 | **0.863** | - | 0.735 |
| **Lights** | 478 | 0 | 0 | **478** | - | 65 | 65 | 0 | **130** | - | 0 | 422 | 1 | **423** | - | 1031 |
| **% Lights** | 97.0% | 0% | 0% | **97.0%** | - | 92.9% | 100% | 0% | **96.3%** | - | 0% | 98.8% | 100% | **98.8%** | - | 97.6% |
| **Articulated Trucks** | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 0 |
| **% Articulated Trucks** | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0% |
| **Buses and Single-Unit Trucks** | 15 | 0 | 0 | **15** | - | 5 | 0 | 0 | **5** | - | 0 | 5 | 0 | **5** | - | 25 |
| **% Buses and Single-Unit Trucks** | 3.0% | 0% | 0% | **3.0%** | - | 7.1% | 0% | 0% | **3.7%** | - | 0% | 1.2% | 0% | **1.2%** | - | 2.4% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 2 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

**S Lee's Summit Road & Glendale School Exit - TMC**
Wed May 4, 2022
AM Peak (8:30 AM - 9:30 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



## S Lee's Summit Road & Glendale School Exit - TMC

Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

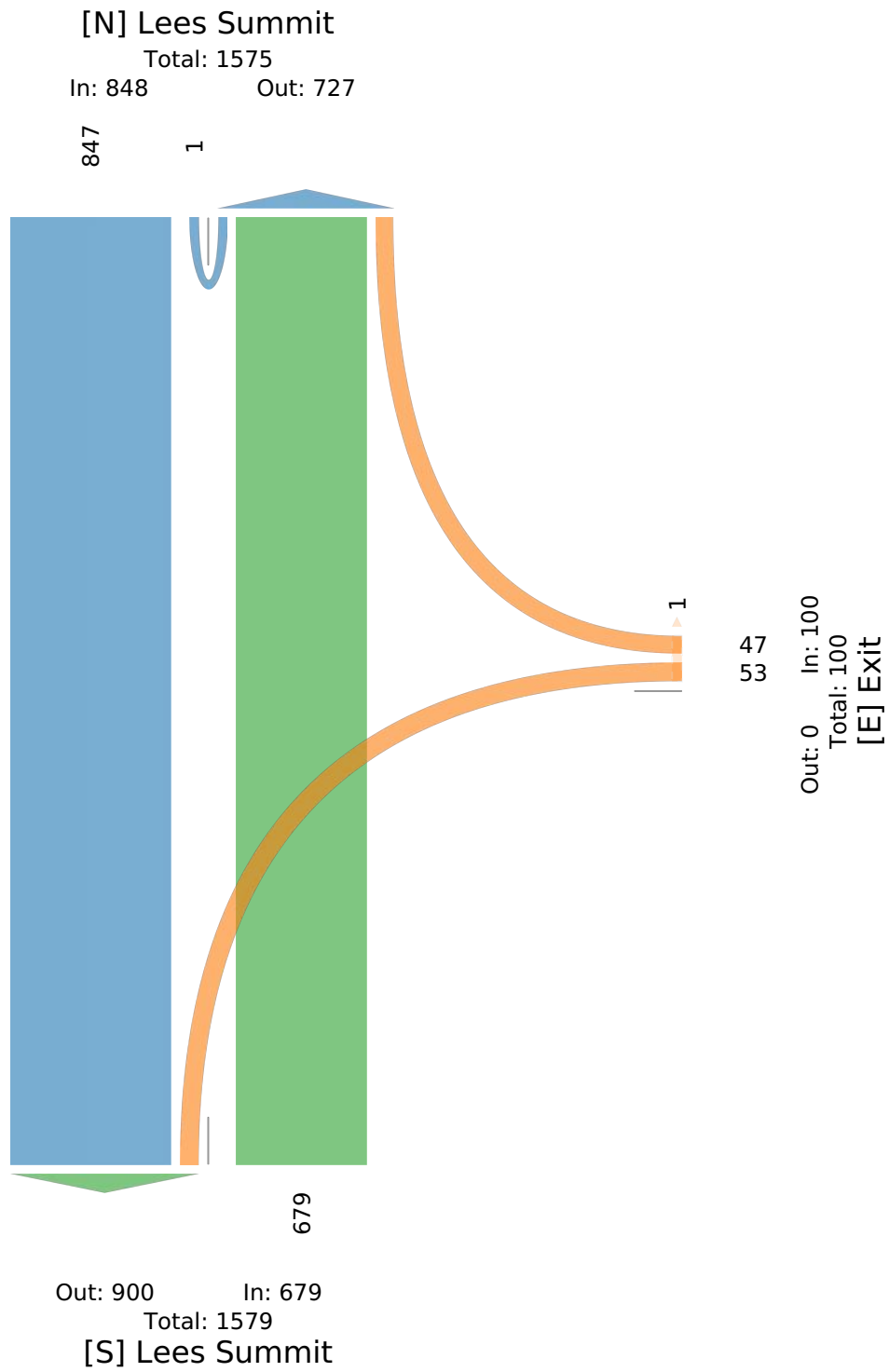
| Leg<br>Direction | Lees Summit<br>Southbound | | | | | Exit<br>Westbound | | | | | Lees Summit<br>Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | T | L | U | **App** | Ped* | R | L | U | **App** | Ped* | R | T | U | **App** | Ped* | **Int** |
| 2022-05-04 4:15PM | 212 | 0 | 0 | **212** | 0 | 32 | 37 | 0 | **69** | 1 | 0 | 154 | 0 | **154** | 0 | **435** |
| 4:30PM | 204 | 0 | 1 | **205** | 0 | 9 | 7 | 0 | **16** | 0 | 0 | 197 | 0 | **197** | 0 | **418** |
| 4:45PM | 222 | 0 | 0 | **222** | 0 | 2 | 7 | 0 | **9** | 0 | 0 | 166 | 0 | **166** | 0 | **397** |
| 5:00PM | 209 | 0 | 0 | **209** | 0 | 4 | 2 | 0 | **6** | 0 | 0 | 162 | 0 | **162** | 0 | **377** |
| **Total** | 847 | 0 | 1 | **848** | 0 | 47 | 53 | 0 | **100** | 1 | 0 | 679 | 0 | **679** | 0 | **1627** |
| **% Approach** | 99.9% | 0% | 0.1% | **-** | - | 47.0% | 53.0% | 0% | **-** | - | 0% | 100% | 0% | **-** | - | **-** |
| **% Total** | 52.1% | 0% | 0.1% | **52.1%** | - | 2.9% | 3.3% | 0% | **6.1%** | - | 0% | 41.7% | 0% | **41.7%** | - | **-** |
| **PHF** | 0.954 | - | 0.250 | **0.955** | - | 0.367 | 0.358 | - | **0.362** | - | - | 0.862 | - | **0.862** | - | 0.935 |
| **Lights** | 840 | 0 | 1 | **841** | - | 44 | 51 | 0 | **95** | - | 0 | 671 | 0 | **671** | - | 1607 |
| **% Lights** | 99.2% | 0% | 100% | **99.2%** | - | 93.6% | 96.2% | 0% | **95.0%** | - | 0% | 98.8% | 0% | **98.8%** | - | 98.8% |
| **Articulated Trucks** | 1 | 0 | 0 | **1** | - | 0 | 0 | 0 | **0** | - | 0 | 0 | 0 | **0** | - | 1 |
| **% Articulated Trucks** | 0.1% | 0% | 0% | **0.1%** | - | 0% | 0% | 0% | **0%** | - | 0% | 0% | 0% | **0%** | - | 0.1% |
| **Buses and Single-Unit Trucks** | 6 | 0 | 0 | **6** | - | 3 | 2 | 0 | **5** | - | 0 | 8 | 0 | **8** | - | 19 |
| **% Buses and Single-Unit Trucks** | 0.7% | 0% | 0% | **0.7%** | - | 6.4% | 3.8% | 0% | **5.0%** | - | 0% | 1.2% | 0% | **1.2%** | - | 1.2% |
| Pedestrians | - | - | - | - | 0 | - | - | - | - | 1 | - | - | - | - | 0 | |
| % Pedestrians | - | - | - | - | - | - | - | - | - | 100% | - | - | - | - | - | - |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | 0% | - | - | - | - | - | - |

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

## S Lee's Summit Road & Glendale School Exit - TMC

Wed May 4, 2022
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 944943, Location: 39.072342, -94.390912

Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



MERGE MIDWEST ENGINEERING

# Trip Generation

# Senior Adult Housing - Single-Family
(251)

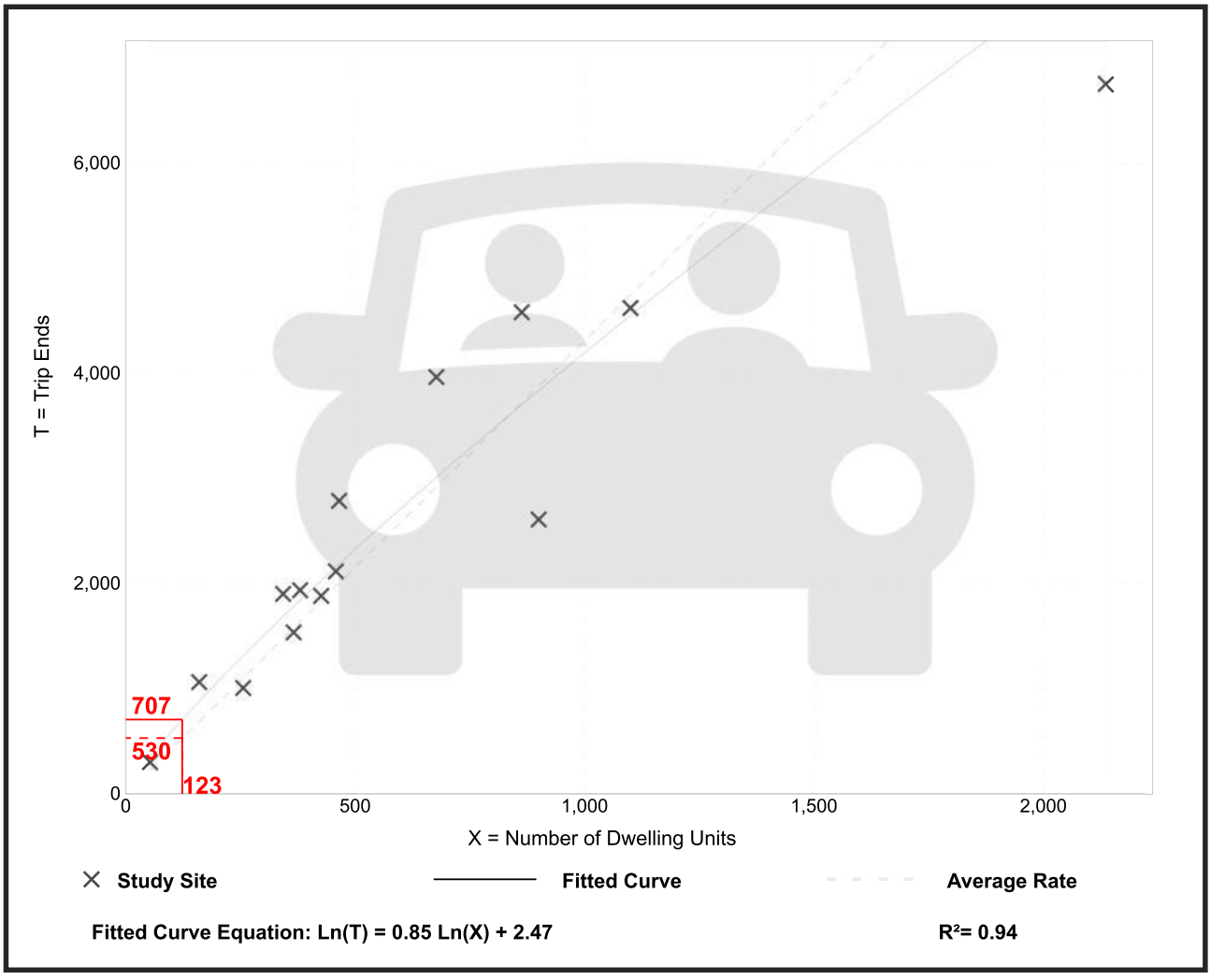
**Vehicle Trip Ends vs:** **Dwelling Units**
**On a:** **Weekday**

**Setting/Location:** **General Urban/Suburban**
Number of Studies: 15
Avg. Num. of Dwelling Units: 646
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 4.31 | 2.90 - 6.66 | 1.07 |

## Data Plot and Equation




*Trip Gen Manual,* 11th Edition • Institute of Transportation Engineers

**Calculated Trip Ends:**
Average Rate: 530 (Total), 265 (Entry), 265 (Exit)
Fitted Curve: 707 (Total), 353 (Entry), 354 (Exit)

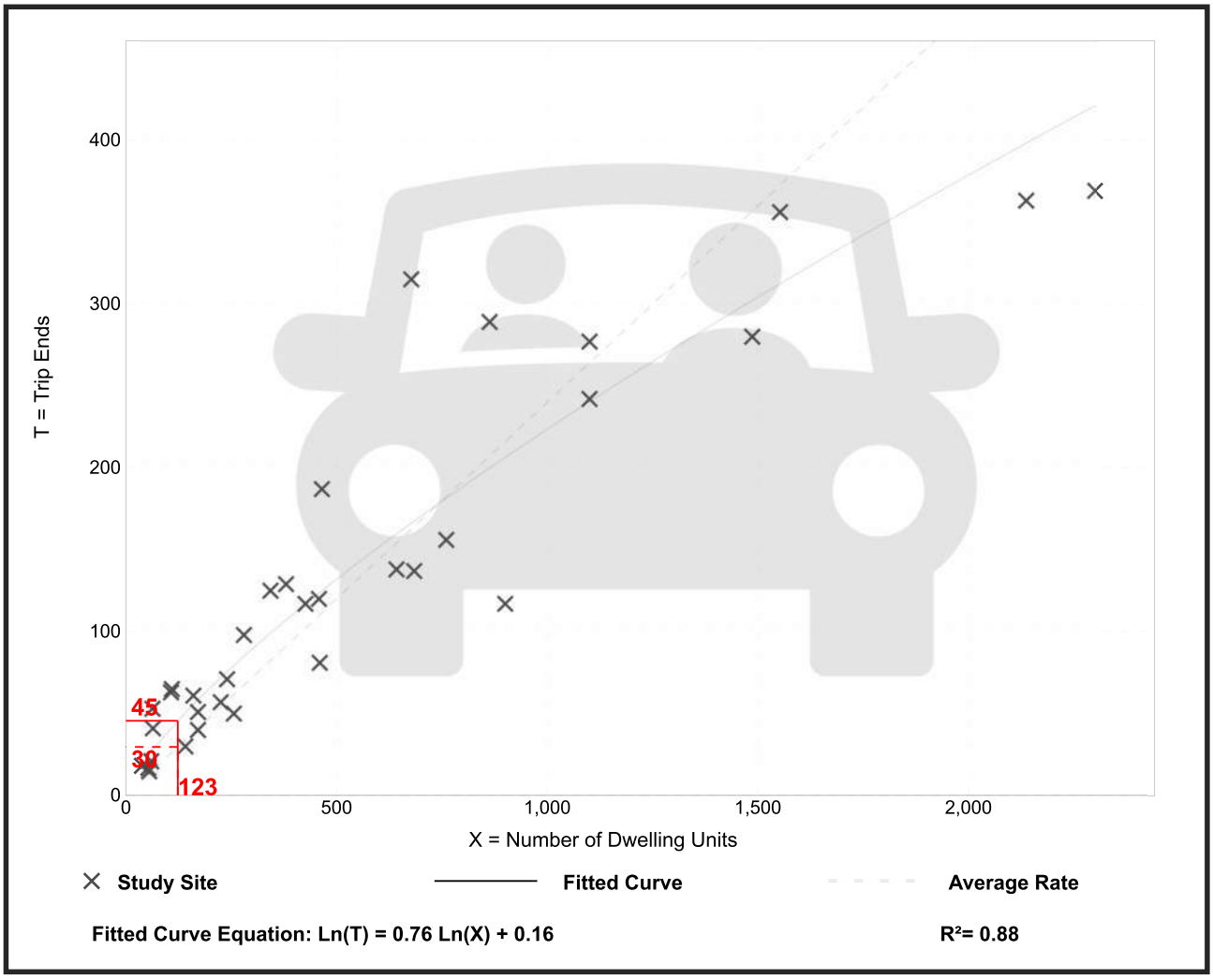
# Senior Adult Housing - Single-Family
(251)

| | |
|---|---|
| **Vehicle Trip Ends vs:** | **Dwelling Units** |
| **On a:** | **Weekday,** |
| | **Peak Hour of Adjacent Street Traffic,** |
| | **One Hour Between 7 and 9 a.m.** |
| **Setting/Location:** | **General Urban/Suburban** |
| Number of Studies: | 34 |
| Avg. Num. of Dwelling Units: | 557 |
| Directional Distribution: | 33% entering, 67% exiting |

## Vehicle Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.24 | 0.13 - 0.84 | 0.10 |

## Data Plot and Equation




**Fitted Curve Equation: Ln(T) = 0.76 Ln(X) + 0.16** **$R^2$= 0.88**

*Trip Gen Manual,* 11th Edition • Institute of Transportation Engineers

**Calculated Trip Ends:**

Average Rate: 30 (Total), 10 (Entry), 20 (Exit)

Fitted Curve: 45 (Total), 15 (Entry), 30 (Exit)

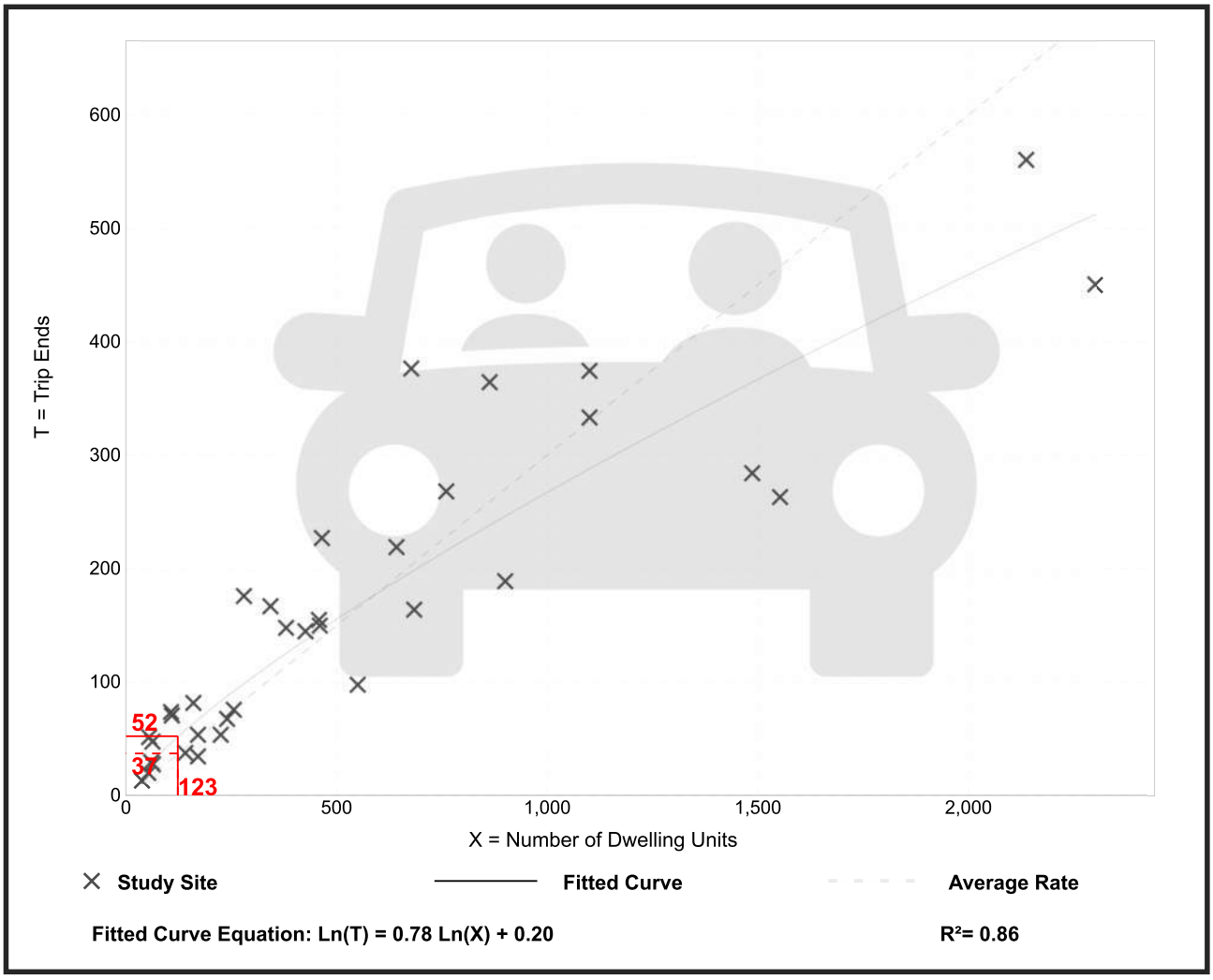
# Senior Adult Housing - Single-Family
(251)

**Vehicle Trip Ends vs:** **Dwelling Units**
**On a:** **Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 4 and 6 p.m.**
**Setting/Location:** **General Urban/Suburban**
Number of Studies: 35
Avg. Num. of Dwelling Units: 556
Directional Distribution: 61% entering, 39% exiting

## Vehicle Trip Generation per Dwelling Unit

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 0.30 | 0.17 - 0.95 | 0.12 |

## Data Plot and Equation




*Trip Gen Manual,* 11th Edition • Institute of Transportation Engineers

**Calculated Trip Ends:**
Average Rate: 37 (Total), 23 (Entry), 14 (Exit)
Fitted Curve: 52 (Total), 32 (Entry), 20 (Exit)

MERGE MIDWEST ENGINEERING

# Synchro Reports

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 69 | 457 | 14 | 38 | 485 |
| Future Vol, veh/h | 20 | 69 | 457 | 14 | 38 | 485 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 190 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 3 | 2 |
| Mvmt Flow | 25 | 86 | 571 | 18 | 48 | 606 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 979 | 295 | 0 | 0 | 589 | 0 |
| Stage 1 | 580 | - | - | - | - | - |
| Stage 2 | 399 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.16 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.23 | - |
| Pot Cap-1 Maneuver | 247 | 701 | - | - | 976 | - |
| Stage 1 | 523 | - | - | - | - | - |
| Stage 2 | 647 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 235 | 701 | - | - | 976 | - |
| Mov Cap-2 Maneuver | 235 | - | - | - | - | - |
| Stage 1 | 523 | - | - | - | - | - |
| Stage 2 | 615 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 14.6 | 0 | 0.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 485 | 976 | - |
| HCM Lane V/C Ratio | - | - | 0.229 | 0.049 | - |
| HCM Control Delay (s) | - | - | 14.6 | 8.9 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 65 | 70 | 428 | 0 | 0 | 509 |
| Future Vol, veh/h | 65 | 70 | 428 | 0 | 0 | 509 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 74 | 74 | 74 | 74 | 74 | 74 |
| Heavy Vehicles, % | 2 | 7 | 2 | 2 | 2 | 3 |
| Mvmt Flow | 88 | 95 | 578 | 0 | 0 | 688 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 922 | 289 | 0 | - | - | - |
| Stage 1 | 578 | - | - | - | - | - |
| Stage 2 | 344 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 7.04 | - | - | - | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.37 | - | - | - | - |
| Pot Cap-1 Maneuver | 269 | 693 | - | 0 | 0 | - |
| Stage 1 | 524 | - | - | 0 | 0 | - |
| Stage 2 | 689 | - | - | 0 | 0 | - |
| Platoon blocked, % | | | - | | | - |
| Mov Cap-1 Maneuver | 269 | 693 | - | - | - | - |
| Mov Cap-2 Maneuver | 269 | - | - | - | - | - |
| Stage 1 | 524 | - | - | - | - | - |
| Stage 2 | 689 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 21.8 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | WBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 394 | - |
| HCM Lane V/C Ratio | - | 0.463 | - |
| HCM Control Delay (s) | - | 21.8 | - |
| HCM Lane LOS | - | C | - |
| HCM 95th %tile Q(veh) | - | 2.4 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 18 | 56 | 638 | 31 | 107 | 789 |
| Future Vol, veh/h | 18 | 56 | 638 | 31 | 107 | 789 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 190 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 2 | 3 | 2 | 2 |
| Mvmt Flow | 19 | 59 | 672 | 33 | 113 | 831 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1331 | 353 | 0 | 0 | 705 | 0 |
| Stage 1 | 689 | - | - | - | - | - |
| Stage 2 | 642 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 146 | 643 | - | - | 889 | - |
| Stage 1 | 460 | - | - | - | - | - |
| Stage 2 | 486 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 127 | 643 | - | - | 889 | - |
| Mov Cap-2 Maneuver | 127 | - | - | - | - | - |
| Stage 1 | 460 | - | - | - | - | - |
| Stage 2 | 424 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 19.7 | 0 | 1.2 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 323 | 889 | - |
| HCM Lane V/C Ratio | - | - | 0.241 | 0.127 | - |
| HCM Control Delay (s) | - | - | 19.7 | 9.6 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.4 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 53 | 47 | 680 | 0 | 0 | 853 |
| Future Vol, veh/h | 53 | 47 | 680 | 0 | 0 | 853 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 4 | 6 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 56 | 50 | 723 | 0 | 0 | 907 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1177 | 362 | 0 | - | - | - |
| Stage 1 | 723 | - | - | - | - | - |
| Stage 2 | 454 | - | - | - | - | - |
| Critical Hdwy | 6.88 | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | 5.88 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.88 | - | - | - | - | - |
| Follow-up Hdwy | 3.54 | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 181 | 623 | - | 0 | 0 | - |
| Stage 1 | 436 | - | - | 0 | 0 | - |
| Stage 2 | 601 | - | - | 0 | 0 | - |
| Platoon blocked, % | | | - | | | - |
| Mov Cap-1 Maneuver | 181 | 623 | - | - | - | - |
| Mov Cap-2 Maneuver | 181 | - | - | - | - | - |
| Stage 1 | 436 | - | - | - | - | - |
| Stage 2 | 601 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 26.5 | 0 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBT | WBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 272 | - |
| HCM Lane V/C Ratio | - | 0.391 | - |
| HCM Control Delay (s) | - | 26.5 | - |
| HCM Lane LOS | - | D | - |
| HCM 95th %tile Q(veh) | - | 1.8 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 69 | 461 | 14 | 38 | 492 |
| Future Vol, veh/h | 20 | 69 | 461 | 14 | 38 | 492 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 190 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 3 | 2 |
| Mvmt Flow | 25 | 86 | 576 | 18 | 48 | 615 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 989 | 297 | 0 | 0 | 594 | 0 |
| Stage 1 | 585 | - | - | - | - | - |
| Stage 2 | 404 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.16 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.23 | - |
| Pot Cap-1 Maneuver | 244 | 699 | - | - | 971 | - |
| Stage 1 | 520 | - | - | - | - | - |
| Stage 2 | 643 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 232 | 699 | - | - | 971 | - |
| Mov Cap-2 Maneuver | 232 | - | - | - | - | - |
| Stage 1 | 520 | - | - | - | - | - |
| Stage 2 | 611 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 14.7 | 0 | 0.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 481 | 971 | - |
| HCM Lane V/C Ratio | - | - | 0.231 | 0.049 | - |
| HCM Control Delay (s) | - | - | 14.7 | 8.9 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 23 | 0 | 7 | 0 | 0 | 0 | 4 | 428 | 98 | 51 | 523 | 11 |
| Future Vol, veh/h | 23 | 0 | 7 | 0 | 0 | 0 | 4 | 428 | 98 | 51 | 523 | 11 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 |
| Mvmt Flow | 30 | 0 | 9 | 0 | 0 | 0 | 5 | 563 | 129 | 67 | 688 | 14 |

| Major/Minor | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1121 | 1531 | 351 | 702 | 0 | 0 | 692 | 0 | 0 |
| Stage 1 | 829 | 829 | - | - | - | - | - | - | - |
| Stage 2 | 292 | 702 | - | - | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.54 | 6.94 | 4.14 | - | - | 4.18 | - | - |
| Critical Hdwy Stg 1 | 5.84 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4.02 | 3.32 | 2.22 | - | - | 2.24 | - | - |
| Pot Cap-1 Maneuver | 200 | 116 | 645 | 891 | - | - | 886 | - | - |
| Stage 1 | 389 | 383 | - | - | - | - | - | - | - |
| Stage 2 | 732 | 439 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 174 | 0 | 645 | 891 | - | - | 886 | - | - |
| Mov Cap-2 Maneuver | 174 | 0 | - | - | - | - | - | - | - |
| Stage 1 | 385 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 641 | 0 | - | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 26.1 | 0.1 | 1.3 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 891 | - | - | 210 | 886 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.188 | 0.076 | - | - |
| HCM Control Delay (s) | 9.1 | 0 | - | 26.1 | 9.4 | 0.5 | - |
| HCM Lane LOS | A | A | - | D | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.7 | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.8 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 65 | 70 | 451 | 0 | 0 | 520 |
| Future Vol, veh/h | 65 | 70 | 451 | 0 | 0 | 520 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 74 | 74 | 74 | 74 | 74 | 74 |
| Heavy Vehicles, % | 2 | 7 | 2 | 2 | 2 | 3 |
| Mvmt Flow | 88 | 95 | 609 | 0 | 0 | 703 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 961 | 305 | 0 | - | - | - |
| Stage 1 | 609 | - | - | - | - | - |
| Stage 2 | 352 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 7.04 | - | - | - | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.37 | - | - | - | - |
| Pot Cap-1 Maneuver | 254 | 676 | - | 0 | 0 | - |
| Stage 1 | 505 | - | - | 0 | 0 | - |
| Stage 2 | 683 | - | - | 0 | 0 | - |
| Platoon blocked, % | | | - | | | - |
| Mov Cap-1 Maneuver | 254 | 676 | - | - | - | - |
| Mov Cap-2 Maneuver | 254 | - | - | - | - | - |
| Stage 1 | 505 | - | - | - | - | - |
| Stage 2 | 683 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 23.3 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | WBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 376 | - |
| HCM Lane V/C Ratio | - | 0.485 | - |
| HCM Control Delay (s) | - | 23.3 | - |
| HCM Lane LOS | - | C | - |
| HCM 95th %tile Q(veh) | - | 2.6 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 18 | 56 | 646 | 31 | 107 | 794 |
| Future Vol, veh/h | 18 | 56 | 646 | 31 | 107 | 794 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 190 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 2 | 2 | 2 | 3 | 2 | 2 |
| Mvmt Flow | 19 | 59 | 680 | 33 | 113 | 836 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1341 | 357 | 0 | 0 | 713 | 0 |
| Stage 1 | 697 | - | - | - | - | - |
| Stage 2 | 644 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 144 | 639 | - | - | 883 | - |
| Stage 1 | 455 | - | - | - | - | - |
| Stage 2 | 485 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 126 | 639 | - | - | 883 | - |
| Mov Cap-2 Maneuver | 126 | - | - | - | - | - |
| Stage 1 | 455 | - | - | - | - | - |
| Stage 2 | 423 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 19.8 | 0 | 1.1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 321 | 883 | - |
| HCM Lane V/C Ratio | - | - | 0.243 | 0.128 | - |
| HCM Control Delay (s) | - | - | 19.8 | 9.7 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.4 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 15 | 0 | 5 | 0 | 0 | 0 | 8 | 680 | 14 | 10 | 896 | 24 |
| Future Vol, veh/h | 15 | 0 | 5 | 0 | 0 | 0 | 8 | 680 | 14 | 10 | 896 | 24 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 15 | 0 | 5 | 0 | 0 | 0 | 8 | 701 | 14 | 10 | 924 | 25 |

| Major/Minor | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1324 | 1688 | 475 | 949 | 0 | 0 | 715 | 0 | 0 |
| Stage 1 | 957 | 957 | - | - | - | - | - | - | - |
| Stage 2 | 367 | 731 | - | - | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.54 | 6.94 | 4.14 | - | - | 4.14 | - | - |
| Critical Hdwy Stg 1 | 5.84 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4.02 | 3.32 | 2.22 | - | - | 2.22 | - | - |
| Pot Cap-1 Maneuver | 147 | 93 | 536 | 719 | - | - | 881 | - | - |
| Stage 1 | 333 | 334 | - | - | - | - | - | - | - |
| Stage 2 | 671 | 425 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 141 | 0 | 536 | 719 | - | - | 881 | - | - |
| Mov Cap-2 Maneuver | 141 | 0 | - | - | - | - | - | - | - |
| Stage 1 | 327 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 655 | 0 | - | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 28.6 | 0.2 | 0.2 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 719 | - | - | 173 | 881 | - | - |
| HCM Lane V/C Ratio | 0.011 | - | - | 0.119 | 0.012 | - | - |
| HCM Control Delay (s) | 10.1 | 0.1 | - | 28.6 | 9.1 | 0.1 | - |
| HCM Lane LOS | B | A | - | D | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.4 | 0 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 53 | 47 | 695 | 0 | 0 | 877 |
| Future Vol, veh/h | 53 | 47 | 695 | 0 | 0 | 877 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 4 | 6 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 56 | 50 | 739 | 0 | 0 | 933 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1206 | 370 | 0 | - | - | - |
| Stage 1 | 739 | - | - | - | - | - |
| Stage 2 | 467 | - | - | - | - | - |
| Critical Hdwy | 6.88 | 7.02 | - | - | - | - |
| Critical Hdwy Stg 1 | 5.88 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.88 | - | - | - | - | - |
| Follow-up Hdwy | 3.54 | 3.36 | - | - | - | - |
| Pot Cap-1 Maneuver | 173 | 616 | - | 0 | 0 | - |
| Stage 1 | 428 | - | - | 0 | 0 | - |
| Stage 2 | 591 | - | - | 0 | 0 | - |
| Platoon blocked, % | | | - | | | - |
| Mov Cap-1 Maneuver | 173 | 616 | - | - | - | - |
| Mov Cap-2 Maneuver | 173 | - | - | - | - | - |
| Stage 1 | 428 | - | - | - | - | - |
| Stage 2 | 591 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 28 | 0 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBT | WBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 261 | - |
| HCM Lane V/C Ratio | - | 0.408 | - |
| HCM Control Delay (s) | - | 28 | - |
| HCM Lane LOS | - | D | - |
| HCM 95th %tile Q(veh) | - | 1.9 | - |

MERGE MIDWEST ENGINEERING

# Turn-Lane Warrants

**940.9.6 Left Turn Lane Guidelines for Four-Lane Roadways**

LEE'S SUMMIT RD & SITE DRIVE - NB LT

| SCENARIO | LT VOL | OPP VOL |
|---|---|---|
| EX+SITE AM (1) | 4 | 534 |
| EX+SITE PM (2) | 8 | 920 |

LEE'S SUMMIT RD & SCHOOL ENT - SB LT

| SCENARIO | LT VOL | OPP VOL |
|---|---|---|
| EX AM (3) | 51 | 526 |
| EX PM (4) | 10 | 694 |
| EX+SITE AM (3) | 51 | 526 |
| EX+SITE PM (4) | 10 | 694 |

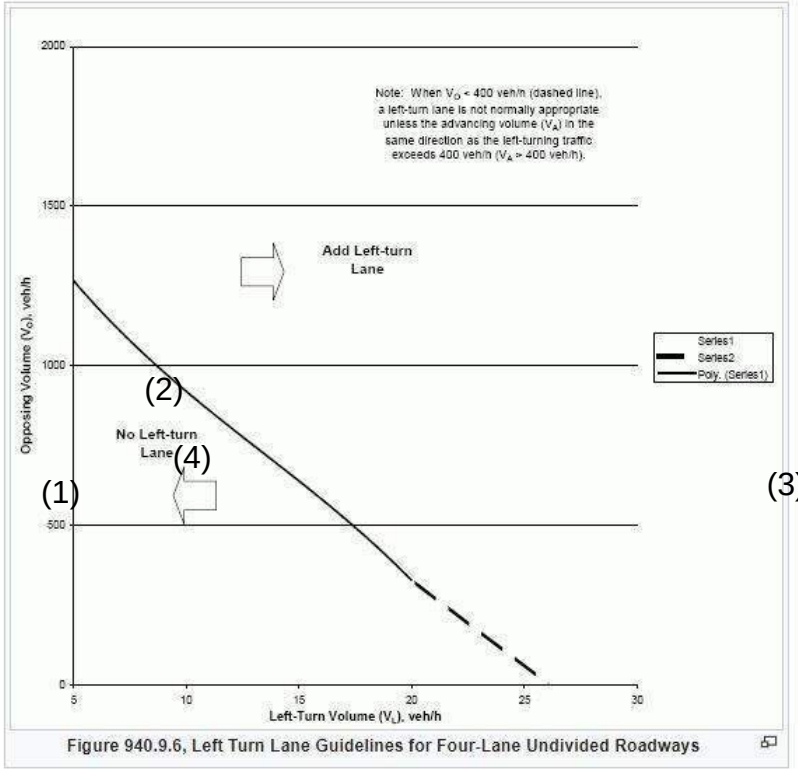



Figure 940.9.6, Left Turn Lane Guidelines for Four-Lane Undivided Roadways

The following data are required:

1. Opposing Volume (veh/hr) - VO - The opposing volume is to include only the right-turn and through movements in the opposite direction of the left turning vehicle.

2. Left-Turn Volume – VL

If the opposing and left-turn volume combination intersects above or to the right of the trend line, a left-turn lane is appropriate.

## 940.9.9 Right Turn Lane Guidelines for Four-Lane Roadways

LEE'S SUMMIT RD & SITE DR - SB RT

| SCENARIO | MAJ VOL | RT VOL |
|---|---|---|
| EX+SITE AM (1) | 585 | 11 |
| EX+SITE PM (2) | 930 | 24 |

LEE'S SUMMIT RD & SCHOOL ENT- NB RT

| SCENARIO | MAJ VOL | RT VOL |
|---|---|---|
| EX AM (3) | 526 | 98 |
| EX PM (4) | 694 | 14 |
| EX+SITE AM (5) | 530 | 98 |
| EX+SITE PM (6) | 702 | 14 |

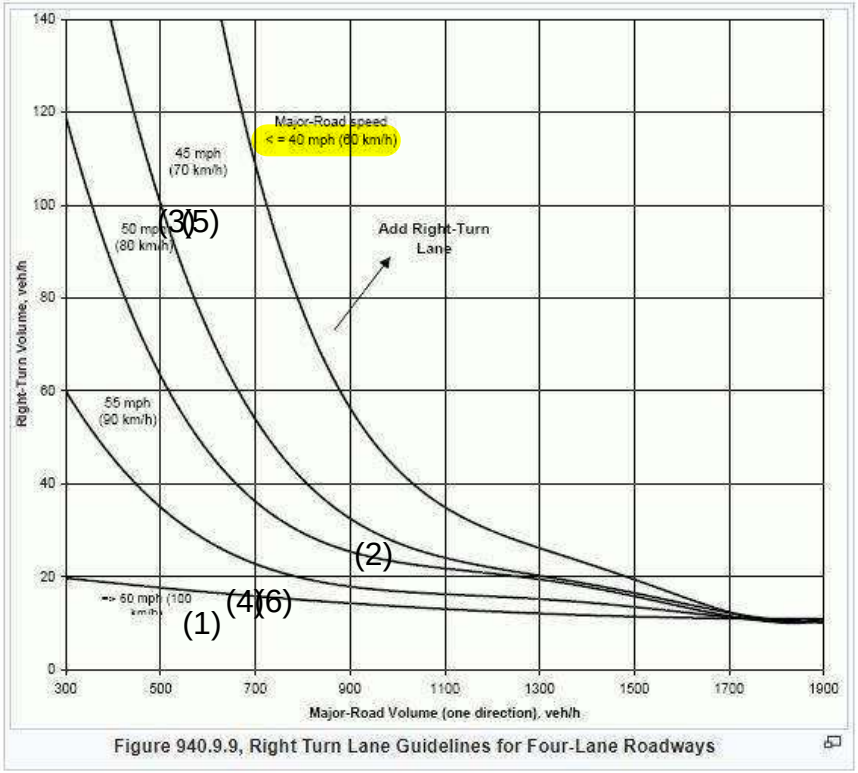



Figure 940.9.9, Right Turn Lane Guidelines for Four-Lane Roadways

The following data are required:

1. Advancing Volume (veh/hr) - The advancing volume is to include the right-turn, left-turn and through movements in the same direction as the right turning vehicle.

2. Right Turning Volume (veh/hr) - The right turning volume is the number of advancing vehicles turning right.

3. Operating Speed (mph) - The greatest of anticipated operating speed, measured 85th percentile speed or posted speed.

Note: Right turn lane not warranted for right turn volume less than 10 vph. However, criteria other than volume, e.g. crash experience, may be used to justify a right turn lane.

If the combination of major road approach volume and right-turn volume intersects above or to the right of the speed trend line corresponding the major road operating speed, then a right-turn lane is appropriate.