TRANSPORTATION PLANNERS AND ENGINEERS

# Davidson Creek Elementary School Parking and Traffic Review

## Final Report

Prepared for

Elk Island Public Schools

Date

March 24, 2017

Prepared by

Bunt & Associates

Project No.

3483.01

# CORPORATE AUTHORIZATION

This document entitled "Davidson Creek Elementary School Parking and Traffic Review, Final Report" was prepared by Bunt & Associates for the benefit of the Client to whom it is addressed. The information and data in the report reflects Bunt & Associates best professional judgment in light of the knowledge and information available to Bunt & Associates at the time of preparation. Except as required by law, this report and the information and data contained are to be treated as confidential and may be used and relied upon only by the client, its officers and employees. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Bunt & Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

PERMIT TO PRACTICE
BUNT & ASSOCIATES ENGINEERING (N. ALBERTA) LTD.
Signature
Date March 24, 2017
PERMIT NUMBER: P 7991
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

Corporate Permit

PROFESSIONAL ENGINEER ALBERTA
JANELLE B. WILLIS

March 24, 2017
Engineer's Stamp

# TABLE OF CONTENTS

## EXHIBITS



## TABLES

# 1. INTRODUCTION

## 1.1 Background

In October 2014, Elk Island Public Schools (EIPS) received approval from the provincial government for a new school in Sherwood Park. EIPS worked with Strathcona County to review land available for future school buildings and analyze enrolment projections to determine needs and decide on a school site. On January 4, 2016, EIPS announced a new K-6 school to be located in Davidson Creek. The lands in Davidson Creek were subdivide and zoned PS – Public Service in 1992 specifically to accommodate a school in the future.

Stantec, formerly known as Architecture Tkalcic Bengert (ATB), is currently developing the design plans for the proposed school. As part of the design process, Bunt & Associates was retained by EIPS to complete a traffic and parking review.

## 1.2 Study Objectives

The objectives of the Davidson Creek school traffic and parking review include:

- Confirmation of parking supply, drop-off spaces, and bus loading requirements for the proposed school;
- Confirmation of the on-site circulation characteristics of the proposed school site; and
- Identification of potential capacity constraints and appropriate mitigation measures, if required, at key study intersections in the vicinity of the proposed school site.

## 1.3 Study Methodology

The methodology used in the preparation of the Davidson Creek Elementary School traffic and parking review includes the following key components:

- The review of the existing traffic and parking operations in the vicinity of Davidson Creek Park;
- The review and confirmation of background traffic volumes;
- Determination of future traffic activity associated with the elementary school;
- The review of the access strategy, on-site parking and drop-off locations, and on-site circulation strategy for the new school; and
- The review of key study intersection operations to identify potential short term traffic control and intersection geometry improvements.

THIS PAGE INTENTIONALLY LEFT BLANK

# 2. SITE CONTEXT

## 2.1 Existing Site Conditions

### 2.1.1 Site Location and Land Use

The elementary school will be located on the existing Davidson Creek Park site within the Davidson Creek neighbourhood and is bounded by Davenport Drive to the north, Davenport Place to the east, a creek to the south, and existing residential land uses to the west. Davidson Creek Park currently includes a baseball diamond on the east side of the site, and a playground is located on the northwest corner of the site. **Exhibit 2-1** illustrates the location of Davidson Creek Park.

### 2.1.2 Existing Roadways and Intersections

The following roadways are developed in the vicinity of the proposed school site:

- ***Clover Bar Road*** is a four-lane divided arterial roadway with left and right turn bays developed at key intersections and a posted speed limit of 60 km/h
- ***Lakeland Drive*** is an urban four-lane divided arterial with left and right turn bays developed at key intersections and a posted speed limit of 60 km/h.
- ***Davidson Drive*** is a major collector roadway providing a connection between Clover Bar Road and Davenport Drive and generally has a pavement width of 13.5 metres accommodating two travel lanes and two parking lanes. Davidson creek widens as it approaches Clover Bar Road to allow for the necessary channelization at the Davidson Drive/Clover Bar Road intersection. Davidson Drive has a posted speed limit of 50 km/h.
- ***Davenport Drive*** is a major collector roadway running east-west along the north property line of Davidson Creek Park and generally has a pavement width of about 13.5 metres accommodating two travel lanes and two parking lanes. Davenport Drive has a posted speed limit of 50 km/h except in the vicinity of Davidson Creek Park where a playground zone is posted with a speed limit of 30 km/h. Davenport Drive connects to Lakeland Drive and Clarkdale Drive.
- ***Clarkdale Drive*** is a major collector roadway providing a connection between Lakeland Drive and Meadowview Drive in the Clarkdale Meadows neighbourhood and generally has a pavement width of 13.5 metres accommodating two travel lanes and two parking lanes. Clarkdale Drive has a posted speed limit of 50 km/h except in the vicinity of Clarkdale Park where a playground zone is posted with a speed limit of 30 km/h.

P:\3483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 2-1 - Site Location.dwg


**Exhibit 2-1**

# Study Area Plan

- ***Davenport Place*** is a local roadway running north-south along the east property line of Davidson Creek Park and generally has a pavement width of 9.5 metres. A playground zone with a posted speed limit of 30 km/h is in place along Davenport Place in the vicinity of Davidson Creek Park. South of the park site, the posted speed limit is 50 km/h. Parking is permitted on both the east and west sides of Davenport Place.

The following intersections have been identified for inclusion in this study as they represent key intersections in the vicinity of the plan area that are anticipated to accommodate the majority of the study area traffic.

***Lakeland Drive & Davenport Drive*** is a four-legged unsignalized intersection with stop control on the north and south approaches. A pedestrian flasher is provided on the west approach. Northbound and southbound through movements are banned at the intersection. The remaining geometry includes:

- ***West Approach*** – one left turn bay, two through lanes, one right turn bay;
- ***East Approach*** – one left turn bay, two through lanes, one right turn bay;
- ***South Approach*** – one shared left/right lane; and
- ***North Approach*** – one left turn lane, one right turn bay.

***Lakeland Drive & Clarkdale Drive*** is a four-legged unsignalized intersection with stop control on the north and south approaches. Northbound and southbound through movements are banned at the intersection. The following geometry is permitted:

- ***West Approach*** – one left turn bay, two through lanes, one right turn bay;
- ***East Approach*** – one left turn bay, two through lanes, one right turn bay;
- ***South Approach*** – one left turn lane, one right turn bay; and
- ***North Approach*** – one left turn lane, one right turn bay.

***Davidson Drive & Clover Bar Road*** is a four-legged signalized intersection and includes the following geometry:

- ***West Approach*** – one left turn lane, one shared through/right turn lane
- ***East Approach*** – one left turn lane, one shared through/right turn lane
- ***South Approach*** – one left turn bay, two through lanes, one right turn bay; and
- ***North Approach*** – one left turn bay, two through lanes, one right turn bay.

***Davidson Drive & Davenport Drive*** is an unsignalized T-intersection with stop control along Davidson Drive. A single lane accommodating all movements is provided on each approach.

***Davenport Drive & Davenport Place*** is an unsignalized T-intersection with stop control on the south approach. A single lane accommodating all movements is provided on each approach.

***Davenport Drive & Clarkdale Road*** is an unsignalized T-intersection with stop control on the west approach with a single lane accommodating all movements on each approach. A zebra crosswalk is provided on the south approach and connects to the trail system within Clarkdale Park.


A playground zone has been established along Davenport Drive and Davenport Place in the vicinity of Davidson Creek Park. A playground zone has a black and white 30 km/h sign attached below the yellow sign. When you pass this sign, you have entered a playground zone and must stay within the maximum posted speed during the times the zone is in effect. In Strathcona County, the playground zone is in effect starting at 8:30 AM and ending one hour after sunset.

### 2.1.3 Existing Pedestrian Facilities

In addition to the road based system including sidewalks along all collector and local roadways, a network of asphalt and granular trails exists within and adjacent to Davidson Creek and Clarkdale Meadows connecting the proposed school site to the surrounding neighbourhoods. The existing sidewalk and trail system creates a highly walkable environment. Zebra marked crosswalks are provided wherever a trail crosses a collector roadway.

### 2.1.4 Existing Transit

Transit Routes 433 and 433A currently run along Davenport Drive in the vicinity of Davidson Creek Park. Bus stops 7313 and 7306 are located along Davenport Drive immediately east of Davenport Place. Route 433 operates all day, while Route 433A is school route that only runs once in the morning starting at 7:59 AM and once in the afternoon starting at 3:21 PM. Route 433 runs from the Bethel Transit Terminal through the Charlton Heights, Lakeland Drive, Clarkdale Meadows, and Davidson Creek neighbourhoods. Route 433A provides access from Charlton Heights, Lakeland Ridge, Chelsea Heights, Clarkdale Meadows, and Davidson Creek to Archbishop Jordan Catholic High School.

**Exhibit 2-2** illustrates the existing roadways and pedestrian and transit facilities within the study area.

### 2.1.5 Existing Traffic Volumes

AM and PM traffic counts were completed at the following intersections in May 2016:

- Lakeland Drive/Davenport Drive;
- Lakeland Drive/Clarkdale Drive;
- Davidson Drive/Clover Bar Road;
- Davidson Drive/Davenport Drive;
- Davenport Drive/Davenport Place; and
- Davenport Drive/Clarkdale Drive.

P:\3483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 2-2.dwg

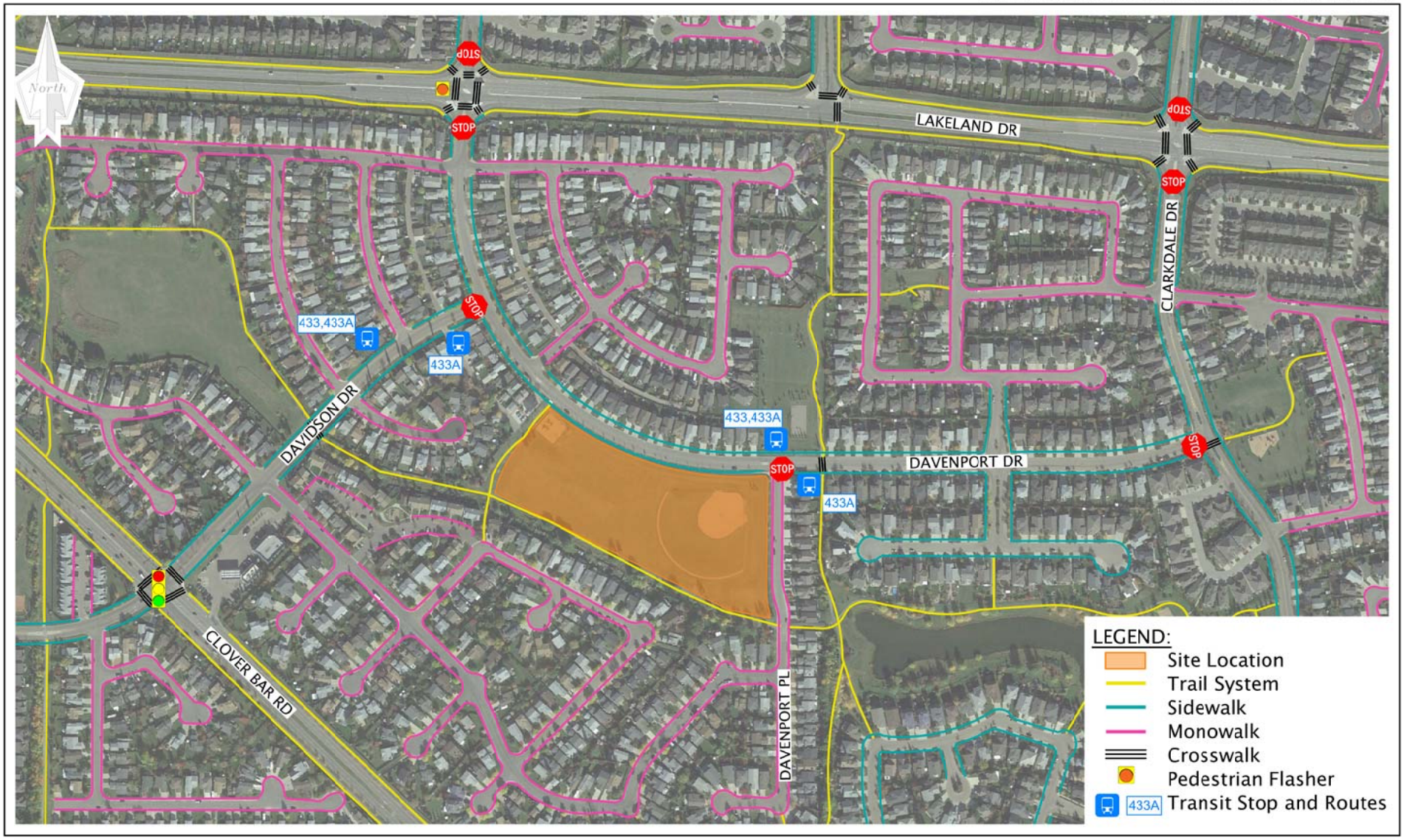



**Exhibit 2-2**

# Existing Conditions

The purpose of the counts was to identify traffic volumes during peak school operations, rather than peak hours of adjacent street traffic. In addition to the above peak hour traffic counts, 24-hour traffic counts were completed at the Davidson Drive/Davenport Drive and Davenport Drive/Clarkdale Road intersections to gain an appreciation of the existing daily volumes along the collector roadways in the vicinity of Davidson Creek Park. **Exhibit 2-3** illustrates the 2016 AM peak hour and PM school peak hour traffic volumes. Based on the 24-hour traffic counts measured daily traffic volumes are approximately equal to 5.3 times the AM plus PM peak hour traffic volumes. Daily volume estimates are also summarized in Exhibit 2-3. Detailed traffic count information is included in **Appendix A**.

Based on a review of other elementary schools in Sherwood Park, classes typically begin around 8:30-8:45 AM and end around 3:15 PM. For the purposes of this assessment, the AM peak hour of the school is assumed to coincide with the peak hour of adjacent street traffic measured during the traffic counts in May 2016. The PM peak hour of the school is assumed to occur from 3:15 PM to 4:15 PM.

### 2.1.6 Existing Parking Accumulation

Parking accumulation surveys were completed on Thursday, May 19, 2016 from 7:00 AM to 9:00 AM and 2:30 PM to 6:00 PM to gain an understanding of the existing on-street parking conditions along Davenport Drive and Davenport Place in the vicinity of Davidson Creek Park. An on-street parking supply of about 71 spaces is estimated to be provided in the immediate vicinity of Davidson Creek Park along Davenport Drive and Davenport Place. A peak utilization of 10 spaces (14%) was recorded between 7:00 AM and 7:30 AM. More than 60 parking spaces continued to be available throughout the entire duration of the study. Detailed summaries of the parking accumulation surveys are included in Appendix A.

## 2.2 Future Site Conditions

### 2.2.1 Study Horizon

For the purposes of this assessment, it is assumed that the school will be constructed and operating at full capacity within five years; therefore, a short term (2021) horizon was included in the assessment.

### 2.2.2 Background Volumes

Background traffic is the component of traffic on the adjacent roadway system that would be present regardless of the proposed school proceeding. Background traffic volumes were estimated to correspond to the 2021 horizon.

#### *General Growth*

To account for growth within Sherwood Park, a growth rate of 3% per year was applied to east/west through volumes measured at intersections along Lakeland Drive and north/south through volumes measured along Clover Bar Road.

P:\3483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 2-3.dwg


**Exhibit 2-3**

N.T.S.

# Existing Traffic Volumes
# AM (PM School) and Daily

The proposed school site is located within a fully developed neighbourhood; therefore, growth along the collector roadways within Davidson Creek and Clarkdale Meadows is anticipated to be limited to school site generated traffic.

### *Summerwood*

The majority of Summerwood South is developed and was captured in the existing traffic volumes at the Lakeland Drive intersections; however, there are small pockets of undeveloped residential lots on the east edge of the plan area. Summerwood North is planned to include the development of 507 single family/semi-detached dwelling units and 103 townhouse units. Summerwood traffic volumes used in the completion of the *Lakeland Drive and Highway 21 Traffic Assessment, Draft Report* completed by Bunt & Associates in February 2016 were added to the network during the AM and PM peak hours. To be conservative, traffic volumes associated with Summerwood North also included the development of an elementary/Jr. high school with up to 750 students.

Based on a review of existing traffic volumes measured at the Lakeland Drive/Davenport Drive and Lakeland Drive/Clarkdale Drive intersections, PM school peak hour traffic volumes associated with Summerwood are approximately 30% lower than during the PM peak hour. Therefore, PM peak hour Summerwood traffic volumes (without school traffic) were reduced by 30% and added to the network during the PM school peak hour. PM school peak hour traffic volumes associated with the Summerwood North school were also estimated and added to the network.

**Exhibit 2-4** illustrates the 2021 AM peak hour, PM school peak hour, and daily background traffic volume estimates.

THIS PAGE INTENTIONALLY LEFT BLANK

P:\3483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 2-4.dwg


**Exhibit 2-4**

N.T.S.

# 2021 Background Traffic Volume Estimates
# AM (PM School) and Daily

# 3. PROPOSED SITE DEVELOPMENT

The proposed Davidson Creek Elementary School will be constructed to accommodate kindergarten through grade 6 and is designed to accommodate a full buildout capacity of 600 students. Based on information provided by EIPS, 50 staff members are anticipated. For the purposes of this assessment, it is assumed that the school would operate at full capacity in the 2021 horizon.

## 3.1 Site Layout

The school site includes a two storey building footprint on the east half of the Davidson Creek Park site and playing fields on the west half of the site. The existing playground on the northwest corner of the park site is anticipated to remain. As shown in **Exhibit 3-1**, staff parking is proposed north of the building, while a student drop-off loop/visitor parking lot is proposed east of the building. A bus loading area is proposed on-street along the south side of Davenport Drive.

## 3.2 Site Access

The site is accessed via Davenport Drive and Davenport Place. A staff access is proposed along Davenport Drive approximately 135 metres west of the Davenport Drive/Davenport Place intersection. A one-way southbound student drop-off loop is proposed to be accessed via Davenport Place approximately 45 metres south of Davenport Drive. The drop-off loop also provides access to visitor parking spaces. No internal connection is proposed between the staff lot and the drop-off/visitor lot.

## 3.3 On-Site Parking

Based on a review of the site plan, a staff parking lot accommodating 50 parking spaces is proposed to be provided on the north side of the school and 15 visitor spaces are proposed to be provided on the east side of the school.

Based on Strathcona County's Land Use Bylaw 6-2015, the minimum parking space requirement for an elementary school is 1.0 per 10 students. Based on 600 students, the minimum parking space requirement is 60 spaces. With the provision of 65 staff and visitor parking spaces, the proposed school meets Strathcona County's Land Use Bylaw.

## 3.4 School Bus Parking

A school bus loading area has been identified on-street along the south side of Davenport Drive. The area is anticipated to accommodate five school busses parked end to end, parallel to the south curb. According to Strathcona County's Land Use Bylaw 6-2015, a minimum of five bus loading spaces are required.

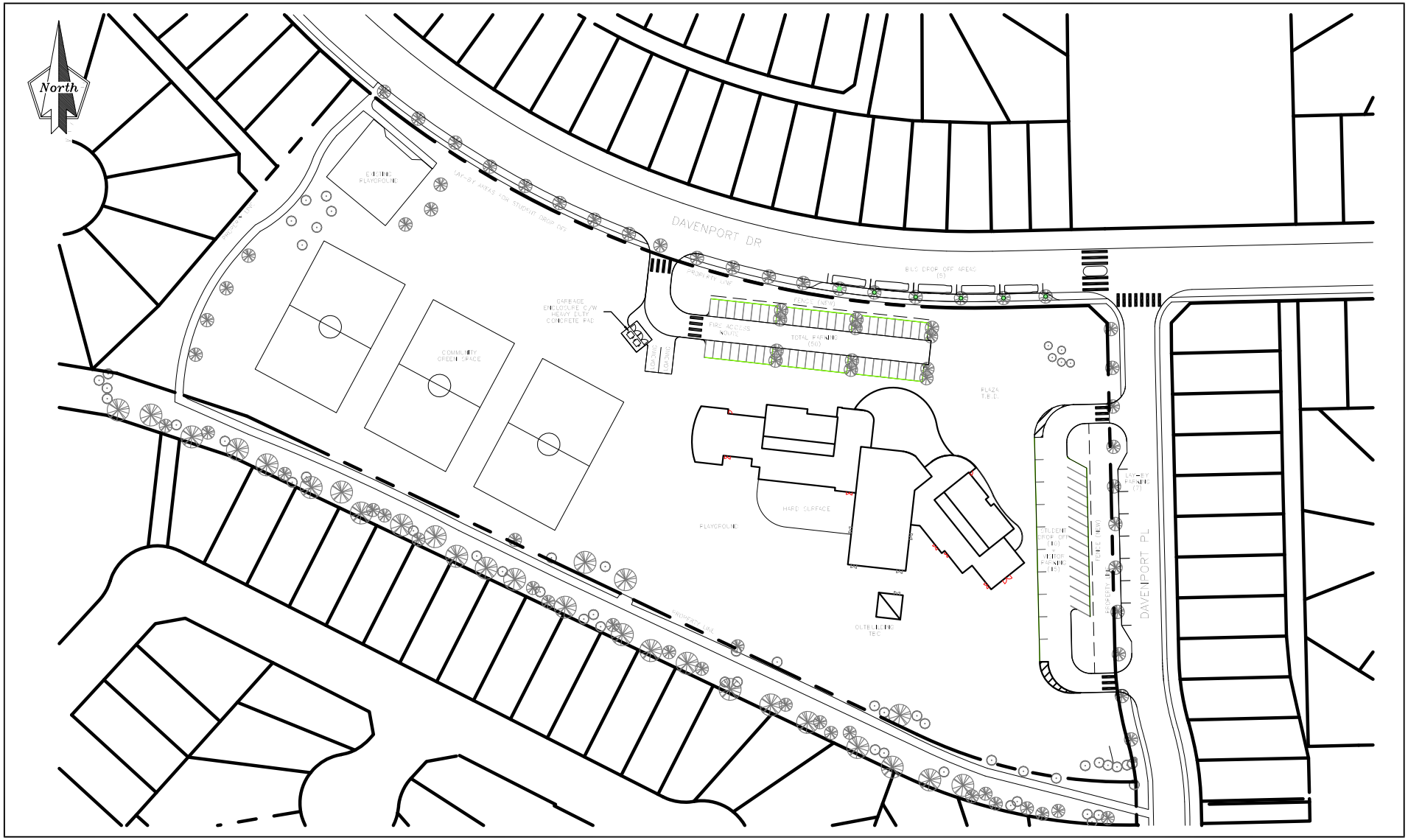



**Exhibit 3-1**

**N.T.S.**

# Site Plan

## 3.5 Passenger Drop-off/Pick-up Spaces

Based on the proposed site plan, 10 drop-off spaces have been identified within the drop-off loop on the east side of the school building.

Based on Strathcona County's Land Use Bylaw 6-2015, elementary schools require 3.0 loading spaces per 100 students with a minimum of five spaces required. Based on 600 students, 18 loading spaces are required. During peak pick-up and drop-off times, it is anticipated that the 15 visitor parking spaces could also be used as passenger drop-off or pick-up spaces. It is also anticipated that a portion of parking along the south side of Davenport Drive could be used for passenger drop-off and pick-up activity.

THIS PAGE INTENTIONALLY LEFT BLANK

# 4. SITE GENERATED TRAFFIC VOLUMES

## 4.1 Trip Generation Rate Assumptions

The AM peak hour, PM school peak hour, and daily trip generation rates used in the assessment are based on trip generation rates published in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 9th Edition for Land Use Code 520 – Elementary School. **Table 4-1** summarizes the assumed trip generation rates used in the assessment for the proposed school.

**Table 4-1: Trip Generation Rates**

| Time Period | Trips/Student | In/Out Split |
|---|---|---|
| AM Peak Hour | 0.45 | 55%/45% |
| PM School Peak Hour | 0.28 | 45%/55% |
| Daily | 1.29 | 50%/50% |

## 4.2 Trip Generation Estimates

**Table 4-2** summarizes the projected two-way AM peak hour, PM school peak hour, and daily vehicle trips anticipated to be generated by the proposed school upon full buildout. As shown in Table 4-2, the proposed school is anticipated to generate in the order of 271 two-way vehicle trips in the AM peak hour, 168 two-way vehicle trips in the PM school peak hour, and 774 two-way vehicle trips on a typical school day.

**Table 4-2: Trip Generation Estimates**

| Intensity | AM Peak Hour | | PM School Peak Hour | | Daily | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| 600 Students | 149 | 122 | 76 | 92 | 387 | 387 |
| **Total** | **271** | | **168** | | **774** | |

The ITE trip generation rates do not distinguish between staff, visitor, or drop-off trips associated with the elementary school. For the purposes of this assessment, 50 inbound trips during the AM peak hour and 50 inbound/50 outbound trips on a daily basis are assumed to be associated with school staff trips. It is anticipated that the majority of outbound trips associated with school staff will occur outside the PM school peak hour. The remaining trips are assumed to be associated with student drop-off/pick-up and visitor trips. **Table 4-3** summarizes the assumed breakdown of vehicle trips.

**Table 4-3: Trip Generation by Component**

| Component | AM Peak Hour | | PM School Peak Hour | | Daily | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| School Staff | 50 | 0 | 0 | 4 | 50 | 50 |
| Visitor & Drop-Off/Pick-Up | 99 | 122 | 76 | 88 | 337 | 337 |
| **Total** | **149** | **122** | **76** | **92** | **387** | **387** |
| | **271** | | **168** | | **774** | |

## 4.3 Trip Distribution and Assignment

The catchment area for the school has not been defined; however, based on information provided by EIPS, the catchment area of the Davidson Creek Elementary School is assumed to include the Davidson Creek and Clarkdale Meadows neighbourhoods. Students residing outside the catchment area will not be eligible to attend the proposed school; therefore, school trips are projected to primarily originate from or be destined to these two neighbourhoods.

For the purposes of this assessment, it was assumed that 40% of drop-off/pick-up trips are associated with parents dropping off or picking up students on their way to and from work. These drop-off or pick-up trips were distributed to/from Sherwood Park and surrounding areas including the City of Edmonton. The remaining 60% of drop-off/pick-up trips are assumed to be home based trips and were distributed to/from the Davidson Creek and Clarkdale Meadows neighbourhoods based on a review of existing dwelling units.

Staff and visitor trips are projected to have a larger catchment area; therefore, the distribution of staff and visitor trips was based on a review of existing neighbourhood populations from Strathcona County's 2015 Census.

The traffic anticipated to be generated by the proposed school was assigned to the roadway network based on the assumed distribution and location of the access points. **Exhibit 4-1** illustrates the site generated traffic volume estimates on the roadway network under full buildout of the proposed school during the AM peak hour, PM school peak hour, and daily time frames.

## 4.4 Total Traffic Volume Estimates

The site generated traffic volumes were added to the 2021 background traffic volume estimates to determine the total traffic volumes for use in the assessment. **Exhibit 4-2** illustrates the 2021 total traffic volumes during the AM peak hour, PM school peak hour, and a typical school day.

P:\13483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 4-1.dwg


**Exhibit 4-1**

N.T.S.

# Site Generated Traffic Volumes
# AM (PM School) and Daily

P:\3483.01 - Davidson Creek School\Exhibits\170323 Final Report\Exhibit 4-2.dwg


**Exhibit 4-2**

N.T.S.

# 2021 Total Traffic Volume Estimates
# AM (PM School) and Daily

# 5. TRANSPORTATION ASSESSMENT

## 5.1 Collector Roadway Review

Based on Strathcona County's December 2011 Design and Construction Standards, the maximum volume on collector roads is 6,000 vpd, except within 200 metres of intersections with arterial roads, where volumes could be expected to increase by 50% (9,000 vpd) providing the lane design is adequate to accommodate the traffic volumes and turning movements. The County's standards also state that residential subdivision lot layouts shall not provide driveway access onto major collector roads that have an estimated traffic volume of 4,000 vpd or greater.

Based on a review of 2021 total daily traffic volume estimates, the majority of collector roadways within the study area are projected to accommodate daily traffic volumes less than 4,000 vpd. Approximately 4,555 vpd are projected along Davidson Drive as it approaches Clover Bar Road; however, this is within the acceptable limits as outlined in the Design and Construction Standards as there are no residential driveway accesses and the volume is less than the 6,000 vpd.

## 5.2 Intersection Capacity Analyses

In addition to the review of daily volumes within the neighbourhood, intersection assessments were completed at key arterial/collector and collector/collector intersections with Davidson Creek and Clarkdale Meadows to confirm the required intersection geometry and traffic control.

The intersection capacity assessments were completed using Synchro 9 (signalized intersections) and the Synchro HCM 2010 module (unsignalized intersections). The intersection operations are typically rated by two measures. The volume-to-capacity (v/c) ratio describes the extent to which the traffic volumes can be accommodated by the physical capacity of the road configuration and traffic control. A value (measured during the peak hour) less than 0.90 indicates that generally there is sufficient capacity and the projected traffic volumes can be accommodated at the intersection. A value between 0.90 and 1.0 suggests unstable operations may occur and volumes are nearing capacity conditions. A calculated value over 1.0 indicates that traffic volumes are theoretically exceeding capacity. The second measure of performance, Level of Service (LOS), is based on the estimated average delay per vehicle among all traffic passing through the intersection. A low average delay merits a LOS A rating. Average delays greater than 80 seconds per vehicle at a signalized intersection generally produce a LOS F rating, while at unsignalized intersections a LOS F is reached when vehicles experience an average delay greater than 50 seconds.

The anticipated 95$^{th}$ percentile queue length has also been included in the following assessment summaries. The queues provided may include a footnote that relates to the ability of the program to estimate the queue accurately. The 'm' footnote indicates that the volume entering the intersection is being metered by an upstream intersection. The Synchro help file also provides the following regarding the '#' footnote:

"The # footnote indicates that the volume for the 95th percentile cycle exceeds capacity. This traffic was simulated for two complete cycles of 95th percentile traffic to account for the effects of spill over between cycles. If the reported v/c <1 for this movement, the methods used represent a valid method for estimating the 95th percentile queue. In practice, 95th percentile queue shown will rarely be exceeded and the queues shown with the # footnote are acceptable for the design of storage bays."[1]

The methodology includes a number of assumptions that relate to the operating conditions present at the intersections. The following assumptions were used in the assessments.

- Saturation Flow Rate – 1,900 vph
- Peak Hour Factor (PHF) – existing and background as per existing conditions; reduced to reflect peak 15 minute activity associated with school drop-off/pick-up activity in future total scenarios
- %HV –existing and background as per existing conditions.

The geometry assumed for each intersection is included in the assessment tables. Left turn movements, through movements, and right turn movements are represented by "L", "T", and "R" respectively in the assessment tables, and lanes are separated by a "/". For example, an approach whose geometry is described as LT/R features two lanes: one lane accommodating shared left/through movements and a second lane accommodating right turning movements.

Traffic control information is also included in the assessment tables. Key signal phasing is identified in the tables, with protected/permitted left turn phasing identified by "Pm+Pt" and protected only left turn phasing identified by "Prot". Permitted and overlapped right turn phasing is identified by "Pm+Ov" and free-flow right turns are denoted by "free".

As per the HCM 2010 methodology, unsignalized intersection assessment results are reported for critical movements only. As well, the HCM 2010 95th percentile queue is reported as vehicles; therefore, a distance in metres was calculated assuming an average of 7.5m per vehicle.

Detailed Synchro printouts are included in **Appendix B** for reference.

[1] Trafficware LLC., Synchro Studio 9 User Guide, Chapter 10 – Timing/Signing Settings, Queue Lengths, pg. 10-19.

The following intersections were included in the assessment:

***Arterial/Collector Intersections***

- Lakeland Drive and Davenport Drive;
- Lakeland Drive and Clarkdale Drive; and
- Davidson Drive and Clover Bar Road.

***Collector/Collector Intersections***

- Davidson Drive and Davenport Drive; and
- Davenport Drive and Clarkdale Drive.

***Collector/Local Intersections & Accesses***

- Davenport Drive and Davenport Place;
- Davenport Drive school access; and
- Davenport Place school access.

### 5.2.1 Lakeland Drive and Davenport Drive

**Tables 5-1** and **5-2** summarizes the results of the capacity analyses at the Lakeland Drive/Davenport Drive intersection during the AM peak hour and PM school peak hour based on existing, background, and total traffic scenarios.

As shown in Table 5-1, the northbound and southbound left turn movements are projected to experience level of service F based on 2021 background traffic volumes during the AM peak hour due to the increase in through traffic along Lakeland Drive. With the addition of school generated trips, the northbound left turn movement is projected to exceed capacity during the AM peak hour. It is noted that the increase in northbound left turning traffic could be conservative as a parent may currently use this route to get to work during the AM peak hour; therefore, they would not represent a new trip on the network in the future and could be double counted at the Lakeland Drive/Davenport Drive intersection. It should also be noted that Synchro does not account for the pedestrian flasher located on the west approach of the intersection, and intersection operations may be better than reported due to the gap created for vehicles on the north and south approaches when the pedestrian flasher is activated.

It is also noted that the southbound left turn was recorded as improving with the addition of site generated traffic during the AM peak hour. This improvement is due to the change in peak hour factors between 2021 background and total traffic scenarios. With the addition of site generated traffic between 8:15 AM and 8:30 AM, the overall peak 15 minute period for the intersection shifted resulting in different peak hour factors for each movement. The results indicate that the peak 15 minute period for Summerwood traffic is not anticipated to coincide with the peak 15 minute period for Davidson Creek/Clarkdale Meadows at this location.

**Table 5-1: Lakeland Drive and Davenport Drive – AM Peak Hour**

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **2016 Existing – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 29 | 157 | 11 | 46 | 585 | 7 | 62 | 61 | 42 | 123 |
| **v/c** | 0.03 | | | 0.04 | | | 0.26 | 0.09 | 0.37 | 0.20 |
| **Delay (s)** | 8.9 | | | 7.9 | | | 23.0 | 9.3 | 30.8 | 11.5 |
| **LOS** | A | | | A | | | C | A | D | B |
| **95th Queue (m)** | 1 | | | 1 | | | 8 | 2 | 12 | 5 |
| **Intersection Delay** | | | | | | **5.6** | **Intersection LOS** | | | **A** |
| **2021 Background – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 29 | 307 | 11 | 46 | 880 | 7 | 62 | 61 | 42 | 123 |
| **v/c** | 0.04 | | | 0.04 | | | 0.48 | 0.10 | 0.73 | 0.25 |
| **Delay (s)** | 10.1 | | | 8.5 | | | 52.4 | 10.0 | 97.3 | 13.6 |
| **LOS** | B | | | A | | | F | B | F | B |
| **95th Queue (m)** | 1 | | | 1 | | | 17 | 2 | 29 | 8 |
| **Intersection Delay** | | | | | | **8.5** | **Intersection LOS** | | | **A** |
| **2021 Total – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 61 | 42 | 123 |
| **v/c** | 0.04 | | | 0.05 | | | 1.13 | 0.07 | 0.37 | 0.22 |
| **Delay (s)** | 10.1 | | | 8.4 | | | 171.4 | 9.7 | 54.6 | 13.2 |
| **LOS** | B | | | A | | | F | A | F | B |
| **95th Queue (m)** | 1 | | | 2 | | | 71 | 2 | 11 | 6 |
| **Intersection Delay** | | | | | | **20.1** | **Intersection LOS** | | | **C** |

Table 5-2: Lakeland Drive and Davenport Drive – PM School Peak Hour

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **2016 Existing – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 88 | 386 | 52 | 39 | 289 | 24 | 24 | 53 | 7 | 66 |
| **v/c** | 0.07 | | | 0.04 | | | 0.13 | 0.07 | 0.03 | 0.16 |
| **Delay (s)** | 8.3 | | | 8.5 | | | 26.7 | 10.3 | 22.8 | 10.6 |
| **LOS** | A | | | A | | | D | B | C | B |
| **95th Queue (m)** | 2 | | | 1 | | | 3 | 2 | 1 | 5 |
| **Intersection Delay** | | | | | | **3.3** | **Intersection LOS** | | | **A** |
| **2021 Background – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 88 | 627 | 52 | 39 | 474 | 24 | 24 | 53 | 7 | 66 |
| **v/c** | 0.09 | | | 0.05 | | | 0.24 | 0.09 | 0.06 | 0.19 |
| **Delay (s)** | 8.9 | | | 9.4 | | | 52.0 | 11.6 | 38.0 | 11.7 |
| **LOS** | A | | | A | | | F | B | E | B |
| **95th Queue (m)** | 2 | | | 1 | | | 7 | 2 | 2 | 5 |
| **Intersection Delay** | | | | | | **3.0** | **Intersection LOS** | | | **A** |
| **2021 Total – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 53 | 7 | 66 |
| **v/c** | 0.09 | | | 0.05 | | | 0.25 | 0.09 | 0.06 | 0.19 |
| **Delay (s)** | 8.9 | | | 9.4 | | | 52.6 | 11.6 | 38.0 | 11.7 |
| **LOS** | A | | | A | | | F | B | E | B |
| **95th Queue (m)** | 2 | | | 1 | | | 7 | 2 | 2 | 5 |
| **Intersection Delay** | | | | | | **3.0** | **Intersection LOS** | | | **A** |

As shown in Table 5-2, the northbound left movement is projected to experience LOS F during the PM school peak hour based on 2021 background and total traffic conditions due to the increase in through volume along Lakeland Drive. However, the left turn volume and v/c ratio are low indicating there is sufficient capacity at the intersection.

The Lakeland Drive/Davenport Drive intersection is anticipated to be signalized in the future based on previous traffic studies completed for the surrounding area. Therefore, the intersection was re-assessed assuming the intersection was fully signalized within the five year horizon. As shown in **Table 5-3**, the intersection of Lakeland Drive and Davenport Drive is projected to operate at acceptable levels of service during the AM peak hour and PM school peak hour based on 2021 total traffic volumes and assuming full signalization. It is recommended that the Lakeland Drive/Davenport Drive intersection be monitored as Summerwood North and Davidson Creek School develop to determine if and when signalization is warranted.

**Table 5-3: Lakeland Drive and Davenport Drive – Signalized**

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **AM Peak Hour - 2021 Total – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 61 | 42 | 123 |
| **v/c** | 0.09 | 0.15 | 0.03 | 0.11 | 0.40 | 0.01 | 0.30 | 0.12 | 0.08 | 0.22 |
| **Delay (s)** | 13.1 | 12.7 | 3.5 | 12.9 | 15.6 | 0.3 | 38.6 | 8.6 | 34.7 | 6.6 |
| **LOS** | B | B | A | B | B | A | D | A | C | A |
| **95th Queue (m)** | 9 | 28 | 1 | 13 | 79 | 0 | 32 | 11 | 18 | 15 |
| **Intersection Delay** | | | | | | **16.5** | **Intersection LOS** | | | **B** |
| **PM Peak Hour - 2021 Total – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | LR | | L/R | |
| **Volume (vph)** | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 53 | 7 | 66 |
| **v/c** | 0.19 | 0.31 | 0.07 | 0.10 | 0.23 | 0.03 | 0.04 | 0.10 | 0.01 | 0.23 |
| **Delay (s)** | 15.0 | 15.4 | 2.8 | 13.9 | 14.4 | 4.4 | 32.9 | 8.6 | 32.3 | 6.5 |
| **LOS** | B | B | A | B | B | A | C | A | C | A |
| **95th Queue (m)** | 21 | 59 | 7 | 11 | 42 | 4 | 12 | 10 | 5 | 0 |
| **Intersection Delay** | | | | | | **13.7** | **Intersection LOS** | | | **B** |

### 5.2.2 Lakeland Drive and Clarkdale Drive

**Tables 5-4** through **5-6** summarize the results of the capacity analyses at the Lakeland Drive/Clarkdale Drive intersection during the AM peak hour and PM school peak hour based on existing, background, and total traffic scenarios.

**Table 5-4: Lakeland Drive and Clarkdale Drive – AM Peak Hour (Unsignalized)**

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **2016 Existing – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 12 | 285 | 17 | 14 | 271 | 35 | 117 | 137 | 123 | 88 |
| **v/c** | 0.01 | | | 0.01 | | | 0.33 | 0.18 | 0.37 | 0.10 |
| **Delay (s)** | 7.8 | | | 8.3 | | | 19.8 | 10.3 | 20.7 | 9.6 |
| **LOS** | A | | | A | | | C | B | C | A |
| **95th Queue (m)** | 0 | | | 0 | | | 11 | 5 | 12 | 2 |
| **Intersection Delay** | | | | | | **6.4** | **Intersection LOS** | | | **A** |
| **2021 Background – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 137 | 295 | 208 |
| **v/c** | 0.09 | | | 0.02 | | | 0.79 | 0.20 | 1.67 | 0.26 |
| **Delay (s)** | 8.2 | | | 8.7 | | | 83.9 | 11.0 | $366.7 | 10.7 |
| **LOS** | A | | | A | | | F | B | F | B |
| **95th Queue (m)** | 2 | | | 0 | | | 38 | 6 | 161 | 8 |
| **Intersection Delay** | | | | | | **65.4** | **Intersection LOS** | | | **F** |

As shown in Table 5-4, the Lakeland Drive/Clarkdale Drive intersection currently operates at acceptable levels of service. However, with growth in Summerwood including the development of a school and general growth along Lakeland Drive, the southbound left turn movement is projected to be over capacity based on 2021 background traffic volumes.

The Lakeland Drive/Clarkdale Drive intersection is anticipated to be signalized in the future based on previous traffic studies completed for the surrounding area. Therefore, the intersection was re-assessed assuming the intersection was signalized within the five year horizon. The cycle length was assumed to be the same as the cycle length at the Lakeland Drive/Highway 21 intersection. As shown in Tables 5-5 and 5-6, the intersection of Lakeland Drive and Clarkdale Road is projected to operate at acceptable levels of service during the AM and PM school peak hours respectively based on 2021 background and total traffic volumes.

**Table 5-5: Lakeland Drive and Clarkdale Drive – AM Peak Hour (Signalized)**

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **2021 Background – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 137 | 295 | 208 |
| **v/c** | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | 0.15 | 0.34 | 0.21 |
| **Delay (s)** | 29.6 | 28.7 | 6.8 | 25.8 | 27.3 | 3.9 | 19.5 | 3.1 | 22.6 | 2.8 |
| **LOS** | C | C | A | C | C | A | B | A | C | A |
| **95th Queue (m)** | 38 | 53 | 4 | 8 | 42 | 5 | 30 | 12 | 77 | 13 |
| **Intersection Delay** | | | | | | **19.2** | **Intersection LOS** | | | **B** |
| **2021 Total – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 115 | 392 | 17 | 15 | 327 | 170 | 117 | 146 | 295 | 208 |
| **v/c** | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | 0.15 | 0.34 | 0.21 |
| **Delay (s)** | 29.6 | 28.7 | 6.8 | 25.7 | 27.3 | 3.9 | 19.5 | 3.1 | 22.6 | 2.8 |
| **LOS** | C | C | A | C | C | A | B | A | C | A |
| **95th Queue (m)** | 38 | 53 | 4 | 8 | 42 | 5 | 30 | 12 | 77 | 13 |
| **Intersection Delay** | | | | | | **19.2** | **Intersection LOS** | | | **B** |

**Table 5-6: Lakeland Drive and Clarkdale Drive – PM School Peak Hour**

| | Eastbound | | | Westbound | | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **R** | **L** | **R** |
| **2016 Existing – Unsignalized (N/S Stop Control)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 89 | 229 | 102 | 51 | 281 | 68 | 60 | 34 | 33 | 50 |
| **v/c** | 0.07 | | | 0.04 | | | 0.28 | 0.06 | 0.13 | 0.08 |
| **Delay (s)** | 8.0 | | | 8.0 | | | 25.7 | 9.7 | 21.8 | 9.6 |
| **LOS** | A | | | A | | | D | A | C | A |
| **95th Queue (m)** | 2 | | | 1 | | | 8 | 2 | 4 | 2 |
| **Intersection Delay** | | | | | | **4.1** | **Intersection LOS** | | | **A** |
| **2021 Background – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 206 | 293 | 102 | 51 | 372 | 198 | 60 | 34 | 137 | 149 |
| **v/c** | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | 0.09 | 0.28 | 0.29 |
| **Delay (s)** | 14.8 | 11.8 | 2.1 | 11.3 | 11.6 | 1.6 | 37.8 | 9.8 | 40.4 | 6.1 |
| **LOS** | B | B | A | B | B | A | D | A | D | A |
| **95th Queue (m)** | 45 | 25 | 7 | 12 | 30 | 5 | 27 | 6 | 50 | 10 |
| **Intersection Delay** | | | | | | **12.6** | **Intersection LOS** | | | **B** |
| **2021 Total – Signalized (140s cycle)** | | | | | | | | | | |
| **Geometry** | L/T/T/R | | | L/T/T/R | | | L/R | | L/R | |
| **Volume (vph)** | 206 | 293 | 102 | 56 | 372 | 198 | 60 | 34 | 137 | 149 |
| **v/c** | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | 0.09 | 0.28 | 0.29 |
| **Delay (s)** | 14.8 | 11.8 | 2.1 | 11.4 | 11.6 | 1.6 | 37.8 | 9.8 | 40.4 | 6.1 |
| **LOS** | B | B | A | B | B | A | D | A | D | A |
| **95th Queue (m)** | 45 | 25 | 7 | 13 | 30 | 5 | 27 | 6 | 50 | 10 |
| **Intersection Delay** | | | | | | **12.6** | **Intersection LOS** | | | **B** |

### 5.2.3 Davidson Drive & Clover Bar Road

**Tables 5-7** and **5-8** summarize the results of the capacity analyses at the Davidson Drive/Clover Bar Road intersection during the AM peak hour and PM school peak hour based on existing, background, and total traffic scenarios. Existing signal timings were provided by Strathcona County and were used in the assessment for existing and future conditions.

**Table 5-7: Davidson Drive and Clover Bar Road – AM Peak Hour**

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **T** | **R** |
| **2016 Existing – Signalized (140s cycle, Pm+Pt NB L)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 9 | 66 | 148 | 92 | 51 | 113 | 612 | 44 | 33 | 395 | 70 |
| **v/c** | 0.35 | 0.26 | | 0.83 | 0.60 | | 0.17 | 0.23 | 0.04 | 0.07 | 0.22 | 0.13 |
| **Delay (s)** | 54.6 | 15.6 | | 81.9 | 55.0 | | 6.8 | 7.3 | 2.2 | 12.7 | 12.2 | 2.6 |
| **LOS** | D | B | | F | D | | A | A | A | B | B | A |
| **95th Queue (m)** | 20 | 1 | | 64 | 49 | | 18 | 42 | 4 | 11 | 39 | 0 |
| **Intersection Delay** | | | | | | **22.0** | **Intersection LOS** | | | | | **C** |
| **2021 Background – Signalized (140s cycle, Pm+Pt NB L)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 9 | 66 | 148 | 92 | 51 | 113 | 704 | 44 | 33 | 454 | 70 |
| **v/c** | 0.35 | 0.26 | | 0.83 | 0.60 | | 0.19 | 0.26 | 0.04 | 0.08 | 0.25 | 0.13 |
| **Delay (s)** | 54.6 | 15.6 | | 81.9 | 55.0 | | 6.9 | 7.6 | 2.2 | 12.8 | 12.5 | 2.6 |
| **LOS** | D | B | | F | D | | A | A | A | B | B | A |
| **95th Queue (m)** | 20 | 1 | | 64 | 50 | | 18 | 49 | 4 | 11 | 46 | 0 |
| **Intersection Delay** | | | | | | **21.2** | **Intersection LOS** | | | | | **C** |
| **2021 Total – Signalized (140s cycle, Pm+Pt NB L)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 11 | 66 | 160 | 92 | 51 | 113 | 704 | 72 | 33 | 454 | 70 |
| **v/c** | 0.28 | 0.24 | | 0.90 | 0.52 | | 0.20 | 0.27 | 0.13 | 0.08 | 0.27 | 0.13 |
| **Delay (s)** | 48.5 | 16.2 | | 86.1 | 49.0 | | 8.0 | 9.0 | 1.5 | 14.2 | 14.3 | 2.7 |
| **LOS** | D | B | | F | D | | A | A | A | B | B | A |
| **95th Queue (m)** | 20 | 0 | | 68 | 49 | | 18 | 49 | 0 | 11 | 46 | 0 |
| **Intersection Delay** | | | | | | **22.4** | **Intersection LOS** | | | | | **C** |

**Table 5-8: Davidson Drive and Clover Bar Road – PM School Peak Hour**

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Movement** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **T** | **R** | **L** | **T** | **R** |
| **2016 Existing – Signalized (130s cycle)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 31 | 57 | 72 | 22 | 60 | 47 | 580 | 146 | 107 | 741 | 37 |
| **v/c** | 0.62 | 0.72 | | 0.87 | 0.37 | | 0.10 | 0.20 | 0.11 | 0.22 | 0.31 | 0.04 |
| **Delay (s)** | 74.6 | 52.7 | | 124.2 | 23.4 | | 4.5 | 3.9 | 0.9 | 5.1 | 4.5 | 1.2 |
| **LOS** | E | D | | F | C | | A | A | A | A | A | A |
| **95th Queue (m)** | 17 | 18 | | #39 | 21 | | 7 | 27 | 5 | 15 | 40 | 2 |
| **Intersection Delay** | | | | | | **14.5** | **Intersection LOS** | | | | | **B** |
| **2021 Background – Signalized (130s cycle)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 31 | 57 | 72 | 22 | 60 | 47 | 667 | 146 | 107 | 852 | 37 |
| **v/c** | 0.62 | 0.72 | | 0.87 | 0.37 | | 0.12 | 0.23 | 0.11 | 0.24 | 0.35 | 0.04 |
| **Delay (s)** | 74.6 | 52.7 | | 124.5 | 23.4 | | 4.8 | 4.1 | 0.9 | 5.3 | 4.7 | 1.2 |
| **LOS** | E | D | | F | C | | A | A | A | A | A | A |
| **95th Queue (m)** | 17 | 18 | | #39 | 21 | | 8 | 32 | 5 | 15 | 47 | 2 |
| **Intersection Delay** | | | | | | **13.8** | **Intersection LOS** | | | | | **B** |
| **2021 Total – Signalized (130s cycle)** | | | | | | | | | | | | |
| **Geometry** | L/TR | | | L/TR | | | L/T/T/R | | | L/T/T/R | | |
| **Volume (vph)** | 36 | 31 | 57 | 74 | 22 | 60 | 47 | 667 | 153 | 107 | 852 | 37 |
| **v/c** | 0.62 | 0.71 | | 0.88 | 0.37 | | 0.12 | 0.23 | 0.13 | 0.24 | 0.35 | 0.04 |
| **Delay (s)** | 74.2 | 52.3 | | 126.8 | 23.3 | | 4.8 | 4.1 | 0.9 | 5.4 | 4.8 | 1.2 |
| **LOS** | E | D | | F | C | | A | A | A | A | A | A |
| **95th Queue (m)** | 17 | 18 | | #40 | 21 | | 8 | 32 | 6 | 15 | 47 | 2 |
| **Intersection Delay** | | | | | | **13.8** | **Intersection LOS** | | | | | **B** |

As shown in Tables 5-7 and 5-8, the Davidson Drive/Clover Bar Road intersection is projected to operate at similar levels of service under existing, 2021 background, and 2021 total traffic volumes. The westbound left movement is currently operating at level of service F as a result of actuation during the AM and PM school peak hours; however, the v/c ratios are less than or equal to 0.90 indicating there is sufficient capacity to accommodate the movement. As well, the maximum green time could be increased to provide additional capacity to the east approach during the peak 15 minute period if required. There is sufficient capacity at the remaining approaches to accommodate this change.

### 5.2.4 Davidson Drive & Davenport Drive

**Tables 5-9** and **5-10** summarizes the results of the capacity analyses at the Davidson Drive/Davenport Drive intersection during the AM peak hour and PM school peak hour based on existing, background, and total traffic scenarios. As shown in Tables 5-8 and 5-9, the Davidson Drive and Davenport Drive intersection is anticipated to continue to operate very well during the AM and PM school peak hours.

**Table 5-9: Davidson Drive and Davenport Drive – AM Peak Hour**

| | Eastbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|
| **Movement** | **L** | **R** | **L** | **T** | **T** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 24 | 29 | 100 | 39 | 16 | 47 |
| **v/c** | 0.07 | | 0.10 | | | |
| **Delay (s)** | 10.4 | | 7.7 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 2 | | 2 | | | |
| **Intersection Delay** | | | **4.6** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 24 | 65 | 116 | 73 | 37 | 47 |
| **v/c** | 0.24 | | 0.12 | | | |
| **Delay (s)** | 11.0 | | 7.9 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 7 | | 3 | | | |
| **Intersection Delay** | | | **4.9** | **Intersection LOS** | | **A** |

**Table 5-10: Davidson Drive and Davenport Drive – PM School Peak Hour**

| | Eastbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|
| **Movement** | **L** | **R** | **L** | **T** | **T** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 57 | 72 | 36 | 28 | 37 | 32 |
| **v/c** | 0.17 | | 0.04 | | | |
| **Delay (s)** | 10.0 | | 7.6 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 5 | | 1 | | | |
| **Intersection Delay** | | | **6.1** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 57 | 82 | 44 | 36 | 59 | 32 |
| **v/c** | 0.25 | | 0.06 | | | |
| **Delay (s)** | 11.4 | | 7.9 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 8 | | 2 | | | |
| **Intersection Delay** | | | **5.7** | **Intersection LOS** | | **A** |

### 5.2.5 Davenport Drive & Davenport Place

**Tables 5-11** and **5-12** summarizes the results of the capacity analyses at the Davenport Drive/Davenport Place intersection during the AM peak hour and PM school peak hour based on existing, background, and total traffic scenarios.

As shown in Table 5-11, the south approach of the Davenport Drive/Davenport Place intersection is projected to go from level of service A under existing and background conditions to level of service F with the addition of school traffic. Longer delays and queues can be expected for northbound traffic. If a vehicle does not want to wait to complete the left turn movement, they could turn right onto Davenport Drive and find an alternate route to their destination.

It should be noted that the assessment assumes all student drop-off activity occurs within the on-site drop-off loop along Davenport Place. The projected v/c ratio, level of service, and queue for northbound traffic is anticipated to improve if a portion of student drop-off activity occurs along Davenport Drive. It should also be noted that the peak hour factors were adjusted to reflect all drop-off activity occurring between 8:15 AM and 8:30 AM. It is anticipated that intersection operations would improve if a portion of drop-off trips were to occur before or after the peak 15 minute period.

**Table 5-11: Davenport Drive and Davenport Place – AM Peak Hour**

| | Eastbound | | Westbound | | Northbound | |
|---|---|---|---|---|---|---|
| **Movement** | **T** | **R** | **L** | **T** | **L** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 26 | 8 | 1 | 82 | 25 | 6 |
| **v/c** | | | 0.00 | | 0.07 | |
| **Delay (s)** | | | 8.2 | | 9.6 | |
| **LOS** | | | A | | A | |
| **95th Queue (m)** | | | 0 | | 2 | |
| **Intersection Delay** | | | **2.9** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 26 | 27 | 68 | 88 | 80 | 64 |
| **v/c** | | | 0.19 | | 0.97 | |
| **Delay (s)** | | | 8.0 | | 63.9 | |
| **LOS** | | | A | | F | |
| **95th Queue (m)** | | | 5 | | 93 | |
| **Intersection Delay** | | | **33.2** | **Intersection LOS** | | **D** |

**Table 5-12: Davenport Drive and Davenport Place – PM School Peak Hour**

| | Eastbound | | Westbound | | Northbound | |
|---|---|---|---|---|---|---|
| **Movement** | **T** | **R** | **L** | **T** | **L** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 60 | 17 | 7 | 35 | 5 | 3 |
| **v/c** | | | 0.01 | | 0.02 | |
| **Delay (s)** | | | 7.5 | | 9.9 | |
| **LOS** | | | A | | A | |
| **95th Queue (m)** | | | 0 | | 0 | |
| **Intersection Delay** | | | **1.0** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 61 | 51 | 43 | 35 | 22 | 62 |
| **v/c** | | | 0.12 | | 0.47 | |
| **Delay (s)** | | | 8.2 | | 15.1 | |
| **LOS** | | | A | | C | |
| **95th Queue (m)** | | | 3 | | 19 | |
| **Intersection Delay** | | | **8.0** | **Intersection LOS** | | **A** |

As shown in Table 5-12, the south approach of the Davenport Drive/Davenport Place intersection is projected to operate very well during the PM school peak hour. All-way stop control is not anticipated to be required during the PM school peak hour.

The implementation of an all-way stopped controlled intersection would improve operations during the AM peak hour as shown in **Table 5-13**; however, it would impose unnecessary delay to east-west movements during all other hours of the day. Unnecessary stop controls can lead to higher noncompliance and decreased safety. Therefore, it is recommended that the intersection of Davenport Drive and Davenport Place be monitored once the school is open and traffic patterns to/from the school have been established to determine if all-way stop control is required.

**Table 5-13: Davenport Drive and Davenport Place – All-Way Stop**

| | Eastbound | | Westbound | | Northbound | |
|---|---|---|---|---|---|---|
| **Movement** | **T** | **R** | **L** | **T** | **L** | **R** |
| **AM Peak Hour - 2021 Total – Unsignalized (All-Way Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 26 | 27 | 68 | 88 | 80 | 64 |
| **v/c** | 0.17 | | 0.58 | | 0.66 | |
| **Delay (s)** | 9.8 | | 15.9 | | 17.8 | |
| **LOS** | A | | C | | C | |
| **95th Queue (m)** | 5 | | 29 | | 38 | |
| **Intersection Delay** | | | **16.1** | **Intersection LOS** | | **C** |
| **PM School Peak Hour - 2021 Total – Unsignalized (All-Way Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 61 | 51 | 43 | 35 | 22 | 62 |
| **v/c** | 0.33 | | 0.26 | | 0.41 | |
| **Delay (s)** | 10.1 | | 9.9 | | 10.8 | |
| **LOS** | B | | B | | A | |
| **95th Queue (m)** | 11 | | 8 | | 15 | |
| **Intersection Delay** | | | **10.3** | **Intersection LOS** | | **B** |

### 5.2.6 Davenport Drive & Clarkdale Drive

As shown in **Tables 5-14** and **5-15**, the Davenport Drive/Clarkdale Drive intersection is projected to operate well during the AM and PM school peak hours based on existing, background, and total traffic volumes.

**Table 5-14: Davenport Drive and Clarkdale Drive – AM Peak Hour**

| | Eastbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|
| **Movement** | **L** | **R** | **L** | **T** | **T** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 31 | 22 | 20 | 98 | 27 | 9 |
| **v/c** | 0.07 | | 0.04 | | | |
| **Delay (s)** | 9.8 | | 7.7 | | | |
| **LOS** | A | | A | | | |
| **95th Queue (m)** | 2 | | 1 | | | |
| **Intersection Delay** | | | **3.3** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 45 | 60 | 75 | 98 | 27 | 18 |
| **v/c** | 0.42 | | 0.18 | | | |
| **Delay (s)** | 15.4 | | 8.0 | | | |
| **LOS** | C | | A | | | |
| **95th Queue (m)** | 16 | | 5 | | | |
| **Intersection Delay** | | | **8.3** | **Intersection LOS** | | **A** |

**Table 5-15: Davenport Drive and Clarkdale Drive – PM School Peak Hour**

| | Eastbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|
| **Movement** | **L** | **R** | **L** | **T** | **T** | **R** |
| **2016 Existing & 2021 Background – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 11 | 30 | 31 | 53 | 91 | 15 |
| **v/c** | 0.06 | | 0.03 | | | |
| **Delay (s)** | 10.1 | | 7.9 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 2 | | 1 | | | |
| **Intersection Delay** | | | **2.6** | **Intersection LOS** | | **A** |
| **2021 Total – Unsignalized (EB Stop Control)** | | | | | | |
| **Geometry** | LR | | LT | | TR | |
| **Volume (vph)** | 18 | 76 | 55 | 53 | 91 | 24 |
| **v/c** | 0.33 | | 0.09 | | | |
| **Delay (s)** | 11.8 | | 8.0 | | | |
| **LOS** | B | | A | | | |
| **95th Queue (m)** | 11 | | 2 | | | |
| **Intersection Delay** | | | **6.9** | **Intersection LOS** | | **A** |

### 5.2.7 Davenport Drive Staff Access

The Davenport Drive staff access is to be used by staff members only during school hours, and should not be used for student pick-up and drop-off activities. As shown in **Table 5-16**, the Davenport Drive staff access is projected to operate at excellent levels of service during the AM and PM school peak hours.

**Table 5-16: Davenport Drive Staff Access**

| | Eastbound | | Westbound | | Northbound | |
|---|---|---|---|---|---|---|
| **Movement** | **T** | **R** | **L** | **T** | **L** | **R** |
| **AM Peak - 2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 53 | 43 | 7 | 161 | 0 | 0 |
| **v/c** | | | 0.02 | | - | |
| **Delay (s)** | | | 7.7 | | 0 | |
| **LOS** | | | A | | A | |
| **95th Queue (m)** | | | 1 | | - | |
| **Intersection Delay** | | | **0.4** | **Intersection LOS** | | **A** |
| **PM School Peak - 2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | TR | | LT | | LR | |
| **Volume (vph)** | 111 | 0 | 0 | 57 | 3 | 1 |
| **v/c** | | | - | | 0.02 | |
| **Delay (s)** | | | 0 | | 9.6 | |
| **LOS** | | | A | | A | |
| **95th Queue (m)** | | | 0 | | 1 | |
| **Intersection Delay** | | | **0.7** | **Intersection LOS** | | **A** |

### 5.2.8 Davenport Place Student Access

The student access is proposed to be a one-way loop road with two access points along Davenport Place. The north access accommodates inbound movements only and the south access accommodates outbound movements only. No stop control is provided at the north access and all movements are considered free flow; therefore, a capacity assessment of the north access was not completed. **Table 5-17** summarizes the results of the capacity assessment completed at the south student access during the AM and PM school peak hours based on 2021 total traffic volumes.

**Table 5-17: Davenport Place Student Access**

| | Eastbound | | Northbound | | Southbound | |
|---|---|---|---|---|---|---|
| **Movement** | **L** | **R** | **T** | | **T** | |
| **AM Peak Hour 2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | LR | | T | | T | |
| **Volume (vph)** | 112 | 10 | 45 | | 9 | |
| **v/c** | 0.54 | | | | | |
| **Delay (s)** | 13.4 | | | | | |
| **LOS** | B | | | | | |
| **95th Queue (m)** | 25 | | | | | |
| **Intersection Delay** | | | **11.1** | **Intersection LOS** | | **B** |
| **PM School Peak Hour 2021 Total – Unsignalized (NB Stop Control)** | | | | | | |
| **Geometry** | LR | | T | | T | |
| **Volume (vph)** | 76 | 12 | 14 | | 24 | |
| **v/c** | 0.37 | | | | | |
| **Delay (s)** | 10.9 | | | | | |
| **LOS** | B | | | | | |
| **95th Queue (m)** | 13 | | | | | |
| **Intersection Delay** | | | **9.6** | **Intersection LOS** | | **A** |

As shown in Table 5-17, the Davenport Place student access is projected to operate very well from a capacity perspective during the AM and PM school peak hours.

## 5.3 Additional Transportation Considerations

### 5.3.1 School Zone/Area Assessment

Within Strathcona County, a school area is indicated by a green school sign without a black and white speed sign attached to the post. It is a warning to alert drivers that a school is near and to be cautious that children may be close by. The speed limit does not change from the previously posted limit, but vehicles should drive through the area with extra caution.

A school zone has a black and white 30 km/h sign attached below the green school sign. When you pass this sign, you have entered a school zone and must stay within the maximum posted speed during the times the zone is in effect. In Strathcona County, the school zone speed limit is in effect between the following times on school days:


- 8:00 AM and 9:30 AM
- 11:30 AM and 1:30 PM
- 3:00 PM and 4:30 PM

Alberta Transportation's Guidelines for School and Playground Zones and Areas were reviewed to determine if school zones or areas are warranted along Davenport Drive and Davenport Place in the vicinity of the school. The school zone/area warrant methodology awards points based on a range of criteria including type of school, fencing, roadway classification, property line location, school entrances, and sidewalk locations. **Table 5-18** summarizes the warrant scores for the different types of school zone categories.

**Table 5-18: School Zone Results Matrix**

| Total Score | Area or Zone? |
|---|---|
| 0-40 | Nothing |
| 41-64 | School Area |
| 65-80 | School Area or School Zone |
| 81-100 | School Zone |

**Table 5-19** summarizes the results of the school zone/area warrants for Davenport Drive and Davenport Place. The completed worksheets can be found in **Appendix C**.

**Table 5-19: School Zone/Area Warrant Results**

| Roadway | Total Score | Area or Zone? |
|---|---|---|
| Davenport Drive | 68 | School Area or School Zone |
| Davenport Place | 80 | School Area or School Zone |

As shown in Table 5-19, a school area or school zone is warranted along Davenport Drive and Davenport Place. It is noted that this review is specifically for the school and does not reflect the existing playground on the northwest corner of Davidson Creek Park. Where a school and playground are located adjacent to one another, the need to designate a Zone or Area for each facility should be reviewed separately. Based on Alberta Infrastructure and Transportation's Guidelines for Schools and Playground Zones and Areas, if it is established that a school zone and a playground zone are necessary for the adjacent fronting section of the same roadway, then only a single zone should be provided, in order to convey a simple and unambiguous message to motorists. In general, it is suggested that a playground zone be installed, to provide coverage over a more extended period of the school days as well as on non-school days.

As both Davenport Drive and Davenport Place are currently playground zones in the vicinity of the existing playground and proposed school, it is recommended that the existing playground zone with a posted speed limit of 30 km/h remain to provide coverage over an extended time period.

### 5.3.2 Active Modes

Alberta Education provides transportation funding for all eligible students to receive free transportation to their designated school. An eligible student is defined as a student residing greater than 2.39 km from their designated school. Based on a review of the existing pedestrian facilities, the entire Davidson Creek and Clarkdale Meadows neighbourhoods are anticipated to be within a 2.39 km walking distance of the proposed school site. Therefore, a 'payride' fee would be charged for bussing to the school.

Approximately 65% of the catchment area is within a 1.0 km walking distance or approximately 15 minute walking distance of the school. The promotion of walking and cycling to school will lead to a more sustainable reduction in congestion and safety issues around the school. Ways to promote active modes could include, but are not limited to:

- Developing safe routes to school maps with input from students and parents;
- Enhancing pedestrian safety with crossing guards at crosswalks in proximity to the school;
- Ensuring facilities are kept free of snow; and
- Creating walking/cycling school buses.

### 5.3.3 Pedestrian Crossing Control

Based on a review of Transportation Association of Canada (TAC) Pedestrian Crossing Control Guide, December 2012, pedestrian crossings within a school area should include the following recommended components:

- side-mounted signs on both sides of the road;
- zebra crosswalk markings;
- advanced warning sign where visibility is limited; and
- stopping prohibition for a minimum of 15m on each approach to the crossing, and 10m following the crossing.

Other desirable or optional components include:

- stopping prohibition for a minimum of 30m on each approach to the crossing, and 15m following the crossing;
- in-street school crosswalk sign; and
- crossing guards.

### 5.3.4 Student Drop-off/Pick-up Queuing Needs

AM drop-offs are anticipated to have a high turnover rate, meaning vehicles will occupy spaces for shorter amounts of time as compared to the PM pick-ups where a vehicle would typically stay in a space longer while waiting for students to leave the school. Due to the increased dwell time, the amount of spaces required for pick-up can be more than for drop-off.

It is preferable for schools to accommodate student drop-off and pick-up on-site; however, it is difficult to predict the number of private vehicles that need to be accommodated for the student drop-off and pick-up queue. Based on a study completed in Houston, an expectation of a maximum parent vehicle queue representing one vehicle for 6% of the students with an allowance of seven metres per vehicles was determined. If this was applicable to Davidson Creek elementary school, a maximum queue of 36 vehicles (252 m) would be expected.

It is anticipated that the 10 loadings spaces provided within the drop-off loop is sufficient to accommodate the AM drop-offs due to high turnover rates and low dwell times. Due to the increased dwell times of the PM pick-ups, it is anticipated that more than 10 loading spaces may be required during the PM pick-up period. If the queues cannot be accommodated on-site, vehicles will queue along Davenport Place and Davenport Drive.

The Institute of Transportation Engineers Traffic Engineering Council's *School Site Planning, Design, and Transportation* provide the following points to be considered when designing a student drop-of and pick-up area:

- Sufficient parent vehicle queuing must be provided or parent vehicles will wait where most convenient, including between parking aisles, along fire lanes, in the middle of traffic lanes, or along adjacent neighbourhood streets;
- A wide paved waiting area for students, preferably with shade or shelter from adverse weather conditions, will promote use;
- A well trained group of staff or volunteers can help ensure the drop-off and pick-up area operates as designed by assisting children in and out of vehicles, as well as ensuring drivers remain in their vehicles and pull all the way forward;
- A student waiting area at the far end of the vehicle queuing area will enable maximum on-site vehicle queuing and minimize the chance of back-ups onto the adjacent streets; and
- A site designed with flexibility will enable a school to modify a student drop-off and pick-up process, as needs and parent vehicle volumes change over time.

Having an established process can allow for the loading process to be safe, efficient, organized, and move quickly. A safe and efficient student pick-up/drop-off plan can improve traffic conditions around the school and increase safety. An example best practice student loading process from NCDOT is provided in **Appendix D**.

Other school policies that could reduce congestion include:

- Wider arrival windows;
- Early release for walkers and bicyclists; and
- Early arrival policies.

### 5.3.5 Bus Drop-off/Loading Review

Bus drop-off and loading is proposed to occur off-site along the south side of Davenport Drive. To ensure the bus drop-off area is available during bus drop-off and loading timeframes, 'No Parking' or 'No Stopping' signage with appropriate time restrictions should be installed. Time restrictions could be between 7:00 AM and 9:00 AM and 1:30 PM and 3:30 PM.

Outside of the restricted hours, the bus drop-off area could be used for visitor parking and/or drop-off and pick-up activity. However, it is recommended that the bus loading area be monitored to determine if illegally parked vehicles are impacting bus operations during the specified no parking or no stopping time limits. If an issue is identified, the County or EIPS may decide to ban parking and drop-off at all hours within the bus drop-off area.

The student loading area should be of suitable size to allow large groups of waiting students and teachers to congregate. Sidewalks immediately adjacent to the curbside drop-off area should be a minimum of 2.0 metre wide monowalks.

### 5.3.6 On-Street Parking

Although it is preferable to accommodate designated passenger loading on-site, there is the potential for on-street drop-off and visitor parking to occur along the south side of Davenport Drive. Drop-off along the north side of Davenport Drive and the east side of Davenport Place should be discouraged as it would require students to cross the street and could interfere with resident driveways. Consideration could be given to installing 'No Stopping' signs with time limits along the north side of Davenport Drive and east side of Davenport Place. Time limits could be between 8:00 AM and 4:30 PM on school days to make drop-off/pick-up and/or parking illegal in this location during school hours. However, it is noted that the implementation of no stopping time restrictions would impact residents during school hours; therefore, no stopping signs should only be considered through consultation with affected residents.

### 5.3.7 Education and Encouragement

Strategies and tactics to address traffic circulation and safety issues at schools do not exclusively represent physical improvements. Education, encouragement, and enforcement solutions, as well as school policies that address arrival and dismissal times and define expectations for parents and students should also be part of an overall school traffic mitigation toolbox. The majority of these strategies are intended to reduce the number of vehicles generated by a school. Strategies and tactics that could be considered include:

- Educating parents about unsafe driving behaviours and school transportation policies.
- Encouraging students to walk or bike to school.
- Encouraging carpooling.
- Mapping out safe pedestrian routes.
- Implementing a walking or cycling school bus program.
- Increasing school busing.
- Employing targeted police enforcement.
- Issuing school parking lot 'citations' or warnings.
- Varying arrival and departure times (i.e. by grade, by mode) to reduce the number of students arriving at or leaving school simultaneously.

### 5.3.8 Community Concerns

EIPS hosted two public open houses at Lakeland Ridge School on September 20 and 28, 2016. The following community concerns regarding transportation were raised during these meetings. These concerns may not represent all community concerns; however, they represent the most common topics.

#### *Speeding*

A concern with speeding throughout the neighbourhood was a consistent message received from the community. A speed study was not completed as part of this assignment; therefore, Bunt & Associates cannot comment on the validity of this concern. The concern with speeding is an existing condition and is unrelated to the addition of a school. Therefore, the County may want to consider conducting a speed study in the area to validate the concern, and depending on the outcome of the speed study, explore traffic calming measures to mitigate the issue.

#### *Darlington Drive*

Concerns were raised regarding school traffic using Darlington Drive to exit the community. With the student drop-off located along Davenport Place, there is the potential that parents exiting the drop-off loop turn right onto Davenport Place instead of turning left towards Davenport Drive. However, Darlington Drive is a narrow, winding, local roadway and does not provide a direct route to the adjacent collector and arterial roadway. Community members also cited long delays for existing northbound left turns from Darlington Drive onto Davidson Drive during the AM peak hour. Therefore, Darlington Drive may not be heavily used by school traffic due to the existing design and operations.

Other schools in the County have implemented left turn bans exiting student drop-off areas. However, the left turns were banned where left turn movements were difficult to complete due to traffic volumes on the adjacent roadway. The left turn ban reduces delays at the intersection thereby reducing on-site queuing and improving drop-off operations.

The student drop-off access at the Davidson Creek school is not anticipated to have the same operational issues as other County schools. As Davenport Place is a low volume roadway there will be limited traffic opposing vehicles exiting the student drop-off; therefore, there is no reason to ban left or right turning traffic from an operations perspective. Banning right turns onto Davenport Place would likely be ineffective unless constantly enforced, but could be considered if school traffic along Darlington Drive was an issue in the future.

The installation of all-way stop control at the Davenport Drive/Davenport Place intersection may encourage parents to use Davenport Drive as opposed to Darlington Drive. All-way stop control would reduce queues and delay for northbound vehicles during the AM peak hour, making it easier for vehicles to get to Davenport Drive. However, as previously mentioned, all-way stop control would impose unnecessary delay to east-west movements along Davenport Drive during all other hours of the day. Unnecessary stop controls can lead to higher noncompliance and increased conflicts and require regular police enforcement. The intersection should be monitored to determine if all-way stop control is warranted in the future.

### *Arterial Intersection Operations*

Community members cited existing issues exiting the neighbourhood during the AM peak hour via the Clover Bar Road/Davidson Drive, Lakeland Drive/Davenport Drive, and Lakeland Drive/Clarkdale Drive intersections.

As noted in Section 5.2, increasing the maximum green time along Davidson Drive would help improve operations at the Clover Bar Road/Davidson Drive intersection. The Lakeland Drive/Davenport Drive and Lakeland Drive/Clarkdale Drive intersections should be monitored to determine if and when signalization is required. With the addition of a traffic signal along Lakeland Drive, it is also anticipated that operations at the Clover Bar Road/Davidson Drive intersection would improve as some existing traffic may reroute to Lakeland Drive instead of Clover Bar Road.

# 6. CONCLUSIONS & RECOMMENDATIONS

Based on the assessment completed, the proposed Davidson Creek school is anticipated to generate in the order of 271 two-way trips in the AM peak hour, 168 two-way trips in the PM school peak hour, and about 774 two-way trips on a typical school day. Overall, the existing roadway network is anticipated to accommodate the traffic generated by the proposed school. The following recommendations are advanced:

- Signalize the Lakeland Drive/Clarkdale Drive intersection to accommodate growth within Summerwood North and general growth along Lakeland Drive.
- Monitor the Lakeland Drive/Davenport Drive intersection as Summerwood North and Davidson Creek school develop to determine if and when signalization is warranted.
- Monitor the intersection of Davenport Drive and Davenport Place once traffic patterns to/from the school site are established to determine if all-way stop control is required.
- Maintain the existing playground zones along Davenport Drive and Davenport Place with a 30 km/h speed limit in the vicinity of the proposed school.
- Ensure the on-site loading lane is not used as parent parking during AM and PM peak period time frames. Unattended vehicles in pick-up/drop-off zones, even for short stops, should not be allowed (and should be enforced). Designated visitor parking spaces and/or on-street parking should be used for this purpose during the AM and PM school peaks.
- A designated drop-off zone should be established at the far end of the loading lane to ensure a continuous flow of vehicles. Queued vehicles within the lane should wait until they reach the drop-off zone before allowing their passengers to exit. Adult supervisors available to group children and escort them inside reduce the inclination for parents to exit their vehicles.
- During peak student pick-up, a waiting area for students at the far end of the zone should be established to maximize the effective length of curb space. Vehicles at the far end of the zone should load simultaneously. Once these vehicles have pulled away, the next group of vehicles should move forward to be loaded at the student waiting area.
- Highly visible adult loading supervisors should facilitate loading and unloading and ensure that drivers remain in their vehicles.
- Discourage drop-off activity along the north side of Davenport Drive and the east side of Davenport Place to eliminate unnecessary pedestrian crossings and reduce driveway access interference with residents fronting onto Davenport Drive. Through consultation with affected residents, 'No Stopping' zones could be established on school days between 8:00 AM and 4:30 PM to make drop-off/pick-up and parking illegal in these locations during school hours.

- The curbside bus loading area should be of suitable size to allow large groups of waiting students and teachers to congregate.
- Allow drop-off/pick-up activity or visitor parking in the bus loading area outside of bus loading times, and monitor the area to determine if parked vehicles are impacting bus operations. If an issue is identified, parking and drop-off may be banned at all hours within the bus loading area.
- Ensure pedestrian crossings within the school area have side-mounted signs on both sides of the road, include zebra crosswalk markings, and prohibit stopping for a minimum of 15m on each approach to the crossing and 10m following the crossing.
- Enhance pedestrian safety through the presence of crossing guards at crosswalks in proximity to the school to encourage parents to allow children to use alternative modes.
- Consider strategies and tactics to address traffic circulation and safety issues that do not exclusively represent physical improvements such as:
    - Educate parents about unsafe driving behaviours and school transportation policies.
    - Educate parents about having their children choose alternative transportation modes to and from school.
    - Encourage students to walk or bike to school.
    - Encourage carpooling.
    - Implement a Walking or Cycling School Bus Program.
    - Employ targeted police enforcement.
    - Issue school parking lot ‘citations’ or warnings.
    - Provide maps and instructions to parents on the school websites and in newsletters to describe the location and operation of the loading zone.
    - Vary dismissal time by mode or grade to reduce the number of students arriving at or leaving school simultaneously and reinforce these messages with regular communications about the rules through driveway monitors.
    - Encourage parents to comply with traffic controls with random rewards.

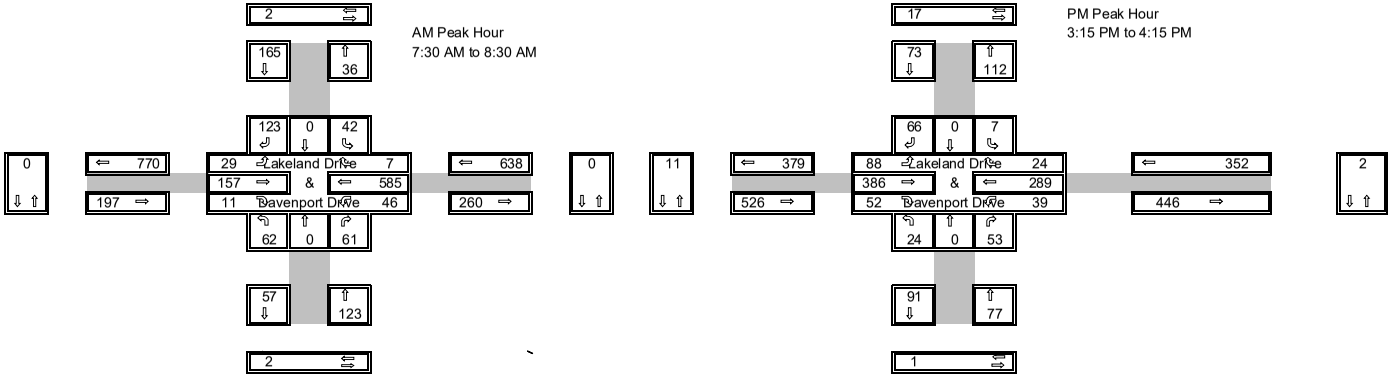
# APPENDIX A

## Traffic and Parking Counts

Project No. 3483.01
Location Lakeland Drive and Davenport Drive
Date Wednesday May 11tl
Weather Clear
Surveyor MIO

| Street | Lakeland Drive | | | | | | | | | | | | Davenport Drive | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 7:00 AM | 4 | 0 | 46 | 1 | 0 | 0 | 8 | 1 | 127 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 16 | 0 | 10 | 0 | 0 | 0 | 20 | 0 | 241 | | 0 | 0 | 0 | 0 |
| 7:15 AM | 5 | 0 | 50 | 2 | 4 | 0 | 6 | 0 | 110 | 0 | 5 | 0 | 15 | 0 | 0 | 0 | 12 | 1 | 7 | 0 | 0 | 0 | 33 | 0 | 250 | | 0 | 0 | 1 | 0 |
| 7:30 AM | 7 | 1 | 48 | 1 | 4 | 0 | 4 | 2 | 135 | 5 | 1 | 0 | 17 | 0 | 0 | 0 | 20 | 0 | 20 | 0 | 0 | 0 | 35 | 0 | 300 | | 0 | 0 | 1 | 0 |
| 7:45 AM | 8 | 1 | 29 | 2 | 2 | 0 | 13 | 3 | 146 | 3 | 1 | 2 | 14 | 1 | 0 | 0 | 14 | 1 | 7 | 0 | 0 | 0 | 28 | 2 | 277 | 1068 | 0 | 0 | 0 | 2 |
| 8:00 AM | 6 | 0 | 33 | 2 | 5 | 0 | 13 | 0 | 147 | 5 | 2 | 0 | 14 | 1 | 0 | 0 | 14 | 1 | 8 | 2 | 0 | 0 | 30 | 0 | 283 | 1110 | 0 | 0 | 0 | 0 |
| 8:15 AM | 6 | 0 | 42 | 0 | 0 | 0 | 9 | 2 | 140 | 4 | 1 | 0 | 15 | 0 | 0 | 0 | 10 | 1 | 5 | 0 | 0 | 0 | 28 | 0 | 263 | 1123 | 0 | 0 | 1 | 0 |
| 8:30 AM | 13 | 0 | 43 | 2 | 4 | 0 | 7 | 1 | 116 | 4 | 1 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 4 | 0 | 0 | 0 | 19 | 0 | 236 | 1059 | 0 | 1 | 0 | 0 |
| 8:45 AM | 10 | 0 | 32 | 1 | 1 | 1 | 5 | 1 | 91 | 1 | 3 | 0 | 11 | 0 | 0 | 0 | 9 | 1 | 5 | 0 | 0 | 0 | 18 | 0 | 190 | 972 | 0 | 0 | 0 | 0 |
| Total | 59 | 2 | 323 | 11 | 20 | 1 | 65 | 10 | 1012 | 23 | 14 | 2 | 100 | 2 | 0 | 0 | 110 | 5 | 66 | 2 | 0 | 0 | 211 | 2 | 2040 | 1123 | 0 | 1 | 3 | 2 |
| Total | 61 | | 334 | | 21 | | 75 | | 1035 | | 16 | | 102 | | 0 | | 115 | | 68 | | 0 | | 213 | | | | | | | |
| Peak hour | 7:30 AM to 8:30 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 29 | | 157 | | 11 | | 46 | | 585 | | 7 | | 62 | | 0 | | 61 | | 42 | | 0 | | 123 | | 1123 | | 0 | 0 | 2 | 2 |
| % HV | 7% | | 3% | | 0% | | 15% | | 3% | | 29% | | 3% | | #DIV/0! | | 5% | | 5% | | #DIV/0! | | 2% | | 4% | | | | | |
| PHF | 0.91 | | 0.80 | | 0.69 | | 1.92 | | 1.04 | | 1.75 | | 0.91 | | #DIV/0! | | 0.76 | | 0.53 | | #DIV/0! | | 0.88 | | 0.94 | | | | | |
| 2 Hr Factor | 2.10 | | 2.13 | | 1.91 | | 1.63 | | 1.77 | | 2.29 | | 1.65 | | #DIV/0! | | 1.89 | | 1.62 | | #DIV/0! | | 1.73 | | 1.82 | | | | | |

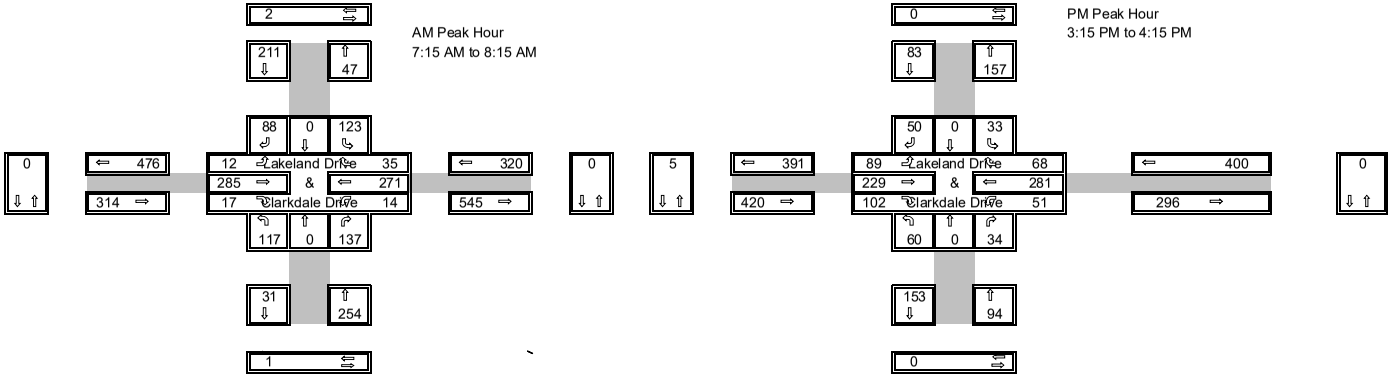
| Street | Lakeland Drive | | | | | | | | | | | | Davenport Drive | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 2:30 PM | 11 | 0 | 69 | 1 | 7 | 0 | 3 | 1 | 59 | 0 | 4 | 0 | 6 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 16 | 0 | 185 | | 0 | 0 | 0 | 0 |
| 2:45 PM | 14 | 0 | 70 | 1 | 10 | 0 | 9 | 1 | 85 | 3 | 6 | 0 | 7 | 0 | 0 | 0 | 4 | 1 | 2 | 0 | 0 | 0 | 16 | 0 | 229 | | 1 | 3 | 2 | 0 |
| 3:00 PM | 16 | 0 | 80 | 1 | 6 | 1 | 7 | 0 | 76 | 4 | 3 | 0 | 6 | 0 | 0 | 0 | 12 | 0 | 4 | 0 | 0 | 0 | 13 | 0 | 229 | | 0 | 5 | 4 | 0 |
| 3:15 PM | 29 | 1 | 90 | 2 | 13 | 0 | 7 | 0 | 57 | 2 | 5 | 0 | 4 | 0 | 0 | 0 | 19 | 1 | 0 | 1 | 0 | 0 | 14 | 0 | 245 | 888 | 2 | 8 | 1 | 0 |
| 3:30 PM | 17 | 1 | 79 | 5 | 13 | 0 | 12 | 1 | 84 | 0 | 9 | 1 | 12 | 0 | 0 | 0 | 11 | 0 | 2 | 0 | 0 | 0 | 10 | 0 | 257 | 960 | 0 | 3 | 15 | 1 |
| 3:45 PM | 19 | 2 | 105 | 2 | 8 | 0 | 12 | 0 | 68 | 4 | 5 | 1 | 2 | 0 | 0 | 0 | 12 | 1 | 3 | 0 | 0 | 0 | 10 | 1 | 255 | 986 | 0 | 0 | 1 | 0 |
| 4:00 PM | 19 | 0 | 99 | 4 | 18 | 0 | 5 | 2 | 70 | 4 | 3 | 0 | 6 | 0 | 0 | 0 | 7 | 2 | 1 | 0 | 0 | 0 | 30 | 1 | 271 | 1028 | 0 | 0 | 0 | 0 |
| 4:15 PM | 25 | 1 | 109 | 2 | 14 | 0 | 7 | 0 | 98 | 8 | 7 | 0 | 11 | 0 | 0 | 0 | 9 | 1 | 3 | 0 | 0 | 0 | 15 | 0 | 310 | 1093 | 0 | 1 | 4 | 0 |
| 4:30 PM | 30 | 0 | 155 | 1 | 25 | 1 | 13 | 0 | 112 | 6 | 14 | 0 | 9 | 0 | 0 | 0 | 16 | 1 | 2 | 0 | 0 | 0 | 20 | 0 | 405 | 1241 | 0 | 2 | 0 | 0 |
| 4:45 PM | 32 | 0 | 144 | 0 | 15 | 0 | 9 | 0 | 103 | 1 | 7 | 0 | 8 | 0 | 0 | 0 | 12 | 1 | 5 | 0 | 0 | 0 | 16 | 0 | 353 | 1339 | 0 | 0 | 1 | 2 |
| 5:00 PM | 34 | 0 | 144 | 1 | 17 | 0 | 11 | 1 | 110 | 4 | 11 | 0 | 8 | 0 | 0 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 24 | 0 | 387 | 1455 | 0 | 0 | 2 | 2 |
| 5:15 PM | 39 | 0 | 119 | 0 | 20 | 0 | 25 | 2 | 124 | 1 | 13 | 0 | 15 | 0 | 0 | 0 | 8 | 1 | 4 | 0 | 0 | 0 | 14 | 0 | 385 | 1530 | 0 | 0 | 1 | 0 |
| 5:30 PM | 32 | 0 | 98 | 3 | 17 | 0 | 9 | 0 | 116 | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 12 | 1 | 10 | 0 | 0 | 0 | 31 | 0 | 353 | 1478 | 0 | 0 | 0 | 0 |
| 5:45 PM | 25 | 0 | 127 | 0 | 13 | 1 | 21 | 1 | 133 | 1 | 8 | 0 | 9 | 0 | 0 | 0 | 13 | 1 | 10 | 0 | 0 | 0 | 29 | 0 | 392 | 1517 | 0 | 1 | 2 | 0 |
| Total | 342 | 5 | 1488 | 23 | 196 | 3 | 150 | 9 | 1295 | 38 | 107 | 2 | 115 | 0 | 0 | 0 | 163 | 12 | 46 | 1 | 1 | 0 | 258 | 2 | 4256 | 1530 | 3 | 23 | 33 | 5 |
| Total | 347 | | 1511 | | 199 | | 159 | | 1333 | | 109 | | 115 | | 0 | | 175 | | 47 | | 1 | | 260 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 88 | | 386 | | 52 | | 39 | | 289 | | 24 | | 24 | | 0 | | 53 | | 7 | | 0 | | 66 | | 1028 | | 2 | 11 | 17 | 1 |
| % HV | 5% | | 3% | | 0% | | 8% | | 3% | | 8% | | 0% | | #DIV/0! | | 8% | | 14% | | #DIV/0! | | 3% | | 4% | | | | | |
| PHF | 1.16 | | 0.94 | | 0.72 | | 1.39 | | 0.98 | | 2.00 | | 1.00 | | #DIV/0! | | 1.47 | | 1.75 | | #DIV/0! | | 0.53 | | 0.95 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Project No. 3483.01
Location Lakeland Drive and Clarkdale Drive
Date Thursday May 12th, :
Weather Clear
Surveyor MIO

| Street | Lakeland Drive | | | | | | | | | | | | Clarkdale Drive | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 7:00 AM | 1 | 0 | 71 | 0 | 4 | 0 | 2 | 0 | 49 | 0 | 2 | 0 | 20 | 0 | 0 | 0 | 47 | 0 | 35 | 0 | 0 | 0 | 27 | 0 | 258 | | 0 | 0 | 0 | 0 |
| 7:15 AM | 4 | 0 | 80 | 1 | 2 | 0 | 4 | 0 | 49 | 0 | 4 | 0 | 22 | 1 | 0 | 0 | 35 | 0 | 36 | 0 | 0 | 0 | 19 | 1 | 258 | | 0 | 0 | 0 | 0 |
| 7:30 AM | 1 | 0 | 88 | 2 | 4 | 0 | 2 | 2 | 53 | 5 | 11 | 1 | 30 | 0 | 0 | 0 | 38 | 0 | 33 | 0 | 0 | 0 | 23 | 0 | 293 | | 0 | 0 | 0 | 1 |
| 7:45 AM | 4 | 0 | 58 | 0 | 3 | 3 | 3 | 0 | 84 | 9 | 7 | 0 | 25 | 2 | 0 | 0 | 36 | 0 | 32 | 0 | 0 | 0 | 20 | 1 | 287 | 1096 | 0 | 0 | 2 | 0 |
| 8:00 AM | 3 | 0 | 56 | 0 | 3 | 2 | 3 | 0 | 69 | 2 | 10 | 2 | 36 | 1 | 0 | 0 | 27 | 1 | 22 | 0 | 0 | 0 | 24 | 0 | 261 | 1099 | 0 | 0 | 0 | 0 |
| 8:15 AM | 6 | 0 | 47 | 1 | 12 | 0 | 3 | 0 | 71 | 2 | 4 | 0 | 28 | 0 | 0 | 0 | 21 | 0 | 25 | 1 | 0 | 0 | 21 | 1 | 243 | 1084 | 0 | 0 | 0 | 0 |
| 8:30 AM | 7 | 0 | 37 | 0 | 5 | 0 | 6 | 0 | 66 | 2 | 5 | 2 | 10 | 0 | 0 | 0 | 14 | 0 | 16 | 0 | 0 | 0 | 24 | 0 | 194 | 985 | 0 | 1 | 0 | 0 |
| 8:45 AM | 10 | 0 | 31 | 0 | 11 | 0 | 6 | 0 | 52 | 0 | 10 | 0 | 10 | 0 | 0 | 0 | 16 | 0 | 8 | 0 | 0 | 0 | 13 | 1 | 168 | 866 | 0 | 0 | 0 | 0 |
| Total | 36 | 0 | 468 | 4 | 44 | 5 | 29 | 2 | 493 | 20 | 53 | 5 | 181 | 4 | 0 | 0 | 234 | 1 | 207 | 1 | 0 | 0 | 171 | 4 | 1962 | 1099 | 0 | 1 | 2 | 1 |
| Total | 36 | | 472 | | 49 | | 31 | | 513 | | 58 | | 185 | | 0 | | 235 | | 208 | | 0 | | 175 | | | | | | | |
| Peak hour | 7:15 AM to 8:15 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 12 | | 285 | | 17 | | 14 | | 271 | | 35 | | 117 | | 0 | | 137 | | 123 | | 0 | | 88 | | 1099 | | 0 | 0 | 2 | 1 |
| % HV | 0% | | 1% | | 29% | | 14% | | 6% | | 9% | | 3% | | #DIV/0! | | 1% | | 0% | | #DIV/0! | | 2% | | 3% | | | | | |
| PHF | 3.00 | | 0.79 | | 1.06 | | 0.88 | | 1.17 | | 0.73 | | 0.98 | | #DIV/0! | | 0.90 | | 0.93 | | #DIV/0! | | 0.96 | | 0.94 | | | | | |
| 2 Hr Factor | 3.00 | | 1.66 | | 2.88 | | 2.21 | | 1.89 | | 1.66 | | 1.58 | | #DIV/0! | | 1.72 | | 1.69 | | #DIV/0! | | 1.99 | | 1.79 | | | | | |

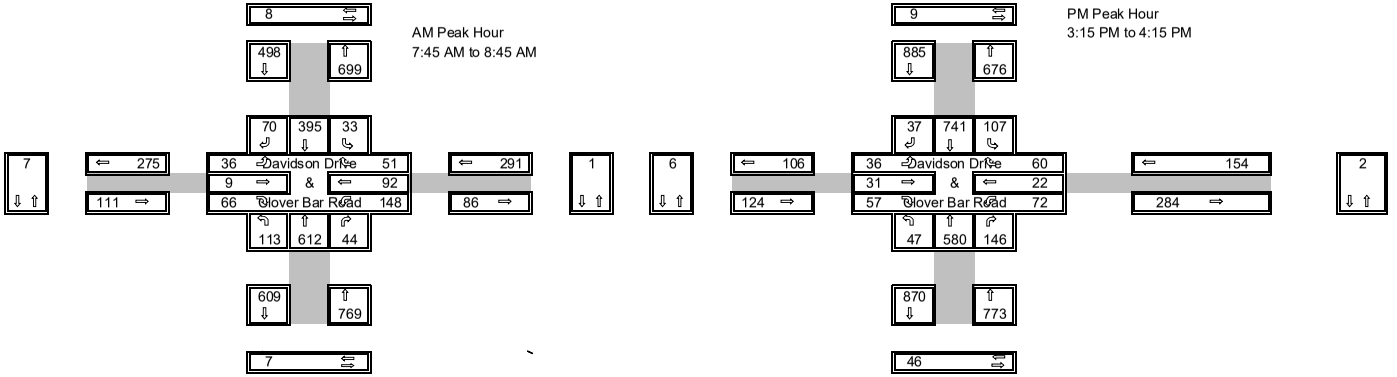
| Street | Lakeland Drive | | | | | | | | | | | | Clarkdale Drive | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 2:30 PM | 10 | 0 | 41 | 4 | 18 | 0 | 1 | 0 | 32 | 1 | 8 | 1 | 9 | 0 | 1 | 0 | 3 | 0 | 11 | 0 | 0 | 0 | 16 | 0 | 156 | | 1 | 0 | 0 | 0 |
| 2:45 PM | 8 | 0 | 29 | 2 | 10 | 0 | 7 | 0 | 44 | 1 | 17 | 1 | 9 | 0 | 0 | 0 | 17 | 0 | 6 | 2 | 0 | 0 | 13 | 1 | 167 | | 0 | 0 | 0 | 0 |
| 3:00 PM | 10 | 1 | 45 | 2 | 16 | 0 | 15 | 0 | 51 | 1 | 10 | 1 | 16 | 0 | 0 | 0 | 8 | 1 | 12 | 0 | 0 | 0 | 9 | 0 | 198 | | 0 | 0 | 0 | 0 |
| 3:15 PM | 24 | 0 | 48 | 1 | 25 | 0 | 10 | 0 | 51 | 2 | 12 | 0 | 11 | 0 | 0 | 0 | 8 | 0 | 5 | 4 | 0 | 0 | 8 | 0 | 209 | 730 | 0 | 5 | 0 | 0 |
| 3:30 PM | 17 | 0 | 40 | 1 | 30 | 0 | 21 | 0 | 75 | 1 | 22 | 0 | 17 | 1 | 0 | 0 | 5 | 2 | 6 | 0 | 0 | 0 | 11 | 1 | 250 | 824 | 0 | 0 | 0 | 0 |
| 3:45 PM | 25 | 0 | 54 | 6 | 23 | 1 | 7 | 0 | 80 | 0 | 12 | 0 | 13 | 1 | 0 | 0 | 7 | 0 | 10 | 0 | 0 | 0 | 14 | 0 | 253 | 910 | 0 | 0 | 0 | 0 |
| 4:00 PM | 23 | 0 | 71 | 8 | 23 | 0 | 13 | 0 | 68 | 4 | 22 | 0 | 15 | 2 | 0 | 0 | 10 | 2 | 8 | 0 | 0 | 0 | 15 | 1 | 285 | 997 | 0 | 0 | 0 | 0 |
| 4:15 PM | 16 | 0 | 61 | 0 | 22 | 0 | 18 | 0 | 82 | 4 | 17 | 0 | 12 | 0 | 0 | 0 | 7 | 0 | 6 | 0 | 0 | 0 | 17 | 0 | 262 | 1050 | 0 | 0 | 0 | 0 |
| 4:30 PM | 20 | 0 | 98 | 3 | 27 | 0 | 28 | 0 | 101 | 1 | 29 | 0 | 26 | 0 | 1 | 0 | 9 | 0 | 10 | 1 | 0 | 0 | 21 | 1 | 376 | 1176 | 0 | 0 | 0 | 0 |
| 4:45 PM | 29 | 0 | 58 | 0 | 30 | 0 | 27 | 0 | 91 | 2 | 22 | 0 | 19 | 0 | 0 | 0 | 11 | 0 | 14 | 0 | 0 | 0 | 16 | 1 | 320 | 1243 | 0 | 0 | 0 | 0 |
| 5:00 PM | 18 | 0 | 68 | 2 | 35 | 0 | 36 | 0 | 103 | 2 | 28 | 0 | 20 | 0 | 0 | 0 | 21 | 0 | 10 | 0 | 0 | 0 | 18 | 0 | 361 | 1319 | 0 | 1 | 0 | 0 |
| 5:15 PM | 25 | 0 | 73 | 1 | 38 | 0 | 41 | 0 | 106 | 3 | 37 | 1 | 27 | 1 | 0 | 0 | 12 | 0 | 10 | 0 | 0 | 0 | 18 | 0 | 393 | 1450 | 0 | 0 | 3 | 0 |
| 5:30 PM | 7 | 0 | 73 | 0 | 25 | 0 | 31 | 0 | 91 | 4 | 35 | 0 | 22 | 0 | 0 | 0 | 15 | 0 | 11 | 1 | 0 | 0 | 19 | 1 | 335 | 1409 | 0 | 1 | 0 | 0 |
| 5:45 PM | 10 | 0 | 40 | 0 | 34 | 0 | 26 | 0 | 87 | 1 | 27 | 0 | 23 | 0 | 0 | 0 | 13 | 0 | 10 | 0 | 0 | 0 | 16 | 0 | 287 | 1376 | 0 | 0 | 0 | 0 |
| Total | 242 | 1 | 799 | 30 | 356 | 1 | 281 | 0 | 1062 | 27 | 298 | 4 | 239 | 5 | 2 | 0 | 146 | 5 | 129 | 8 | 0 | 0 | 211 | 6 | 3852 | 1450 | 1 | 7 | 3 | 0 |
| Total | 243 | | 829 | | 357 | | 281 | | 1089 | | 302 | | 244 | | 2 | | 151 | | 137 | | 0 | | 217 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 89 | | 229 | | 102 | | 51 | | 281 | | 68 | | 60 | | 0 | | 34 | | 33 | | 0 | | 50 | | 997 | | 0 | 5 | 0 | 0 |
| % HV | 0% | | 7% | | 1% | | 0% | | 2% | | 0% | | 7% | | #DIV/0! | | 12% | | 12% | | #DIV/0! | | 4% | | 4% | | | | | |
| PHF | 0.97 | | 0.72 | | 1.11 | | 0.98 | | 0.98 | | 0.77 | | 0.88 | | #DIV/0! | | 0.71 | | 1.03 | | #DIV/0! | | 0.78 | | 0.87 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Project No. 3483.01
Location Davidson Drive and Clover Bar Road
Date Thursday May 19th, :
Weather Clear
Surveyor MIO

| Street | Davidson Drive | | | | | | | | | | | | Clover Bar Road | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 7:00 AM | 11 | 0 | 0 | 0 | 13 | 0 | 28 | 2 | 4 | 0 | 15 | 0 | 1 | 0 | 95 | 2 | 6 | 0 | 4 | 1 | 61 | 0 | 3 | 0 | 246 | | 1 | 0 | 1 | 0 |
| 7:15 AM | 13 | 0 | 2 | 0 | 11 | 0 | 34 | 2 | 5 | 0 | 19 | 0 | 2 | 0 | 112 | 5 | 3 | 0 | 9 | 0 | 64 | 2 | 1 | 0 | 284 | | 0 | 0 | 0 | 0 |
| 7:30 AM | 9 | 0 | 2 | 0 | 19 | 0 | 30 | 1 | 1 | 0 | 17 | 0 | 4 | 1 | 140 | 2 | 6 | 0 | 5 | 0 | 63 | 7 | 1 | 0 | 308 | | 0 | 0 | 0 | 0 |
| 7:45 AM | 8 | 0 | 0 | 0 | 14 | 0 | 33 | 1 | 10 | 0 | 14 | 1 | 22 | 0 | 156 | 0 | 8 | 2 | 4 | 0 | 61 | 3 | 1 | 3 | 341 | 1179 | 0 | 1 | 0 | 1 |
| 8:00 AM | 5 | 2 | 1 | 0 | 15 | 0 | 40 | 3 | 15 | 2 | 10 | 3 | 27 | 0 | 145 | 4 | 11 | 0 | 5 | 1 | 87 | 7 | 16 | 1 | 400 | 1333 | 1 | 4 | 5 | 4 |
| 8:15 AM | 11 | 1 | 5 | 0 | 18 | 0 | 48 | 1 | 33 | 2 | 15 | 0 | 25 | 1 | 150 | 3 | 7 | 0 | 9 | 0 | 126 | 3 | 27 | 3 | 488 | 1537 | 0 | 2 | 3 | 2 |
| 8:30 AM | 7 | 2 | 3 | 0 | 18 | 1 | 21 | 1 | 30 | 0 | 8 | 0 | 36 | 2 | 149 | 5 | 16 | 0 | 14 | 0 | 107 | 1 | 19 | 0 | 440 | 1669 | 0 | 0 | 0 | 0 |
| 8:45 AM | 5 | 0 | 4 | 0 | 3 | 0 | 28 | 1 | 6 | 0 | 15 | 0 | 6 | 0 | 123 | 1 | 12 | 1 | 8 | 0 | 54 | 0 | 4 | 0 | 271 | 1599 | 0 | 0 | 0 | 0 |
| Total | 69 | 5 | 17 | 0 | 111 | 1 | 262 | 12 | 104 | 4 | 113 | 4 | 123 | 4 | 1070 | 22 | 69 | 3 | 58 | 2 | 623 | 23 | 72 | 7 | 2778 | 1669 | 2 | 7 | 9 | 7 |
| Total | 74 | | 17 | | 112 | | 274 | | 108 | | 117 | | 127 | | 1092 | | 72 | | 60 | | 646 | | 79 | | | | | | | |
| Peak hour | 7:45 AM to 8:45 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 36 | | 9 | | 66 | | 148 | | 92 | | 51 | | 113 | | 612 | | 44 | | 33 | | 395 | | 70 | | 1669 | | 1 | 7 | 8 | 7 |
| % HV | 14% | | 0% | | 2% | | 4% | | 4% | | 8% | | 3% | | 2% | | 5% | | 3% | | 4% | | 10% | | 4% | | | | | |
| PHF | 0.75 | | 0.45 | | 0.92 | | 0.76 | | 0.66 | | 0.85 | | 1.09 | | 1.00 | | 1.57 | | 0.92 | | 0.77 | | 0.58 | | 0.86 | | | | | |
| 2 Hr Factor | 2.06 | | 1.89 | | 1.70 | | 1.85 | | 1.17 | | 2.29 | | 1.12 | | 1.78 | | 1.64 | | 1.82 | | 1.64 | | 1.13 | | 1.66 | | | | | |

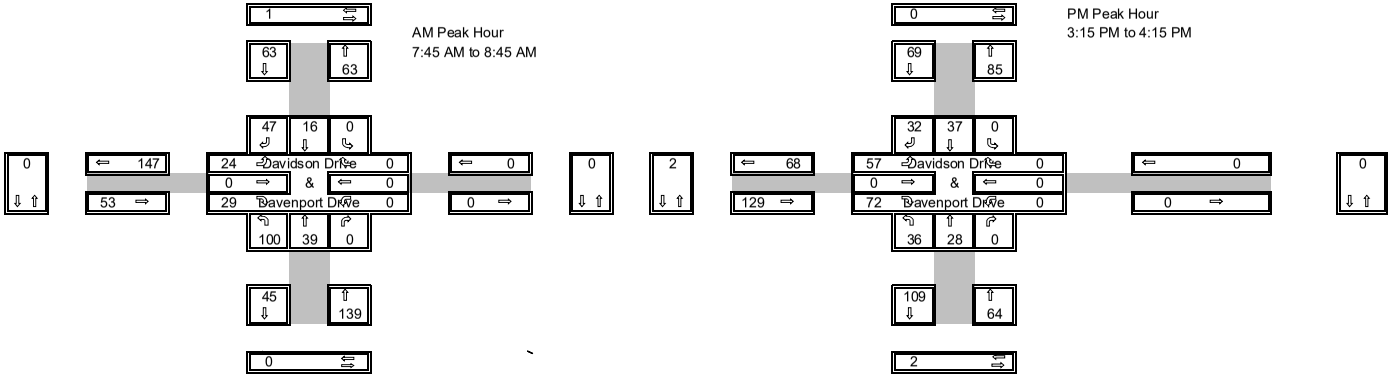
| Street | Davidson Drive | | | | | | | | | | | | Clover Bar Road | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 2:30 PM | 3 | 0 | 1 | 0 | 8 | 0 | 22 | 1 | 9 | 1 | 11 | 0 | 8 | 1 | 87 | 1 | 18 | 0 | 7 | 1 | 118 | 2 | 9 | 1 | 309 | | 1 | 1 | 0 | 2 |
| 2:45 PM | 2 | 0 | 1 | 0 | 6 | 0 | 30 | 2 | 17 | 0 | 9 | 1 | 17 | 2 | 111 | 1 | 21 | 0 | 10 | 0 | 127 | 2 | 16 | 1 | 376 | | 1 | 0 | 3 | 4 |
| 3:00 PM | 9 | 0 | 5 | 1 | 12 | 0 | 20 | 1 | 12 | 0 | 18 | 0 | 24 | 1 | 117 | 0 | 25 | 0 | 24 | 2 | 151 | 3 | 26 | 1 | 452 | | 4 | 15 | 18 | 20 |
| 3:15 PM | 17 | 3 | 16 | 0 | 25 | 0 | 16 | 0 | 5 | 1 | 6 | 2 | 12 | 0 | 122 | 2 | 34 | 0 | 33 | 2 | 228 | 2 | 13 | 0 | 539 | 1676 | 2 | 1 | 7 | 24 |
| 3:30 PM | 4 | 1 | 4 | 0 | 13 | 0 | 26 | 1 | 4 | 0 | 20 | 1 | 13 | 0 | 173 | 7 | 41 | 0 | 19 | 1 | 169 | 2 | 8 | 1 | 508 | 1875 | 0 | 1 | 0 | 8 |
| 3:45 PM | 7 | 0 | 4 | 0 | 8 | 0 | 14 | 0 | 4 | 0 | 10 | 0 | 10 | 0 | 149 | 1 | 38 | 0 | 29 | 1 | 160 | 3 | 5 | 1 | 444 | 1943 | 0 | 3 | 2 | 13 |
| 4:00 PM | 3 | 1 | 6 | 1 | 9 | 2 | 14 | 1 | 8 | 0 | 20 | 1 | 11 | 1 | 123 | 3 | 33 | 0 | 21 | 1 | 176 | 1 | 9 | 0 | 445 | 1936 | 0 | 1 | 0 | 1 |
| 4:15 PM | 5 | 0 | 5 | 0 | 14 | 0 | 21 | 1 | 3 | 0 | 13 | 0 | 7 | 0 | 109 | 0 | 25 | 0 | 28 | 0 | 188 | 2 | 12 | 1 | 434 | 1831 | 0 | 0 | 0 | 3 |
| 4:30 PM | 8 | 0 | 5 | 0 | 5 | 0 | 25 | 1 | 6 | 0 | 7 | 0 | 7 | 0 | 116 | 2 | 25 | 0 | 25 | 0 | 186 | 1 | 13 | 0 | 432 | 1755 | 0 | 0 | 0 | 5 |
| 4:45 PM | 8 | 0 | 6 | 0 | 13 | 0 | 21 | 1 | 7 | 0 | 21 | 0 | 8 | 0 | 128 | 0 | 36 | 0 | 19 | 0 | 190 | 2 | 21 | 0 | 481 | 1792 | 0 | 3 | 2 | 7 |
| 5:00 PM | 4 | 0 | 4 | 0 | 15 | 0 | 31 | 1 | 5 | 0 | 19 | 0 | 9 | 0 | 158 | 2 | 50 | 0 | 22 | 0 | 203 | 3 | 13 | 0 | 539 | 1886 | 0 | 0 | 2 | 0 |
| 5:15 PM | 5 | 0 | 1 | 0 | 9 | 0 | 29 | 1 | 4 | 0 | 15 | 0 | 12 | 0 | 151 | 1 | 40 | 0 | 19 | 0 | 181 | 1 | 5 | 0 | 474 | 1926 | 0 | 0 | 0 | 0 |
| 5:30 PM | 5 | 0 | 6 | 0 | 10 | 0 | 26 | 1 | 3 | 0 | 16 | 0 | 8 | 0 | 152 | 0 | 28 | 0 | 22 | 0 | 184 | 0 | 7 | 0 | 468 | 1962 | 0 | 0 | 1 | 0 |
| 5:45 PM | 9 | 0 | 3 | 0 | 11 | 0 | 19 | 1 | 2 | 0 | 11 | 0 | 10 | 0 | 137 | 1 | 37 | 0 | 19 | 0 | 219 | 2 | 14 | 0 | 495 | 1976 | 0 | 0 | 0 | 0 |
| Total | 89 | 5 | 67 | 2 | 158 | 2 | 314 | 13 | 89 | 2 | 196 | 5 | 156 | 5 | 1833 | 21 | 451 | 0 | 297 | 8 | 2480 | 26 | 171 | 6 | 6396 | 1976 | 8 | 25 | 35 | 87 |
| Total | 94 | | 69 | | 160 | | 327 | | 91 | | 201 | | 161 | | 1854 | | 451 | | 305 | | 2506 | | 177 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 36 | | 31 | | 57 | | 72 | | 22 | | 60 | | 47 | | 580 | | 146 | | 107 | | 741 | | 37 | | 1936 | | 2 | 6 | 9 | 46 |
| % HV | 14% | | 3% | | 4% | | 3% | | 5% | | 7% | | 2% | | 2% | | 0% | | 5% | | 1% | | 5% | | 2% | | | | | |
| PHF | 0.45 | | 0.48 | | 0.57 | | 1.13 | | 0.92 | | 1.88 | | 0.98 | | 1.17 | | 1.07 | | 0.76 | | 0.81 | | 0.71 | | 0.9 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| | |
|---|---|
| Project No. | 3483.01 |
| Location | Davenport Drive and Davidson Drive |
| Date | Tuesday May 17th, 2 |
| Weather | Clear |
| Surveyor | MIO |

| Street | Davidson Drive | | | | | | | | | | | | Davenport Drive | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Hourly | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | Totals | N/S | N/S | E/W | E/W |
| 7:00 AM | 10 | 0 | | | 2 | 0 | | | | | | | 12 | 1 | 11 | 0 | | | | | 4 | 0 | 8 | 0 | 48 | | | 0 | 1 | 1 |
| 7:15 AM | 9 | 1 | | | 3 | 0 | | | | | | | 9 | 1 | 6 | 0 | | | | | 1 | 0 | 2 | 0 | 32 | | | 0 | 0 | 0 |
| 7:30 AM | 7 | 0 | | | 0 | 0 | | | | | | | 13 | 1 | 4 | 0 | | | | | 1 | 0 | 6 | 1 | 33 | | | 0 | 0 | 5 |
| 7:45 AM | 7 | 0 | | | 3 | 1 | | | | | | | 16 | 1 | 9 | 1 | | | | | 1 | 1 | 3 | 0 | 43 | 156 | | 0 | 0 | 0 |
| 8:00 AM | 5 | 0 | | | 3 | 0 | | | | | | | 31 | 5 | 17 | 0 | | | | | 6 | 0 | 16 | 1 | 84 | 192 | | 0 | 1 | 0 |
| 8:15 AM | 6 | 0 | | | 4 | 1 | | | | | | | 24 | 0 | 7 | 0 | | | | | 5 | 0 | 15 | 1 | 63 | 223 | | 0 | 0 | 0 |
| 8:30 AM | 6 | 0 | | | 17 | 0 | | | | | | | 22 | 1 | 5 | 0 | | | | | 3 | 0 | 11 | 0 | 65 | 255 | | 0 | 0 | 0 |
| 8:45 AM | 3 | 1 | | | 5 | 0 | | | | | | | 3 | 0 | 6 | 0 | | | | | 6 | 0 | 1 | 0 | 25 | 237 | | 0 | 0 | 0 |
| Total | 53 | 2 | 0 | 0 | 37 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 10 | 65 | 1 | 0 | 0 | 0 | 0 | 27 | 1 | 62 | 3 | 393 | 255 | 0 | 0 | 2 | 6 |
| Total | 55 | | 0 | | 39 | | 0 | | 0 | | 0 | | 140 | | 66 | | 0 | | 0 | | 28 | | 65 | | | | | | | |
| Peak hour | 7:45 AM to 8:45 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 24 | | 0 | | 29 | | 0 | | 0 | | 0 | | 100 | | 39 | | 0 | | 0 | | 16 | | 47 | | 255 | | 0 | 0 | 1 | 0 |
| % HV | 0% | | #DIV/0! | | 7% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 7% | | 3% | | #DIV/0! | | #DIV/0! | | 6% | | 4% | | 5% | | | | | |
| PHF | 1.20 | | #DIV/0! | | 2.42 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.69 | | 0.57 | | #DIV/0! | | #DIV/0! | | 0.67 | | 0.69 | | 0.76 | | | | | |
| 2 Hr Factor | 2.29 | | #DIV/0! | | 1.34 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 1.40 | | 1.69 | | #DIV/0! | | #DIV/0! | | 1.75 | | 1.38 | | 1.54 | | | | | |

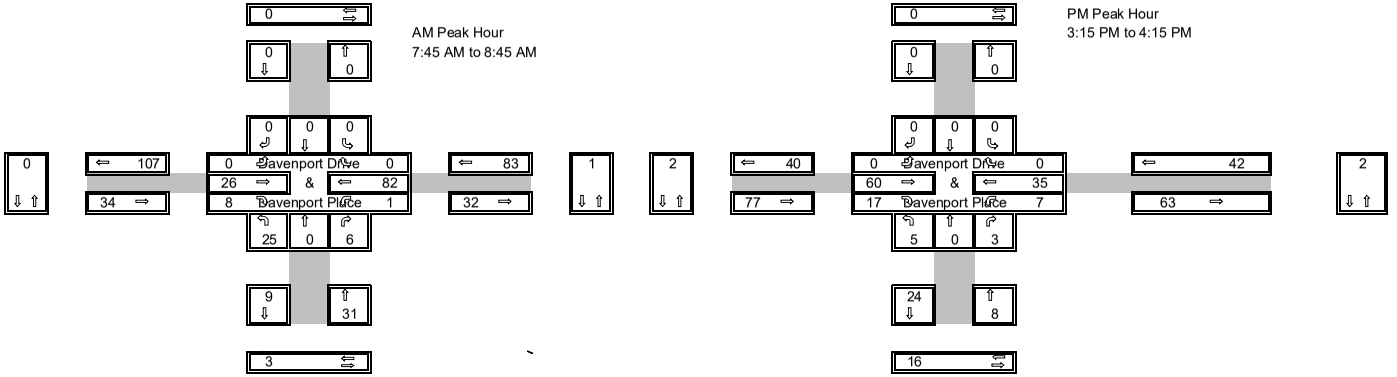
| Street | Davidson Drive | | | | | | | | | | | | Davenport Drive | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Hourly | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | Totals | N/S | N/S | E/W | E/W |
| 2:30 PM | 5 | 0 | | | 6 | 0 | | | | | | | 4 | 0 | 7 | 0 | | | | | 2 | 1 | 5 | 0 | 30 | | | 0 | 0 | 0 |
| 2:45 PM | 9 | 0 | | | 6 | 0 | | | | | | | 22 | 0 | 9 | 0 | | | | | 7 | 0 | 8 | 0 | 61 | | | 0 | 0 | 0 |
| 3:00 PM | 5 | 1 | | | 17 | 0 | | | | | | | 9 | 2 | 2 | 0 | | | | | 10 | 0 | 11 | 0 | 57 | | | 2 | 0 | 1 |
| 3:15 PM | 15 | 0 | | | 20 | 2 | | | | | | | 10 | 3 | 4 | 0 | | | | | 12 | 0 | 7 | 1 | 74 | 222 | | 2 | 0 | 1 |
| 3:30 PM | 8 | 0 | | | 18 | 1 | | | | | | | 4 | 1 | 6 | 0 | | | | | 9 | 1 | 8 | 0 | 56 | 248 | | 0 | 0 | 0 |
| 3:45 PM | 20 | 0 | | | 19 | 0 | | | | | | | 7 | 0 | 10 | 1 | | | | | 3 | 0 | 6 | 0 | 66 | 253 | | 0 | 0 | 0 |
| 4:00 PM | 14 | 0 | | | 11 | 1 | | | | | | | 10 | 1 | 6 | 1 | | | | | 12 | 0 | 9 | 1 | 66 | 262 | | 0 | 0 | 1 |
| 4:15 PM | 6 | 0 | | | 12 | 0 | | | | | | | 8 | 1 | 6 | 0 | | | | | 5 | 0 | 17 | 0 | 55 | 243 | | 0 | 0 | 0 |
| 4:30 PM | 14 | 0 | | | 18 | 0 | | | | | | | 10 | 1 | 4 | 0 | | | | | 8 | 0 | 9 | 0 | 64 | 251 | | 0 | 0 | 0 |
| 4:45 PM | 17 | 0 | | | 20 | 0 | | | | | | | 10 | 1 | 11 | 0 | | | | | 8 | 0 | 12 | 0 | 79 | 264 | | 0 | 0 | 2 |
| 5:00 PM | 9 | 0 | | | 15 | 0 | | | | | | | 8 | 1 | 1 | 0 | | | | | 18 | 0 | 10 | 0 | 62 | 260 | | 1 | 0 | 0 |
| 5:15 PM | 11 | 0 | | | 10 | 0 | | | | | | | 14 | 1 | 6 | 0 | | | | | 16 | 0 | 13 | 0 | 71 | 276 | | 1 | 0 | 1 |
| 5:30 PM | 10 | 0 | | | 15 | 0 | | | | | | | 14 | 2 | 8 | 0 | | | | | 15 | 0 | 15 | 0 | 79 | 291 | | 0 | 0 | 0 |
| 5:45 PM | 10 | 0 | | | 13 | 0 | | | | | | | 14 | 0 | 4 | 0 | | | | | 8 | 0 | 11 | 0 | 60 | 272 | | 0 | 0 | 0 |
| Total | 153 | 1 | 0 | 0 | 200 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 144 | 14 | 84 | 2 | 0 | 0 | 0 | 0 | 133 | 2 | 141 | 2 | 880 | 291 | 0 | 6 | 0 | 6 |
| Total | 154 | | 0 | | 204 | | 0 | | 0 | | 0 | | 158 | | 86 | | 0 | | 0 | | 135 | | 143 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 57 | | 0 | | 72 | | 0 | | 0 | | 0 | | 36 | | 28 | | 0 | | 0 | | 37 | | 32 | | 262 | | 0 | 2 | 0 | 2 |
| % HV | 0% | | #DIV/0! | | 6% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 14% | | 7% | | #DIV/0! | | #DIV/0! | | 3% | | 6% | | 5% | | | | | |
| PHF | 0.95 | | #DIV/0! | | 0.82 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.69 | | 1.75 | | #DIV/0! | | #DIV/0! | | 0.77 | | 1.00 | | 0.89 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| | |
|---|---|
| Project No. | 3483.01 |
| Location | Davenport Drive and Davenport Place |
| Date | Thursday May 19th, : |
| Weather | Clear |
| Surveyor | MIO |

| Street | Davenport Drive | | | | | | | | | | | | Davenport Place | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 7:00 AM | | | 2 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | | | 5 | 0 | | | 2 | 0 | | | | | | | 14 | | 0 | 0 | | 0 |
| 7:15 AM | | | 2 | 0 | 1 | 0 | 0 | 0 | 8 | 1 | | | 4 | 0 | | | 7 | 0 | | | | | | | 23 | | 0 | 0 | | 0 |
| 7:30 AM | | | 1 | 0 | 2 | 0 | 0 | 1 | 9 | 1 | | | 2 | 0 | | | 3 | 0 | | | | | | | 19 | | 0 | 0 | | 4 |
| 7:45 AM | | | 2 | 1 | 2 | 0 | 0 | 0 | 10 | 3 | | | 3 | 0 | | | 0 | 0 | | | | | | | 21 | 77 | 0 | 0 | | 1 |
| 8:00 AM | | | 4 | 0 | 2 | 0 | 0 | 1 | 25 | 4 | | | 12 | 1 | | | 2 | 0 | | | | | | | 51 | 114 | 0 | 0 | | 1 |
| 8:15 AM | | | 7 | 0 | 2 | 0 | 0 | 0 | 20 | 2 | | | 3 | 0 | | | 2 | 0 | | | | | | | 36 | 127 | 1 | 0 | | 1 |
| 8:30 AM | | | 12 | 0 | 2 | 0 | 0 | 0 | 17 | 1 | | | 6 | 0 | | | 2 | 0 | | | | | | | 40 | 148 | 0 | 0 | | 0 |
| 8:45 AM | | | 4 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | | | 3 | 0 | | | 1 | 0 | | | | | | | 14 | 141 | 0 | 0 | | 0 |
| Total | 0 | 0 | 34 | 1 | 14 | 0 | 0 | 2 | 95 | 14 | 0 | 0 | 38 | 1 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 218 | 148 | 1 | 0 | 0 | 7 |
| Total | 0 | | 35 | | 14 | | 2 | | 109 | | 0 | | 39 | | 0 | | 19 | | 0 | | 0 | | 0 | | | | | | | |
| Peak hour | 7:45 AM to 8:45 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 0 | | 26 | | 8 | | 1 | | 82 | | 0 | | 25 | | 0 | | 6 | | 0 | | 0 | | 0 | | 148 | | 1 | 0 | 0 | 3 |
| % HV | #DIV/0! | | 4% | | 0% | | 100% | | 12% | | #DIV/0! | | 4% | | #DIV/0! | | 0% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 9% | | | | | |
| PHF | #DIV/0! | | 1.63 | | 1.00 | | 0.25 | | 0.71 | | #DIV/0! | | 0.48 | | #DIV/0! | | 0.75 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.73 | | | | | |
| 2 Hr Factor | #DIV/0! | | 1.35 | | 1.75 | | 2.00 | | 1.33 | | #DIV/0! | | 1.56 | | #DIV/0! | | 3.17 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 1.47 | | | | | |

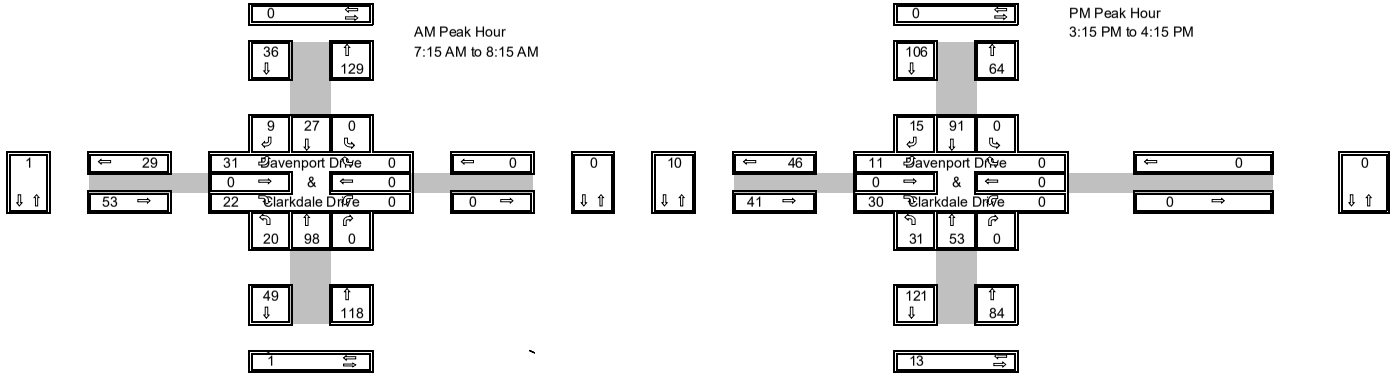
| Street | Davenport Drive | | | | | | | | | | | | Davenport Place | | | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | Hourly | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Totals | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | | N/S | N/S | E/W | E/W |
| 2:30 PM | | | 8 | 0 | 2 | 0 | 1 | 0 | 5 | 1 | | | 3 | 0 | | | 2 | 0 | | | | | | | 22 | | 0 | 0 | | 0 |
| 2:45 PM | | | 7 | 0 | 2 | 0 | 0 | 0 | 15 | 0 | | | 3 | 0 | | | 0 | 0 | | | | | | | 27 | | 0 | 0 | | 0 |
| 3:00 PM | | | 8 | 1 | 1 | 0 | 1 | 0 | 8 | 1 | | | 2 | 1 | | | 0 | 0 | | | | | | | 23 | | 0 | 0 | | 0 |
| 3:15 PM | | | 19 | 2 | 6 | 1 | 1 | 0 | 5 | 1 | | | 1 | 1 | | | 0 | 0 | | | | | | | 37 | 109 | 0 | 0 | | 3 |
| 3:30 PM | | | 11 | 0 | 5 | 0 | 1 | 0 | 10 | 2 | | | 1 | 0 | | | 0 | 1 | | | | | | | 31 | 118 | 1 | 0 | | 1 |
| 3:45 PM | | | 13 | 1 | 2 | 0 | 2 | 0 | 6 | 0 | | | 2 | 0 | | | 1 | 0 | | | | | | | 27 | 118 | 0 | 0 | | 6 |
| 4:00 PM | | | 13 | 1 | 3 | 0 | 3 | 0 | 9 | 2 | | | 0 | 0 | | | 0 | 1 | | | | | | | 32 | 127 | 1 | 2 | | 6 |
| 4:15 PM | | | 10 | 0 | 2 | 0 | 1 | 0 | 6 | 1 | | | 2 | 0 | | | 1 | 0 | | | | | | | 23 | 113 | 0 | 0 | | 3 |
| 4:30 PM | | | 8 | 0 | 1 | 0 | 6 | 0 | 4 | 1 | | | 3 | 0 | | | 0 | 0 | | | | | | | 23 | 105 | 0 | 0 | | 3 |
| 4:45 PM | | | 13 | 0 | 3 | 0 | 3 | 0 | 21 | 1 | | | 4 | 0 | | | 2 | 0 | | | | | | | 47 | 125 | 0 | 0 | | 0 |
| 5:00 PM | | | 14 | 0 | 5 | 0 | 1 | 0 | 7 | 2 | | | 6 | 0 | | | 0 | 0 | | | | | | | 35 | 128 | 0 | 2 | | 0 |
| 5:15 PM | | | 13 | 0 | 8 | 0 | 2 | 0 | 7 | 0 | | | 5 | 0 | | | 0 | 0 | | | | | | | 35 | 140 | 0 | 2 | | 0 |
| 5:30 PM | | | 14 | 0 | 2 | 0 | 1 | 0 | 9 | 2 | | | 3 | 0 | | | 0 | 0 | | | | | | | 31 | 148 | 0 | 0 | | 0 |
| 5:45 PM | | | 3 | 0 | 1 | 0 | 3 | 0 | 10 | 1 | | | 0 | 0 | | | 1 | 0 | | | | | | | 19 | 120 | 1 | 0 | | 5 |
| Total | 0 | 0 | 154 | 5 | 43 | 1 | 26 | 0 | 122 | 15 | 0 | 0 | 35 | 2 | 0 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 412 | 148 | 3 | 6 | 0 | 27 |
| Total | 0 | | 159 | | 44 | | 26 | | 137 | | 0 | | 37 | | 0 | | 9 | | 0 | | 0 | | 0 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 0 | | 60 | | 17 | | 7 | | 35 | | 0 | | 5 | | 0 | | 3 | | 0 | | 0 | | 0 | | 127 | | 2 | 2 | 0 | 16 |
| % HV | #DIV/0! | | 7% | | 6% | | 0% | | 14% | | #DIV/0! | | 20% | | #DIV/0! | | 67% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 10% | | | | | |
| PHF | #DIV/0! | | 0.71 | | 0.61 | | 1.75 | | 1.46 | | #DIV/0! | | 0.63 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.86 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Project No. 3483.01
Location Davenport Drive and Clarkdale Drive
Date Tuesday May 17th, 2
Weather Clear
Surveyor MIO

| Street | Davenport Drive | | | | | | | | | | | | Clarkdale Drive | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Hourly | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | Totals | N/S | N/S | E/W | E/W |
| 7:00 AM | 5 | 0 | | | 2 | 0 | | | | | | | 2 | 1 | 25 | 0 | | | | | 5 | 0 | 4 | 0 | 44 | | | 0 | 0 | 1 |
| 7:15 AM | 9 | 0 | | | 8 | 0 | | | | | | | 1 | 1 | 24 | 0 | | | | | 7 | 0 | 2 | 0 | 52 | | | 1 | 0 | 1 |
| 7:30 AM | 8 | 0 | | | 4 | 0 | | | | | | | 3 | 1 | 27 | 0 | | | | | 5 | 1 | 0 | 0 | 49 | | | 0 | 0 | 0 |
| 7:45 AM | 8 | 0 | | | 5 | 0 | | | | | | | 1 | 1 | 16 | 2 | | | | | 3 | 1 | 4 | 0 | 41 | 186 | | 0 | 0 | 0 |
| 8:00 AM | 6 | 0 | | | 4 | 1 | | | | | | | 8 | 4 | 29 | 0 | | | | | 8 | 2 | 3 | 0 | 65 | 207 | | 0 | 0 | 0 |
| 8:15 AM | 5 | 0 | | | 7 | 0 | | | | | | | 4 | 1 | 16 | 1 | | | | | 9 | 0 | 2 | 0 | 45 | 200 | | 0 | 0 | 0 |
| 8:30 AM | 8 | 0 | | | 1 | 0 | | | | | | | 7 | 1 | 22 | 0 | | | | | 11 | 0 | 2 | 0 | 52 | 203 | | 1 | 0 | 1 |
| 8:45 AM | 4 | 0 | | | 0 | 0 | | | | | | | 3 | 1 | 10 | 0 | | | | | 7 | 0 | 2 | 0 | 27 | 189 | | 0 | 0 | 0 |
| Total | 53 | 0 | 0 | 0 | 31 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 11 | 169 | 3 | 0 | 0 | 0 | 0 | 55 | 4 | 19 | 0 | 375 | 207 | 0 | 2 | 0 | 3 |
| Total | 53 | | 0 | | 32 | | 0 | | 0 | | 0 | | 40 | | 172 | | 0 | | 0 | | 59 | | 19 | | | | | | | |
| Peak hour | 7:15 AM to 8:15 AM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 31 | | 0 | | 22 | | 0 | | 0 | | 0 | | 20 | | 98 | | 0 | | 0 | | 27 | | 9 | | 207 | | 0 | 1 | 0 | 1 |
| % HV | 0% | | #DIV/0! | | 5% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 35% | | 2% | | #DIV/0! | | #DIV/0! | | 15% | | 0% | | 7% | | | | | |
| PHF | 1.29 | | #DIV/0! | | 1.10 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.42 | | 0.84 | | #DIV/0! | | #DIV/0! | | 0.68 | | 0.75 | | 0.8 | | | | | |
| 2 Hr Factor | 1.71 | | #DIV/0! | | 1.45 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 2.00 | | 1.76 | | #DIV/0! | | #DIV/0! | | 2.19 | | 2.11 | | 1.81 | | | | | |

| Street | Davenport Drive | | | | | | | | | | | | Clarkdale Drive | | | | | | | | | | Total | | Pedestrians | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Direction | Eastbound | | | | | | Westbound | | | | | | Northbound | | | | | | Southbound | | | | | | | | East | West | North | South |
| Movement | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | Left | | Thru | | Right | | | Hourly | Approach | Approach | Approach | Approach |
| start time | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | Car | HV | | Totals | N/S | N/S | E/W | E/W |
| 2:30 PM | 3 | 0 | | | 2 | 0 | | | | | | | 2 | 0 | 11 | 1 | | | | | 20 | 0 | 2 | 0 | 41 | | | 1 | 0 | 0 |
| 2:45 PM | 1 | 0 | | | 2 | 0 | | | | | | | 4 | 0 | 7 | 0 | | | | | 14 | 0 | 5 | 0 | 33 | | | 1 | 0 | 0 |
| 3:00 PM | 6 | 0 | | | 3 | 1 | | | | | | | 4 | 1 | 18 | 1 | | | | | 13 | 1 | 3 | 0 | 51 | | | 0 | 0 | 0 |
| 3:15 PM | 0 | 0 | | | 10 | 1 | | | | | | | 4 | 2 | 13 | 0 | | | | | 19 | 1 | 5 | 0 | 55 | 180 | | 4 | 0 | 3 |
| 3:30 PM | 3 | 0 | | | 5 | 1 | | | | | | | 10 | 1 | 14 | 1 | | | | | 34 | 0 | 1 | 0 | 70 | 209 | | 1 | 0 | 3 |
| 3:45 PM | 3 | 0 | | | 9 | 0 | | | | | | | 2 | 0 | 13 | 1 | | | | | 19 | 1 | 3 | 0 | 51 | 227 | | 2 | 0 | 5 |
| 4:00 PM | 5 | 0 | | | 4 | 0 | | | | | | | 10 | 2 | 11 | 0 | | | | | 17 | 0 | 6 | 0 | 55 | 231 | | 3 | 0 | 2 |
| 4:15 PM | 5 | 0 | | | 1 | 0 | | | | | | | 2 | 1 | 14 | 0 | | | | | 27 | 0 | 2 | 0 | 52 | 228 | | 1 | 0 | 1 |
| 4:30 PM | 4 | 0 | | | 5 | 0 | | | | | | | 6 | 1 | 13 | 0 | | | | | 30 | 0 | 5 | 0 | 64 | 222 | | 2 | 0 | 2 |
| 4:45 PM | 3 | 0 | | | 3 | 0 | | | | | | | 3 | 1 | 21 | 0 | | | | | 27 | 0 | 11 | 0 | 69 | 240 | | 0 | 0 | 0 |
| 5:00 PM | 3 | 0 | | | 3 | 0 | | | | | | | 9 | 1 | 26 | 0 | | | | | 28 | 0 | 9 | 0 | 79 | 264 | | 0 | 0 | 0 |
| 5:15 PM | 6 | 0 | | | 5 | 0 | | | | | | | 4 | 2 | 31 | 1 | | | | | 25 | 0 | 18 | 0 | 92 | 304 | | 1 | 0 | 0 |
| 5:30 PM | 4 | 0 | | | 6 | 0 | | | | | | | 3 | 1 | 23 | 0 | | | | | 32 | 0 | 4 | 0 | 73 | 313 | | 4 | 0 | 0 |
| 5:45 PM | 3 | 0 | | | 6 | 0 | | | | | | | 9 | 0 | 26 | 0 | | | | | 40 | 0 | 6 | 0 | 90 | 334 | | 3 | 0 | 0 |
| Total | 49 | 0 | 0 | 0 | 64 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 72 | 13 | 241 | 5 | 0 | 0 | 0 | 0 | 345 | 3 | 80 | 0 | 875 | 334 | 0 | 23 | 0 | 16 |
| Total | 49 | | 0 | | 67 | | 0 | | 0 | | 0 | | 85 | | 246 | | 0 | | 0 | | 348 | | 80 | | | | | | | |
| Peak hour | 3:15 PM to 4:15 PM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour Total | 11 | | 0 | | 30 | | 0 | | 0 | | 0 | | 31 | | 53 | | 0 | | 0 | | 91 | | 15 | | 231 | | 0 | 10 | 0 | 13 |
| % HV | 0% | | #DIV/0! | | 7% | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 16% | | 4% | | #DIV/0! | | #DIV/0! | | 2% | | 0% | | 5% | | | | | |
| PHF | 0.92 | | #DIV/0! | | 1.25 | | #DIV/0! | | #DIV/0! | | #DIV/0! | | 0.70 | | 0.88 | | #DIV/0! | | #DIV/0! | | 0.67 | | 3.75 | | 0.83 | | | | | |
| 2 Hr Factor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



## 3483.01 - Davidson Creek School

Date: Thursday, May 19th

Counter: JD, AF

| Time | Zone 1 | | | Zone 2 | | | Zone 3 | | | Zone 4 | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Veh | %Occ | Stalls Available | Veh | %Occ | Stalls Available | Veh | %Occ | Stalls Available | Veh | %Occ | Stalls Available | Veh | %Occ | Stalls Available |
| **7:00 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 6 | 120% | 0 | 10 | 14% | 61 |
| **7:15 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 6 | 120% | 0 | 10 | 14% | 61 |
| **7:30 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 5 | 100% | 0 | 9 | 13% | 62 |
| **7:45 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 1 | 4% | 25 | 5 | 100% | 0 | 8 | 11% | 63 |
| **8:00 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 5 | 100% | 0 | 9 | 13% | 62 |
| **8:15 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 1 | 4% | 25 | 5 | 100% | 0 | 8 | 11% | 63 |
| **8:30 AM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 4 | 80% | 1 | 8 | 11% | 63 |
| **8:45 AM** | 0 | 0% | 7 | 1 | 3% | 32 | 2 | 8% | 24 | 3 | 60% | 2 | 6 | 8% | 65 |
| **2:30 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 3 | 12% | 23 | 1 | 20% | 4 | 6 | 8% | 65 |
| **2:45 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 1 | 20% | 4 | 5 | 7% | 66 |
| **3:00 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 1 | 20% | 4 | 5 | 7% | 66 |
| **3:15 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 2 | 8% | 24 | 1 | 20% | 4 | 5 | 7% | 66 |
| **3:30 PM** | 1 | 14% | 6 | 2 | 6% | 31 | 2 | 8% | 24 | 1 | 20% | 4 | 6 | 8% | 65 |
| **3:45 PM** | 1 | 14% | 6 | 2 | 6% | 31 | 3 | 12% | 23 | 1 | 20% | 4 | 7 | 10% | 64 |
| **4:00 PM** | 1 | 14% | 6 | 2 | 6% | 31 | 3 | 12% | 23 | 2 | 40% | 3 | 8 | 11% | 63 |
| **4:15 PM** | 1 | 14% | 6 | 2 | 6% | 31 | 4 | 15% | 22 | 1 | 20% | 4 | 8 | 11% | 63 |
| **4:30 PM** | 1 | 14% | 6 | 2 | 6% | 31 | 4 | 15% | 22 | 1 | 20% | 4 | 8 | 11% | 63 |
| **4:45 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 4 | 15% | 22 | 1 | 20% | 4 | 7 | 10% | 64 |
| **5:00 PM** | 0 | 0% | 7 | 1 | 3% | 32 | 4 | 15% | 22 | 1 | 20% | 4 | 6 | 8% | 65 |
| **5:15 PM** | 1 | 14% | 6 | 3 | 9% | 30 | 4 | 15% | 22 | 1 | 20% | 4 | 9 | 13% | 62 |
| **5:30 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 4 | 15% | 22 | 1 | 20% | 4 | 7 | 10% | 64 |
| **5:45 PM** | 0 | 0% | 7 | 2 | 6% | 31 | 4 | 15% | 22 | 1 | 20% | 4 | 7 | 10% | 64 |
| **Max** | 1 | 14% | | 3 | 9% | | 4 | 15% | | 6 | 120% | | 10 | 14% | |

# APPENDIX B

## Synchro 9 Printouts

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 29 | 157 | 11 | 46 | 585 | 7 | 62 | 0 | 61 | 42 | 0 | 123 |
| Future Vol, veh/h | 29 | 157 | 11 | 46 | 585 | 7 | 62 | 0 | 61 | 42 | 0 | 123 |
| Conflicting Peds, #/hr | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 80 | 69 | 100 | 100 | 100 | 91 | 94 | 76 | 53 | 94 | 88 |
| Heavy Vehicles, % | 7 | 3 | 0 | 15 | 3 | 29 | 3 | 0 | 5 | 5 | 0 | 2 |
| Mvmt Flow | 32 | 196 | 16 | 46 | 585 | 7 | 68 | 0 | 80 | 79 | 0 | 140 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 587 | 0 | 0 | 198 | 0 | 0 | 649 | - | 102 | 843 | - | 297 |
| Stage 1 | - | - | - | - | - | - | 262 | - | - | 679 | - | - |
| Stage 2 | - | - | - | - | - | - | 387 | - | - | 164 | - | - |
| Critical Hdwy | 4.24 | - | - | 4.4 | - | - | 7.56 | - | 7 | 7.6 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Follow-up Hdwy | 2.27 | - | - | 2.35 | - | - | 3.53 | - | 3.35 | 3.55 | - | 3.32 |
| Pot Cap-1 Maneuver | 950 | - | - | 1282 | - | - | 353 | 0 | 924 | 252 | 0 | 699 |
| Stage 1 | - | - | - | - | - | - | 717 | 0 | - | 401 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 605 | 0 | - | 813 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 948 | - | - | 1280 | - | - | 267 | - | 921 | 217 | - | 697 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 267 | - | - | 217 | - | - |
| Stage 1 | - | - | - | - | - | - | 692 | - | - | 387 | - | - |
| Stage 2 | - | - | - | - | - | - | 466 | - | - | 716 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.2 | 0.6 | 15.6 | 18.5 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 267 | 921 | 948 | - | - | 1280 | - | - | 217 | 697 |
| HCM Lane V/C Ratio | 0.255 | 0.087 | 0.034 | - | - | 0.036 | - | - | 0.365 | 0.201 |
| HCM Control Delay (s) | 23 | 9.3 | 8.9 | - | - | 7.9 | - | - | 30.8 | 11.5 |
| HCM Lane LOS | C | A | A | - | - | A | - | - | D | B |
| HCM 95th %tile Q(veh) | 1 | 0.3 | 0.1 | - | - | 0.1 | - | - | 1.6 | 0.7 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 12 | 285 | 17 | 14 | 271 | 35 | 117 | 0 | 137 | 123 | 0 | 88 |
| Future Vol, veh/h | 12 | 285 | 17 | 14 | 271 | 35 | 117 | 0 | 137 | 123 | 0 | 88 |
| Conflicting Peds, #/hr | 2 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1200 | 1200 | - | 1200 | 0 | - | 900 | 0 | - | 900 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 79 | 100 | 88 | 100 | 73 | 98 | 94 | 90 | 93 | 94 | 96 |
| Heavy Vehicles, % | 0 | 1 | 29 | 14 | 6 | 9 | 3 | 0 | 1 | 0 | 0 | 2 |
| Mvmt Flow | 12 | 361 | 17 | 16 | 271 | 48 | 119 | 0 | 152 | 132 | 0 | 92 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 273 | 0 | 0 | 362 | 0 | 0 | 555 | - | 183 | 511 | - | 140 |
| Stage 1 | - | - | - | - | - | - | 386 | - | - | 305 | - | - |
| Stage 2 | - | - | - | - | - | - | 169 | - | - | 206 | - | - |
| Critical Hdwy | 4.1 | - | - | 4.38 | - | - | 7.56 | - | 6.92 | 7.5 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.56 | - | - | 6.5 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.56 | - | - | 6.5 | - | - |
| Follow-up Hdwy | 2.2 | - | - | 2.34 | - | - | 3.53 | - | 3.31 | 3.5 | - | 3.32 |
| Pot Cap-1 Maneuver | 1302 | - | - | 1111 | - | - | 412 | 0 | 831 | 450 | 0 | 882 |
| Stage 1 | - | - | - | - | - | - | 606 | 0 | - | 685 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 813 | 0 | - | 782 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1300 | - | - | 1109 | - | - | 361 | - | 829 | 360 | - | 879 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 361 | - | - | 360 | - | - |
| Stage 1 | - | - | - | - | - | - | 600 | - | - | 678 | - | - |
| Stage 2 | - | - | - | - | - | - | 716 | - | - | 631 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.4 | 14.5 | 16.2 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 361 | 829 | 1300 | - | - | 1109 | - | - | 360 | 879 |
| HCM Lane V/C Ratio | 0.331 | 0.184 | 0.009 | - | - | 0.014 | - | - | 0.367 | 0.104 |
| HCM Control Delay (s) | 19.8 | 10.3 | 7.8 | - | - | 8.3 | - | - | 20.7 | 9.6 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | C | A |
| HCM 95th %tile Q(veh) | 1.4 | 0.7 | 0 | - | - | 0 | - | - | 1.6 | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 24 | 29 | 100 | 39 | 16 | 47 |
| Future Vol, veh/h | 24 | 29 | 100 | 39 | 16 | 47 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 |
| 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 | 100 | 100 | 69 | 57 | 67 | 69 |
| Heavy Vehicles, % | 0 | 7 | 7 | 3 | 6 | 4 |
| Mvmt Flow | 24 | 29 | 145 | 68 | 24 | 68 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 418 | 59 | 93 | 0 | - | 0 |
| Stage 1 | 59 | - | - | - | - | - |
| Stage 2 | 359 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.27 | 4.17 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.363 | 2.263 | - | - | - |
| Pot Cap-1 Maneuver | 595 | 993 | 1471 | - | - | - |
| Stage 1 | 969 | - | - | - | - | - |
| Stage 2 | 711 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 533 | 992 | 1471 | - | - | - |
| Mov Cap-2 Maneuver | 533 | - | - | - | - | - |
| Stage 1 | 968 | - | - | - | - | - |
| Stage 2 | 638 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.4 | 5.2 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1471 | - | 714 | - | - |
| HCM Lane V/C Ratio | 0.099 | - | 0.074 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.4 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.9 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 26 | 8 | 1 | 82 | 25 | 6 |
| Future Vol, veh/h | 26 | 8 | 1 | 82 | 25 | 6 |
| Conflicting Peds, #/hr | 0 | 3 | 4 | 0 | 0 | 4 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 25 | 71 | 48 | 75 |
| Heavy Vehicles, % | 4 | 0 | 100 | 12 | 4 | 0 |
| Mvmt Flow | 26 | 8 | 4 | 115 | 52 | 8 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 38 | 0 | 157 | 38 |
| Stage 1 | - | - | - | - | 34 | - |
| Stage 2 | - | - | - | - | 123 | - |
| Critical Hdwy | - | - | 5.1 | - | 6.44 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.44 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.44 | - |
| Follow-up Hdwy | - | - | 3.1 | - | 3.536 | 3.3 |
| Pot Cap-1 Maneuver | - | - | 1119 | - | 830 | 1040 |
| Stage 1 | - | - | - | - | 983 | - |
| Stage 2 | - | - | - | - | 898 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1115 | - | 824 | 1033 |
| Mov Cap-2 Maneuver | - | - | - | - | 824 | - |
| Stage 1 | - | - | - | - | 980 | - |
| Stage 2 | - | - | - | - | 894 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.3 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 847 | - | - | 1115 | - |
| HCM Lane V/C Ratio | 0.071 | - | - | 0.004 | - |
| HCM Control Delay (s) | 9.6 | - | - | 8.2 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 31 | 22 | 20 | 98 | 27 | 9 |
| Future Vol, veh/h | 31 | 22 | 20 | 98 | 27 | 9 |
| Conflicting Peds, #/hr | 1 | 2 | 2 | 0 | 0 | 1 |
| 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 | 100 | 100 | 42 | 84 | 68 | 75 |
| Heavy Vehicles, % | 0 | 5 | 35 | 2 | 15 | 0 |
| Mvmt Flow | 31 | 22 | 48 | 117 | 40 | 12 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 261 | 50 | 54 | 0 | - | 0 |
| Stage 1 | 48 | - | - | - | - | - |
| Stage 2 | 213 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.25 | 4.45 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.345 | 2.515 | - | - | - |
| Pot Cap-1 Maneuver | 732 | 1010 | 1364 | - | - | - |
| Stage 1 | 980 | - | - | - | - | - |
| Stage 2 | 827 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 702 | 1007 | 1362 | - | - | - |
| Mov Cap-2 Maneuver | 702 | - | - | - | - | - |
| Stage 1 | 978 | - | - | - | - | - |
| Stage 2 | 794 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.8 | 2.2 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1362 | - | 803 | - | - |
| HCM Lane V/C Ratio | 0.035 | - | 0.066 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 9.8 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

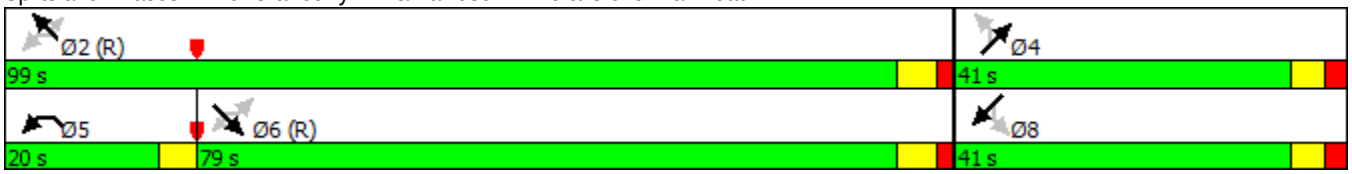
| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 33 | 395 | 70 | 113 | 612 | 44 | 36 | 9 | 66 | 148 | 92 | 51 |
| Future Volume (vph) | 33 | 395 | 70 | 113 | 612 | 44 | 36 | 9 | 66 | 148 | 92 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.99 | | 0.98 | 0.99 | 0.98 | | 0.99 | 0.99 | |
| Frt | | | 0.850 | | | 0.850 | | 0.883 | | | 0.955 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1845 | 3654 | 1468 | 1845 | 3725 | 1538 | 1667 | 1626 | 0 | 1827 | 1714 | 0 |
| Flt Permitted | 0.433 | | | 0.441 | | | 0.446 | | | 0.697 | | |
| Satd. Flow (perm) | 798 | 3654 | 1415 | 808 | 3725 | 1504 | 738 | 1626 | 0 | 1264 | 1714 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 121 | | | 44 | | 72 | | | 15 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 1 | | 7 | 7 | | 1 | 8 | | 7 | 7 | | 8 |
| Peak Hour Factor | 0.92 | 0.77 | 0.58 | 1.00 | 1.00 | 1.00 | 0.75 | 0.45 | 0.92 | 0.76 | 0.66 | 0.85 |
| Heavy Vehicles (%) | 3% | 4% | 10% | 3% | 2% | 5% | 14% | 0% | 2% | 4% | 4% | 8% |
| Adj. Flow (vph) | 36 | 513 | 121 | 113 | 612 | 44 | 48 | 20 | 72 | 195 | 139 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 36 | 513 | 121 | 113 | 612 | 44 | 48 | 92 | 0 | 195 | 199 | 0 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | 5 | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 5 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 7.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 12.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 79.0 | 79.0 | 79.0 | 20.0 | 99.0 | 99.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 56.4% | 56.4% | 56.4% | 14.3% | 70.7% | 70.7% | 29.3% | 29.3% | | 29.3% | 29.3% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | Min | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 88.8 | 88.8 | 88.8 | 103.0 | 101.0 | 101.0 | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.63 | 0.63 | 0.63 | 0.74 | 0.72 | 0.72 | 0.19 | 0.19 | | 0.19 | 0.19 | |
| v/c Ratio | 0.07 | 0.22 | 0.13 | 0.17 | 0.23 | 0.04 | 0.35 | 0.26 | | 0.83 | 0.60 | |
| Control Delay | 12.7 | 12.2 | 2.6 | 6.8 | 7.3 | 2.2 | 54.6 | 15.6 | | 81.9 | 55.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 12.7 | 12.2 | 2.6 | 6.8 | 7.3 | 2.2 | 54.6 | 15.6 | | 81.9 | 55.0 | |
| LOS | B | B | A | A | A | A | D | B | | F | D | |
| Approach Delay | | 10.5 | | | 7.0 | | | 29.0 | | | 68.3 | |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | A | | | C | | | E | |
| Queue Length 50th (m) | 3.8 | 30.0 | 0.0 | 8.4 | 27.1 | 0.0 | 12.3 | 4.8 | | 55.2 | 49.5 | |
| Queue Length 95th (m) | 10.6 | 39.4 | 0.4 | 17.7 | 42.2 | 4.3 | 19.9 | 1.1 | | 64.2 | 48.6 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 505 | 2316 | 941 | 709 | 2687 | 1097 | 181 | 454 | | 311 | 433 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.07 | 0.22 | 0.13 | 0.16 | 0.23 | 0.04 | 0.27 | 0.20 | | 0.63 | 0.46 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 64 (46%), Referenced to phase 2:NWTL and 6:SETL, Start of Green | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.83 | | | |
| Intersection Signal Delay: 22.0 | | Intersection LOS: C | |
| Intersection Capacity Utilization 84.9% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road



| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 88 | 386 | 52 | 39 | 289 | 24 | 24 | 0 | 53 | 7 | 0 | 66 |
| Future Vol, veh/h | 88 | 386 | 52 | 39 | 289 | 24 | 24 | 0 | 53 | 7 | 0 | 66 |
| Conflicting Peds, #/hr | 28 | 0 | 12 | 3 | 0 | 19 | 12 | 0 | 3 | 19 | 0 | 28 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 94 | 72 | 100 | 98 | 100 | 100 | 95 | 100 | 100 | 95 | 53 |
| Heavy Vehicles, % | 5 | 3 | 0 | 8 | 3 | 8 | 0 | 0 | 8 | 14 | 0 | 3 |
| Mvmt Flow | 88 | 411 | 72 | 39 | 295 | 24 | 24 | 0 | 53 | 7 | 0 | 125 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 323 | 0 | 0 | 423 | 0 | 0 | 852 | - | 236 | 801 | - | 203 |
| Stage 1 | - | - | - | - | - | - | 599 | - | - | 401 | - | - |
| Stage 2 | - | - | - | - | - | - | 253 | - | - | 400 | - | - |
| Critical Hdwy | 4.2 | - | - | 4.26 | - | - | 7.5 | - | 7.06 | 7.78 | - | 6.96 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Follow-up Hdwy | 2.25 | - | - | 2.28 | - | - | 3.5 | - | 3.38 | 3.64 | - | 3.33 |
| Pot Cap-1 Maneuver | 1212 | - | - | 1091 | - | - | 256 | 0 | 748 | 256 | 0 | 801 |
| Stage 1 | - | - | - | - | - | - | 460 | 0 | - | 565 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 735 | 0 | - | 566 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1183 | - | - | 1073 | - | - | 190 | - | 728 | 209 | - | 763 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 190 | - | - | 209 | - | - |
| Stage 1 | - | - | - | - | - | - | 421 | - | - | 511 | - | - |
| Stage 2 | - | - | - | - | - | - | 579 | - | - | 478 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.3 | 0.9 | 15.4 | 11.2 |
| HCM LOS | | | C | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 190 | 728 | 1183 | - | - | 1073 | - | - | 209 | 763 |
| HCM Lane V/C Ratio | 0.126 | 0.073 | 0.074 | - | - | 0.036 | - | - | 0.033 | 0.163 |
| HCM Control Delay (s) | 26.7 | 10.3 | 8.3 | - | - | 8.5 | - | - | 22.8 | 10.6 |
| HCM Lane LOS | D | B | A | - | - | A | - | - | C | B |
| HCM 95th %tile Q(veh) | 0.4 | 0.2 | 0.2 | - | - | 0.1 | - | - | 0.1 | 0.6 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 89 | 229 | 102 | 51 | 281 | 68 | 60 | 0 | 34 | 33 | 0 | 50 |
| Future Vol, veh/h | 89 | 229 | 102 | 51 | 281 | 68 | 60 | 0 | 34 | 33 | 0 | 50 |
| Conflicting Peds, #/hr | 5 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1200 | 1200 | - | 1200 | 0 | - | 900 | 0 | - | 900 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 97 | 72 | 100 | 98 | 98 | 77 | 88 | 87 | 71 | 100 | 87 | 78 |
| Heavy Vehicles, % | 0 | 7 | 1 | 0 | 2 | 0 | 7 | 0 | 12 | 12 | 0 | 4 |
| Mvmt Flow | 92 | 318 | 102 | 52 | 287 | 88 | 68 | 0 | 48 | 33 | 0 | 64 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 292 | 0 | 0 | 323 | 0 | 0 | 759 | - | 164 | 739 | - | 153 |
| Stage 1 | - | - | - | - | - | - | 507 | - | - | 396 | - | - |
| Stage 2 | - | - | - | - | - | - | 252 | - | - | 343 | - | - |
| Critical Hdwy | 4.1 | - | - | 4.1 | - | - | 7.64 | - | 7.14 | 7.74 | - | 6.98 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.64 | - | - | 6.74 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.64 | - | - | 6.74 | - | - |
| Follow-up Hdwy | 2.2 | - | - | 2.2 | - | - | 3.57 | - | 3.42 | 3.62 | - | 3.34 |
| Pot Cap-1 Maneuver | 1281 | - | - | 1248 | - | - | 287 | 0 | 821 | 288 | 0 | 859 |
| Stage 1 | - | - | - | - | - | - | 504 | 0 | - | 574 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 716 | 0 | - | 619 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1276 | - | - | 1248 | - | - | 241 | - | 818 | 247 | - | 852 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 241 | - | - | 247 | - | - |
| Stage 1 | - | - | - | - | - | - | 466 | - | - | 530 | - | - |
| Stage 2 | - | - | - | - | - | - | 632 | - | - | 541 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.4 | 1 | 19.1 | 13.7 |
| HCM LOS | | | C | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 241 | 818 | 1276 | - | - | 1248 | - | - | 247 | 852 |
| HCM Lane V/C Ratio | 0.283 | 0.059 | 0.072 | - | - | 0.042 | - | - | 0.134 | 0.075 |
| HCM Control Delay (s) | 25.7 | 9.7 | 8 | - | - | 8 | - | - | 21.8 | 9.6 |
| HCM Lane LOS | D | A | A | - | - | A | - | - | C | A |
| HCM 95th %tile Q(veh) | 1.1 | 0.2 | 0.2 | - | - | 0.1 | - | - | 0.5 | 0.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 57 | 72 | 36 | 28 | 37 | 32 |
| Future Vol, veh/h | 57 | 72 | 36 | 28 | 37 | 32 |
| Conflicting Peds, #/hr | 2 | 4 | 4 | 0 | 0 | 2 |
| 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 | 95 | 82 | 69 | 100 | 77 | 100 |
| Heavy Vehicles, % | 0 | 6 | 14 | 7 | 3 | 6 |
| Mvmt Flow | 60 | 88 | 52 | 28 | 48 | 32 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 202 | 72 | 84 | 0 | - | 0 |
| Stage 1 | 68 | - | - | - | - | - |
| Stage 2 | 134 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.26 | 4.24 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.354 | 2.326 | - | - | - |
| Pot Cap-1 Maneuver | 791 | 979 | 1440 | - | - | - |
| Stage 1 | 960 | - | - | - | - | - |
| Stage 2 | 897 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 757 | 972 | 1435 | - | - | - |
| Mov Cap-2 Maneuver | 757 | - | - | - | - | - |
| Stage 1 | 957 | - | - | - | - | - |
| Stage 2 | 861 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10 | 4.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1435 | - | 872 | - | - |
| HCM Lane V/C Ratio | 0.036 | - | 0.17 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 10 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.6 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 60 | 17 | 7 | 35 | 5 | 3 |
| Future Vol, veh/h | 60 | 17 | 7 | 35 | 5 | 3 |
| Conflicting Peds, #/hr | 0 | 18 | 18 | 0 | 18 | 18 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 71 | 61 | 100 | 100 | 63 | 86 |
| Heavy Vehicles, % | 7 | 6 | 0 | 14 | 20 | 67 |
| Mvmt Flow | 85 | 28 | 7 | 35 | 8 | 3 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 130 | 0 | 183 | 134 |
| Stage 1 | - | - | - | - | 116 | - |
| Stage 2 | - | - | - | - | 67 | - |
| Critical Hdwy | - | - | 4.1 | - | 6.6 | 6.87 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.6 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.6 | - |
| Follow-up Hdwy | - | - | 2.2 | - | 3.68 | 3.903 |
| Pot Cap-1 Maneuver | - | - | 1468 | - | 767 | 767 |
| Stage 1 | - | - | - | - | 866 | - |
| Stage 2 | - | - | - | - | 912 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1446 | - | 740 | 744 |
| Mov Cap-2 Maneuver | - | - | - | - | 740 | - |
| Stage 1 | - | - | - | - | 853 | - |
| Stage 2 | - | - | - | - | 894 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.3 | 9.9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 741 | - | - | 1446 | - |
| HCM Lane V/C Ratio | 0.015 | - | - | 0.005 | - |
| HCM Control Delay (s) | 9.9 | - | - | 7.5 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 30 | 31 | 53 | 91 | 15 |
| Future Vol, veh/h | 11 | 30 | 31 | 53 | 91 | 15 |
| Conflicting Peds, #/hr | 10 | 23 | 23 | 0 | 0 | 10 |
| 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 | 92 | 100 | 70 | 88 | 67 | 100 |
| Heavy Vehicles, % | 0 | 7 | 16 | 4 | 2 | 0 |
| Mvmt Flow | 12 | 30 | 44 | 60 | 136 | 15 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 325 | 189 | 174 | 0 | - | 0 |
| Stage 1 | 166 | - | - | - | - | - |
| Stage 2 | 159 | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.27 | 4.26 | - | - | - |
| Critical Hdwy Stg 1 | 6.1 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.363 | 2.344 | - | - | - |
| Pot Cap-1 Maneuver | 632 | 840 | 1322 | - | - | - |
| Stage 1 | 841 | - | - | - | - | - |
| Stage 2 | 848 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 598 | 808 | 1296 | - | - | - |
| Mov Cap-2 Maneuver | 598 | - | - | - | - | - |
| Stage 1 | 796 | - | - | - | - | - |
| Stage 2 | 811 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 3.3 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1296 | - | 734 | - | - |
| HCM Lane V/C Ratio | 0.034 | - | 0.057 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 10.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 107 | 741 | 37 | 47 | 580 | 146 | 36 | 31 | 57 | 72 | 22 | 60 |
| Future Volume (vph) | 107 | 741 | 37 | 47 | 580 | 146 | 36 | 31 | 57 | 72 | 22 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.97 | 1.00 | | 0.98 | 0.99 | 0.96 | | 0.96 | 0.98 | |
| Frt | | | 0.850 | | | 0.850 | | 0.909 | | | 0.893 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1810 | 3762 | 1538 | 1863 | 3725 | 1615 | 1667 | 1604 | 0 | 1845 | 1569 | 0 |
| Flt Permitted | 0.446 | | | 0.317 | | | 0.702 | | | 0.421 | | |
| Satd. Flow (perm) | 806 | 3762 | 1488 | 589 | 3725 | 1576 | 1160 | 1604 | 0 | 746 | 1569 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 52 | | | 146 | | 58 | | | 60 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 2 | | 6 | 6 | | 2 | 9 | | 46 | 46 | | 9 |
| Peak Hour Factor | 0.76 | 0.81 | 0.71 | 0.98 | 1.00 | 1.00 | 0.45 | 0.48 | 0.57 | 1.00 | 0.92 | 1.00 |
| Heavy Vehicles (%) | 5% | 1% | 5% | 2% | 2% | 0% | 14% | 3% | 4% | 3% | 5% | 7% |
| Adj. Flow (vph) | 141 | 915 | 52 | 48 | 580 | 146 | 80 | 65 | 100 | 72 | 24 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 915 | 52 | 48 | 580 | 146 | 80 | 165 | 0 | 72 | 84 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 102.5 | 102.5 | 102.5 | 102.5 | 102.5 | 102.5 | 14.5 | 14.5 | | 14.5 | 14.5 | |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.11 | 0.11 | | 0.11 | 0.11 | |
| v/c Ratio | 0.22 | 0.31 | 0.04 | 0.10 | 0.20 | 0.11 | 0.62 | 0.72 | | 0.87 | 0.37 | |
| Control Delay | 5.1 | 4.5 | 1.2 | 4.5 | 3.9 | 0.9 | 74.6 | 52.7 | | 124.2 | 23.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 5.1 | 4.5 | 1.2 | 4.5 | 3.9 | 0.9 | 74.6 | 52.7 | | 124.2 | 23.4 | |
| LOS | A | A | A | A | A | A | E | D | | F | C | |
| Approach Delay | | 4.4 | | | 3.4 | | | 59.9 | | | 69.9 | |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | A | | | A | | | E | | | E | |
| Queue Length 50th (m) | 7.9 | 28.1 | 0.0 | 2.4 | 15.9 | 0.0 | 21.1 | 28.3 | | 19.5 | 6.0 | |
| Queue Length 95th (m) | 15.0 | 40.1 | 1.9 | 7.3 | 27.4 | 5.3 | 17.3 | 17.7 | | #39.3 | 21.1 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 635 | 2966 | 1184 | 464 | 2937 | 1273 | 307 | 468 | | 197 | 460 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.22 | 0.31 | 0.04 | 0.10 | 0.20 | 0.11 | 0.26 | 0.35 | | 0.37 | 0.18 | |

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 104 (80%), Referenced to phase 2:NWTL and 6:SETL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15
* User Entered Value
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 29 | 307 | 11 | 46 | 880 | 7 | 62 | 0 | 61 | 42 | 0 | 123 |
| Future Vol, veh/h | 29 | 307 | 11 | 46 | 880 | 7 | 62 | 0 | 61 | 42 | 0 | 123 |
| Conflicting Peds, #/hr | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 91 | 80 | 69 | 100 | 100 | 100 | 91 | 94 | 76 | 53 | 94 | 88 |
| Heavy Vehicles, % | 7 | 3 | 0 | 15 | 3 | 29 | 3 | 0 | 5 | 5 | 0 | 2 |
| Mvmt Flow | 32 | 384 | 16 | 46 | 880 | 7 | 68 | 0 | 80 | 79 | 0 | 140 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 882 | 0 | 0 | 386 | 0 | 0 | 983 | - | 196 | 1232 | - | 444 |
| Stage 1 | - | - | - | - | - | - | 449 | - | - | 974 | - | - |
| Stage 2 | - | - | - | - | - | - | 534 | - | - | 258 | - | - |
| Critical Hdwy | 4.24 | - | - | 4.4 | - | - | 7.56 | - | 7 | 7.6 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Follow-up Hdwy | 2.27 | - | - | 2.35 | - | - | 3.53 | - | 3.35 | 3.55 | - | 3.32 |
| Pot Cap-1 Maneuver | 732 | - | - | 1081 | - | - | 202 | 0 | 803 | 130 | 0 | 561 |
| Stage 1 | - | - | - | - | - | - | 556 | 0 | - | 265 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 495 | 0 | - | 716 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 731 | - | - | 1079 | - | - | 141 | - | 800 | 109 | - | 559 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 141 | - | - | 109 | - | - |
| Stage 1 | - | - | - | - | - | - | 531 | - | - | 253 | - | - |
| Stage 2 | - | - | - | - | - | - | 355 | - | - | 615 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.7 | 0.4 | 29.5 | 43.9 |
| HCM LOS | | | D | E |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 141 | 800 | 731 | - | - | 1079 | - | - | 109 | 559 |
| HCM Lane V/C Ratio | 0.483 | 0.1 | 0.044 | - | - | 0.043 | - | - | 0.727 | 0.25 |
| HCM Control Delay (s) | 52.4 | 10 | 10.1 | - | - | 8.5 | - | - | 97.3 | 13.6 |
| HCM Lane LOS | F | B | B | - | - | A | - | - | F | B |
| HCM 95th %tile Q(veh) | 2.2 | 0.3 | 0.1 | - | - | 0.1 | - | - | 3.9 | 1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 65.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 0 | 137 | 295 | 0 | 208 |
| Future Vol, veh/h | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 0 | 137 | 295 | 0 | 208 |
| Conflicting Peds, #/hr | 2 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1200 | 1200 | - | 1200 | 0 | - | 900 | 0 | - | 900 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 79 | 100 | 88 | 100 | 73 | 98 | 94 | 90 | 93 | 94 | 96 |
| Heavy Vehicles, % | 0 | 1 | 29 | 14 | 6 | 9 | 3 | 0 | 1 | 0 | 0 | 2 |
| Mvmt Flow | 115 | 496 | 17 | 16 | 327 | 233 | 119 | 0 | 152 | 317 | 0 | 217 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 329 | 0 | 0 | 497 | 0 | 0 | 924 | - | 251 | 841 | - | 168 |
| Stage 1 | - | - | - | - | - | - | 727 | - | - | 361 | - | - |
| Stage 2 | - | - | - | - | - | - | 197 | - | - | 480 | - | - |
| Critical Hdwy | 4.1 | - | - | 4.38 | - | - | 7.56 | - | 6.92 | 7.5 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.56 | - | - | 6.5 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.56 | - | - | 6.5 | - | - |
| Follow-up Hdwy | 2.2 | - | - | 2.34 | - | - | 3.53 | - | 3.31 | 3.5 | - | 3.32 |
| Pot Cap-1 Maneuver | 1242 | - | - | 983 | - | - | 223 | 0 | 752 | ~ 261 | 0 | 847 |
| Stage 1 | - | - | - | - | - | - | 379 | 0 | - | 636 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 783 | 0 | - | 541 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1240 | - | - | 981 | - | - | 152 | - | 750 | ~ 190 | - | 844 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 152 | - | - | ~ 190 | - | - |
| Stage 1 | - | - | - | - | - | - | 344 | - | - | 576 | - | - |
| Stage 2 | - | - | - | - | - | - | 572 | - | - | 391 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 1.5 | 0.2 | 43 | 222.2 |
| HCM LOS | | | E | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 152 | 750 | 1240 | - | - | 981 | - | - | 190 | 844 |
| HCM Lane V/C Ratio | 0.785 | 0.203 | 0.093 | - | - | 0.016 | - | - | 1.669 | 0.257 |
| HCM Control Delay (s) | 83.9 | 11 | 8.2 | - | - | 8.7 | - | - | $ 366.7 | 10.7 |
| HCM Lane LOS | F | B | A | - | - | A | - | - | F | B |
| HCM 95th %tile Q(veh) | 5 | 0.8 | 0.3 | - | - | 0 | - | - | 21.4 | 1 |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 24 | 29 | 100 | 39 | 16 | 47 |
| Future Vol, veh/h | 24 | 29 | 100 | 39 | 16 | 47 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 |
| 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 | 100 | 100 | 69 | 57 | 67 | 69 |
| Heavy Vehicles, % | 0 | 7 | 7 | 3 | 6 | 4 |
| Mvmt Flow | 24 | 29 | 145 | 68 | 24 | 68 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 418 | 59 | 93 | 0 | - | 0 |
| Stage 1 | 59 | - | - | - | - | - |
| Stage 2 | 359 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.27 | 4.17 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.363 | 2.263 | - | - | - |
| Pot Cap-1 Maneuver | 595 | 993 | 1471 | - | - | - |
| Stage 1 | 969 | - | - | - | - | - |
| Stage 2 | 711 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 533 | 992 | 1471 | - | - | - |
| Mov Cap-2 Maneuver | 533 | - | - | - | - | - |
| Stage 1 | 968 | - | - | - | - | - |
| Stage 2 | 638 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.4 | 5.2 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1471 | - | 714 | - | - |
| HCM Lane V/C Ratio | 0.099 | - | 0.074 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.4 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | 0.2 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.9 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 26 | 8 | 1 | 82 | 25 | 6 |
| Future Vol, veh/h | 26 | 8 | 1 | 82 | 25 | 6 |
| Conflicting Peds, #/hr | 0 | 3 | 4 | 0 | 0 | 4 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 100 | 25 | 71 | 48 | 75 |
| Heavy Vehicles, % | 4 | 0 | 100 | 12 | 4 | 0 |
| Mvmt Flow | 26 | 8 | 4 | 115 | 52 | 8 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 38 | 0 | 157 | 38 |
| Stage 1 | - | - | - | - | 34 | - |
| Stage 2 | - | - | - | - | 123 | - |
| Critical Hdwy | - | - | 5.1 | - | 6.44 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.44 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.44 | - |
| Follow-up Hdwy | - | - | 3.1 | - | 3.536 | 3.3 |
| Pot Cap-1 Maneuver | - | - | 1119 | - | 830 | 1040 |
| Stage 1 | - | - | - | - | 983 | - |
| Stage 2 | - | - | - | - | 898 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1115 | - | 824 | 1033 |
| Mov Cap-2 Maneuver | - | - | - | - | 824 | - |
| Stage 1 | - | - | - | - | 980 | - |
| Stage 2 | - | - | - | - | 894 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.3 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 847 | - | - | 1115 | - |
| HCM Lane V/C Ratio | 0.071 | - | - | 0.004 | - |
| HCM Control Delay (s) | 9.6 | - | - | 8.2 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 31 | 22 | 20 | 98 | 27 | 9 |
| Future Vol, veh/h | 31 | 22 | 20 | 98 | 27 | 9 |
| Conflicting Peds, #/hr | 1 | 2 | 2 | 0 | 0 | 1 |
| 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 | 100 | 100 | 42 | 84 | 68 | 75 |
| Heavy Vehicles, % | 0 | 5 | 35 | 2 | 15 | 0 |
| Mvmt Flow | 31 | 22 | 48 | 117 | 40 | 12 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 261 | 50 | 54 | 0 | - | 0 |
| Stage 1 | 48 | - | - | - | - | - |
| Stage 2 | 213 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.25 | 4.45 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.345 | 2.515 | - | - | - |
| Pot Cap-1 Maneuver | 732 | 1010 | 1364 | - | - | - |
| Stage 1 | 980 | - | - | - | - | - |
| Stage 2 | 827 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 702 | 1007 | 1362 | - | - | - |
| Mov Cap-2 Maneuver | 702 | - | - | - | - | - |
| Stage 1 | 978 | - | - | - | - | - |
| Stage 2 | 794 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.8 | 2.2 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1362 | - | 803 | - | - |
| HCM Lane V/C Ratio | 0.035 | - | 0.066 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 9.8 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

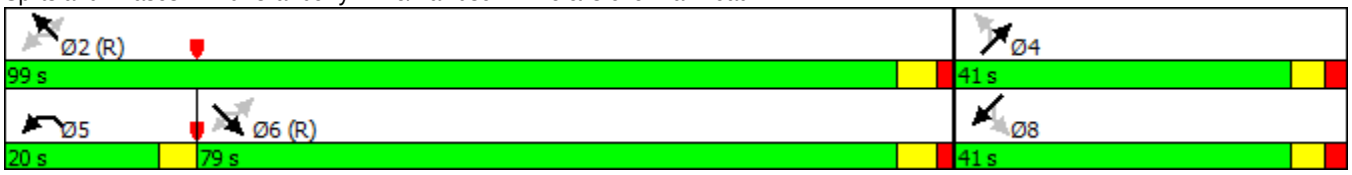
| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 33 | 454 | 70 | 113 | 704 | 44 | 36 | 9 | 66 | 148 | 92 | 51 |
| Future Volume (vph) | 33 | 454 | 70 | 113 | 704 | 44 | 36 | 9 | 66 | 148 | 92 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.99 | | 0.98 | 0.99 | 0.98 | | 0.99 | 0.99 | |
| Frt | | | 0.850 | | | 0.850 | | 0.883 | | | 0.955 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1845 | 3654 | 1468 | 1845 | 3725 | 1538 | 1667 | 1626 | 0 | 1827 | 1714 | 0 |
| Flt Permitted | 0.397 | | | 0.404 | | | 0.446 | | | 0.697 | | |
| Satd. Flow (perm) | 732 | 3654 | 1415 | 741 | 3725 | 1504 | 738 | 1626 | 0 | 1264 | 1714 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 121 | | | 44 | | 72 | | | 15 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 1 | | 7 | 7 | | 1 | 8 | | 7 | 7 | | 8 |
| Peak Hour Factor | 0.92 | 0.77 | 0.58 | 1.00 | 1.00 | 1.00 | 0.75 | 0.45 | 0.92 | 0.76 | 0.66 | 0.85 |
| Heavy Vehicles (%) | 3% | 4% | 10% | 3% | 2% | 5% | 14% | 0% | 2% | 4% | 4% | 8% |
| Adj. Flow (vph) | 36 | 590 | 121 | 113 | 704 | 44 | 48 | 20 | 72 | 195 | 139 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 36 | 590 | 121 | 113 | 704 | 44 | 48 | 92 | 0 | 195 | 199 | 0 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | 5 | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 5 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 7.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 12.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 79.0 | 79.0 | 79.0 | 20.0 | 99.0 | 99.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 56.4% | 56.4% | 56.4% | 14.3% | 70.7% | 70.7% | 29.3% | 29.3% | | 29.3% | 29.3% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | Min | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 88.8 | 88.8 | 88.8 | 103.0 | 101.0 | 101.0 | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.63 | 0.63 | 0.63 | 0.74 | 0.72 | 0.72 | 0.19 | 0.19 | | 0.19 | 0.19 | |
| v/c Ratio | 0.08 | 0.25 | 0.13 | 0.19 | 0.26 | 0.04 | 0.35 | 0.26 | | 0.83 | 0.60 | |
| Control Delay | 12.8 | 12.5 | 2.6 | 6.9 | 7.6 | 2.2 | 54.6 | 15.6 | | 81.9 | 55.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 12.8 | 12.5 | 2.6 | 6.9 | 7.6 | 2.2 | 54.6 | 15.6 | | 81.9 | 55.0 | |
| LOS | B | B | A | A | A | A | D | B | | F | D | |
| Approach Delay | | 10.9 | | | 7.2 | | | 29.0 | | | 68.3 | |

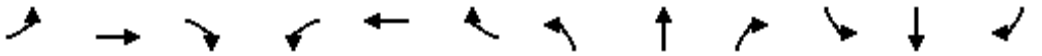
| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | A | | | C | | | E | |
| Queue Length 50th (m) | 3.8 | 35.4 | 0.0 | 8.4 | 32.2 | 0.0 | 12.3 | 4.8 | | 55.2 | 49.5 | |
| Queue Length 95th (m) | 10.7 | 45.6 | 0.4 | 17.7 | 49.4 | 4.3 | 19.9 | 1.1 | | 64.2 | 48.6 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 464 | 2316 | 941 | 667 | 2687 | 1097 | 181 | 454 | | 311 | 433 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.25 | 0.13 | 0.17 | 0.26 | 0.04 | 0.27 | 0.20 | | 0.63 | 0.46 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 0 (0%), Referenced to phase 2:NWTL and 6:SETL, Start of Green | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.83 | | | |
| Intersection Signal Delay: 21.2 | | Intersection LOS: C | |
| Intersection Capacity Utilization 84.9% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road





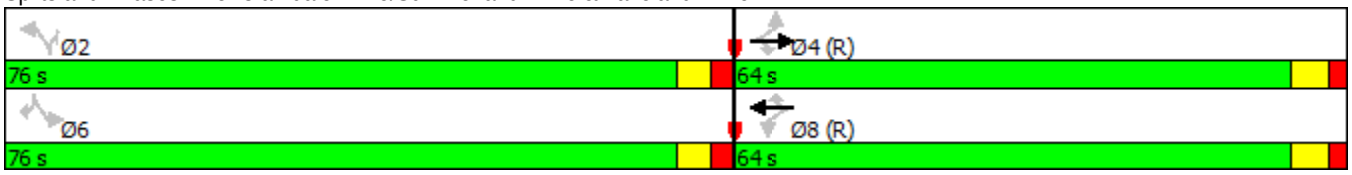
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 0 | 137 | 295 | 0 | 208 |
| Future Volume (vph) | 115 | 392 | 17 | 14 | 327 | 170 | 117 | 0 | 137 | 295 | 0 | 208 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | 0.0 | | 90.0 | 0.0 | | 90.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1900 | 3762 | 1473 | 1667 | 3585 | 1743 | 1845 | 0 | 1881 | 1900 | 0 | 1863 |
| Flt Permitted | 0.546 | | | 0.426 | | | | | | | | |
| Satd. Flow (perm) | 1033 | 3762 | 1438 | 709 | 3585 | 1695 | 1840 | 0 | 1854 | 1891 | 0 | 1832 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 23 | | | 233 | | | 152 | | | 217 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 364.5 | | | 407.5 | | | 160.5 | | | 164.1 | |
| Travel Time (s) | | 21.9 | | | 24.5 | | | 11.6 | | | 11.8 | |
| Confl. Peds. (#/hr) | 2 | | 1 | 1 | | 2 | 1 | | 1 | 2 | | 2 |
| Peak Hour Factor | 1.00 | 0.79 | 1.00 | 0.88 | 1.00 | 0.73 | 0.98 | 0.94 | 0.90 | 0.93 | 0.94 | 0.96 |
| Heavy Vehicles (%) | 0% | 1% | 29% | 14% | 6% | 9% | 3% | 0% | 1% | 0% | 0% | 2% |
| Adj. Flow (vph) | 115 | 496 | 17 | 16 | 327 | 233 | 119 | 0 | 152 | 317 | 0 | 217 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 115 | 496 | 17 | 16 | 327 | 233 | 119 | 0 | 152 | 317 | 0 | 217 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 |
| Minimum Split (s) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 76.0 | | 76.0 | 76.0 | | 76.0 |
| Total Split (%) | 45.7% | 45.7% | 45.7% | 45.7% | 45.7% | 45.7% | 54.3% | | 54.3% | 54.3% | | 54.3% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 57.5 | 57.5 | 57.5 | 57.5 | 57.5 | 57.5 | 69.5 | | 69.5 | 69.5 | | 69.5 |
| Actuated g/C Ratio | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.50 | | 0.50 | 0.50 | | 0.50 |
| v/c Ratio | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | | 0.15 | 0.34 | | 0.21 |
| Control Delay | 29.6 | 28.7 | 6.8 | 25.8 | 27.3 | 3.9 | 19.5 | | 3.1 | 22.6 | | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 29.6 | 28.7 | 6.8 | 25.8 | 27.3 | 3.9 | 19.5 | | 3.1 | 22.6 | | 2.8 |
| LOS | C | C | A | C | C | A | B | | A | C | | A |
| Approach Delay | | 28.3 | | | 17.8 | | | 10.3 | | | 14.6 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | C | | | B | | | B | | | B | |
| Queue Length 50th (m) | 22.0 | 48.6 | 0.0 | 2.8 | 30.6 | 0.0 | 18.2 | | 0.0 | 54.6 | | 0.0 |
| Queue Length 95th (m) | 38.1 | 53.4 | 4.0 | 7.8 | 41.5 | 5.2 | 30.2 | | 11.7 | 77.2 | | 13.4 |
| Internal Link Dist (m) | | 340.5 | | | 383.5 | | | 136.5 | | | 140.1 | |
| Turn Bay Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | | | 90.0 | | | 90.0 |
| Base Capacity (vph) | 424 | 1545 | 604 | 291 | 1472 | 833 | 913 | | 996 | 938 | | 1018 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | | 0.15 | 0.34 | | 0.21 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 78 (56%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 19.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 60.5% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 5: Clarkdale Drive/Summerland Drive & Lakeland Drive



| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 88 | 627 | 52 | 39 | 474 | 24 | 24 | 0 | 53 | 7 | 0 | 66 |
| Future Vol, veh/h | 88 | 627 | 52 | 39 | 474 | 24 | 24 | 0 | 53 | 7 | 0 | 66 |
| Conflicting Peds, #/hr | 28 | 0 | 12 | 3 | 0 | 19 | 12 | 0 | 3 | 19 | 0 | 28 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 94 | 72 | 100 | 98 | 100 | 100 | 95 | 100 | 100 | 95 | 53 |
| Heavy Vehicles, % | 5 | 3 | 0 | 8 | 3 | 8 | 0 | 0 | 8 | 14 | 0 | 3 |
| Mvmt Flow | 88 | 667 | 72 | 39 | 484 | 24 | 24 | 0 | 53 | 7 | 0 | 125 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 512 | 0 | 0 | 679 | 0 | 0 | 1203 | - | 365 | 1119 | - | 298 |
| Stage 1 | - | - | - | - | - | - | 855 | - | - | 590 | - | - |
| Stage 2 | - | - | - | - | - | - | 348 | - | - | 529 | - | - |
| Critical Hdwy | 4.2 | - | - | 4.26 | - | - | 7.5 | - | 7.06 | 7.78 | - | 6.96 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Follow-up Hdwy | 2.25 | - | - | 2.28 | - | - | 3.5 | - | 3.38 | 3.64 | - | 3.33 |
| Pot Cap-1 Maneuver | 1029 | - | - | 870 | - | - | 142 | 0 | 615 | 147 | 0 | 695 |
| Stage 1 | - | - | - | - | - | - | 323 | 0 | - | 432 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 647 | 0 | - | 472 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1005 | - | - | 856 | - | - | 100 | - | 599 | 116 | - | 662 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 100 | - | - | 116 | - | - |
| Stage 1 | - | - | - | - | - | - | 292 | - | - | 385 | - | - |
| Stage 2 | - | - | - | - | - | - | 489 | - | - | 386 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.9 | 0.7 | 24.2 | 13.1 |
| HCM LOS | | | C | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 100 | 599 | 1005 | - | - | 856 | - | - | 116 | 662 |
| HCM Lane V/C Ratio | 0.24 | 0.088 | 0.088 | - | - | 0.046 | - | - | 0.06 | 0.188 |
| HCM Control Delay (s) | 52 | 11.6 | 8.9 | - | - | 9.4 | - | - | 38 | 11.7 |
| HCM Lane LOS | F | B | A | - | - | A | - | - | E | B |
| HCM 95th %tile Q(veh) | 0.9 | 0.3 | 0.3 | - | - | 0.1 | - | - | 0.2 | 0.7 |

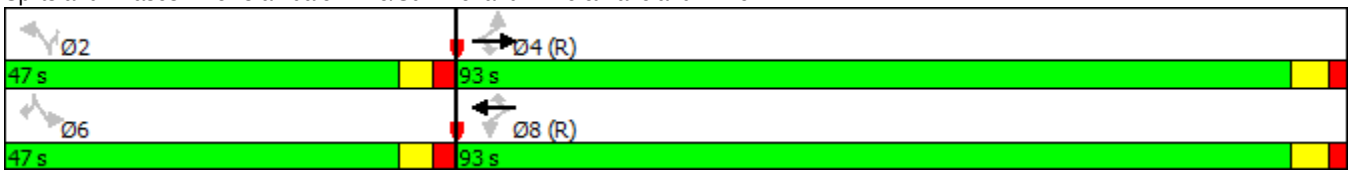
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 206 | 293 | 102 | 51 | 372 | 198 | 60 | 0 | 34 | 137 | 0 | 149 |
| Future Volume (vph) | 206 | 293 | 102 | 51 | 372 | 198 | 60 | 0 | 34 | 137 | 0 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | 0.0 | | 90.0 | 0.0 | | 90.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 0.99 | | 0.96 | | | | 0.99 | | | | | 0.98 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1900 | 3551 | 1881 | 1900 | 3725 | 1900 | 1776 | 0 | 1696 | 1696 | 0 | 1827 |
| Flt Permitted | 0.536 | | | 0.521 | | | | | | | | |
| Satd. Flow (perm) | 1007 | 3551 | 1808 | 990 | 3725 | 1900 | 1755 | 0 | 1696 | 1696 | 0 | 1784 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 102 | | | 257 | | | 48 | | | 191 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 364.5 | | | 407.5 | | | 160.5 | | | 164.1 | |
| Travel Time (s) | | 21.9 | | | 24.5 | | | 11.6 | | | 11.8 | |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Peak Hour Factor | 0.97 | 0.72 | 1.00 | 0.98 | 0.98 | 0.77 | 0.88 | 0.87 | 0.71 | 1.00 | 0.87 | 0.78 |
| Heavy Vehicles (%) | 0% | 7% | 1% | 0% | 2% | 0% | 7% | 0% | 12% | 12% | 0% | 4% |
| Adj. Flow (vph) | 212 | 407 | 102 | 52 | 380 | 257 | 68 | 0 | 48 | 137 | 0 | 191 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 212 | 407 | 102 | 52 | 380 | 257 | 68 | 0 | 48 | 137 | 0 | 191 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | | 10.0 | 10.0 | | 10.0 |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 | 47.0 | | 47.0 | 47.0 | | 47.0 |
| Total Split (%) | 66.4% | 66.4% | 66.4% | 66.4% | 66.4% | 66.4% | 33.6% | | 33.6% | 33.6% | | 33.6% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 86.5 | 86.5 | 86.5 | 86.5 | 86.5 | 86.5 | 40.5 | | 40.5 | 40.5 | | 40.5 |
| Actuated g/C Ratio | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.29 | | 0.29 | 0.29 | | 0.29 |
| v/c Ratio | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | | 0.09 | 0.28 | | 0.29 |
| Control Delay | 14.8 | 11.8 | 2.1 | 11.3 | 11.6 | 1.6 | 37.8 | | 9.8 | 40.4 | | 6.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 14.8 | 11.8 | 2.1 | 11.3 | 11.6 | 1.6 | 37.8 | | 9.8 | 40.4 | | 6.1 |
| LOS | B | B | A | B | B | A | D | | A | D | | A |
| Approach Delay | | 11.3 | | | 7.8 | | | 26.2 | | | 20.4 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | A | | | C | | | C | |
| Queue Length 50th (m) | 28.3 | 24.2 | 0.0 | 5.8 | 22.3 | 0.0 | 14.7 | | 0.0 | 31.0 | | 0.0 |
| Queue Length 95th (m) | 45.2 | 24.7 | 7.1 | 11.9 | 29.7 | 4.8 | 27.0 | | 5.7 | 50.3 | | 10.3 |
| Internal Link Dist (m) | | 340.5 | | | 383.5 | | | 136.5 | | | 140.1 | |
| Turn Bay Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | | | 90.0 | | | 90.0 |
| Base Capacity (vph) | 622 | 2194 | 1156 | 611 | 2301 | 1272 | 507 | | 524 | 490 | | 651 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | | 0.09 | 0.28 | | 0.29 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 12.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 57.9% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 5: Clarkdale Drive/Summerland Drive & Lakeland Drive



| Intersection | |
|---|---|
| Int Delay, s/veh | 6.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 57 | 72 | 36 | 28 | 37 | 32 |
| Future Vol, veh/h | 57 | 72 | 36 | 28 | 37 | 32 |
| Conflicting Peds, #/hr | 2 | 4 | 4 | 0 | 0 | 2 |
| 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 | 95 | 82 | 69 | 100 | 77 | 100 |
| Heavy Vehicles, % | 0 | 6 | 14 | 7 | 3 | 6 |
| Mvmt Flow | 60 | 88 | 52 | 28 | 48 | 32 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 202 | 72 | 84 | 0 | - | 0 |
| Stage 1 | 68 | - | - | - | - | - |
| Stage 2 | 134 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.26 | 4.24 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.354 | 2.326 | - | - | - |
| Pot Cap-1 Maneuver | 791 | 979 | 1440 | - | - | - |
| Stage 1 | 960 | - | - | - | - | - |
| Stage 2 | 897 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 757 | 972 | 1435 | - | - | - |
| Mov Cap-2 Maneuver | 757 | - | - | - | - | - |
| Stage 1 | 957 | - | - | - | - | - |
| Stage 2 | 861 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10 | 4.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1435 | - | 872 | - | - |
| HCM Lane V/C Ratio | 0.036 | - | 0.17 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 10 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.6 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 60 | 17 | 7 | 35 | 5 | 3 |
| Future Vol, veh/h | 60 | 17 | 7 | 35 | 5 | 3 |
| Conflicting Peds, #/hr | 0 | 18 | 18 | 0 | 18 | 18 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 71 | 61 | 100 | 100 | 63 | 86 |
| Heavy Vehicles, % | 7 | 6 | 0 | 14 | 20 | 67 |
| Mvmt Flow | 85 | 28 | 7 | 35 | 8 | 3 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 130 | 0 | 183 | 134 |
| Stage 1 | - | - | - | - | 116 | - |
| Stage 2 | - | - | - | - | 67 | - |
| Critical Hdwy | - | - | 4.1 | - | 6.6 | 6.87 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.6 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.6 | - |
| Follow-up Hdwy | - | - | 2.2 | - | 3.68 | 3.903 |
| Pot Cap-1 Maneuver | - | - | 1468 | - | 767 | 767 |
| Stage 1 | - | - | - | - | 866 | - |
| Stage 2 | - | - | - | - | 912 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1446 | - | 740 | 744 |
| Mov Cap-2 Maneuver | - | - | - | - | 740 | - |
| Stage 1 | - | - | - | - | 853 | - |
| Stage 2 | - | - | - | - | 894 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.3 | 9.9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 741 | - | - | 1446 | - |
| HCM Lane V/C Ratio | 0.015 | - | - | 0.005 | - |
| HCM Control Delay (s) | 9.9 | - | - | 7.5 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 30 | 31 | 53 | 91 | 15 |
| Future Vol, veh/h | 11 | 30 | 31 | 53 | 91 | 15 |
| Conflicting Peds, #/hr | 10 | 23 | 23 | 0 | 0 | 10 |
| 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 | 92 | 100 | 70 | 88 | 67 | 100 |
| Heavy Vehicles, % | 0 | 7 | 16 | 4 | 2 | 0 |
| Mvmt Flow | 12 | 30 | 44 | 60 | 136 | 15 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 325 | 189 | 174 | 0 | - | 0 |
| Stage 1 | 166 | - | - | - | - | - |
| Stage 2 | 159 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.27 | 4.26 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.363 | 2.344 | - | - | - |
| Pot Cap-1 Maneuver | 673 | 840 | 1322 | - | - | - |
| Stage 1 | 868 | - | - | - | - | - |
| Stage 2 | 875 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 624 | 808 | 1296 | - | - | - |
| Mov Cap-2 Maneuver | 624 | - | - | - | - | - |
| Stage 1 | 851 | - | - | - | - | - |
| Stage 2 | 828 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.1 | 3.3 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1296 | - | 745 | - | - |
| HCM Lane V/C Ratio | 0.034 | - | 0.056 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 10.1 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 107 | 852 | 37 | 47 | 667 | 146 | 36 | 31 | 57 | 72 | 22 | 60 |
| Future Volume (vph) | 107 | 852 | 37 | 47 | 667 | 146 | 36 | 31 | 57 | 72 | 22 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.97 | 1.00 | | 0.98 | 0.99 | 0.96 | | 0.96 | 0.98 | |
| Frt | | | 0.850 | | | 0.850 | | 0.909 | | | 0.893 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1810 | 3762 | 1538 | 1863 | 3725 | 1615 | 1667 | 1604 | 0 | 1845 | 1569 | 0 |
| Flt Permitted | 0.411 | | | 0.273 | | | 0.702 | | | 0.421 | | |
| Satd. Flow (perm) | 743 | 3762 | 1488 | 507 | 3725 | 1576 | 1160 | 1604 | 0 | 746 | 1569 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 52 | | | 146 | | 58 | | | 60 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 2 | | 6 | 6 | | 2 | 9 | | 46 | 46 | | 9 |
| Peak Hour Factor | 0.76 | 0.81 | 0.71 | 0.98 | 1.00 | 1.00 | 0.45 | 0.48 | 0.57 | 1.00 | 0.92 | 1.00 |
| Heavy Vehicles (%) | 5% | 1% | 5% | 2% | 2% | 0% | 14% | 3% | 4% | 3% | 5% | 7% |
| Adj. Flow (vph) | 141 | 1052 | 52 | 48 | 667 | 146 | 80 | 65 | 100 | 72 | 24 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1052 | 52 | 48 | 667 | 146 | 80 | 165 | 0 | 72 | 84 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 102.5 | 102.5 | 102.5 | 102.5 | 102.5 | 102.5 | 14.5 | 14.5 | | 14.5 | 14.5 | |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.11 | 0.11 | | 0.11 | 0.11 | |
| v/c Ratio | 0.24 | 0.35 | 0.04 | 0.12 | 0.23 | 0.11 | 0.62 | 0.72 | | 0.87 | 0.37 | |
| Control Delay | 5.3 | 4.7 | 1.2 | 4.8 | 4.1 | 0.9 | 74.6 | 52.7 | | 124.2 | 23.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 5.3 | 4.7 | 1.2 | 4.8 | 4.1 | 0.9 | 74.6 | 52.7 | | 124.2 | 23.4 | |
| LOS | A | A | A | A | A | A | E | D | | F | C | |
| Approach Delay | | 4.7 | | | 3.6 | | | 59.9 | | | 69.9 | |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | A | | | A | | | E | | | E | |
| Queue Length 50th (m) | 8.1 | 33.9 | 0.0 | 2.5 | 18.8 | 0.0 | 21.1 | 28.3 | | 19.5 | 6.0 | |
| Queue Length 95th (m) | 15.4 | 47.4 | 1.9 | 7.5 | 32.0 | 5.3 | 17.3 | 17.7 | | #39.3 | 21.1 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 585 | 2966 | 1184 | 399 | 2937 | 1273 | 307 | 468 | | 197 | 460 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.24 | 0.35 | 0.04 | 0.12 | 0.23 | 0.11 | 0.26 | 0.35 | | 0.37 | 0.18 | |

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 104 (80%), Referenced to phase 2:NWTL and 6:SETL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15
* User Entered Value
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road

| Intersection | |
|---|---|
| Int Delay, s/veh | 20.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 0 | 61 | 42 | 0 | 123 |
| Future Vol, veh/h | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 0 | 61 | 42 | 0 | 123 |
| Conflicting Peds, #/hr | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 93 | 56 | 83 | 100 | 100 | 52 | 96 | 100 | 100 | 96 | 100 |
| Heavy Vehicles, % | 7 | 3 | 0 | 15 | 3 | 29 | 3 | 0 | 5 | 5 | 0 | 2 |
| Mvmt Flow | 29 | 330 | 36 | 60 | 880 | 7 | 173 | 0 | 61 | 42 | 0 | 123 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 882 | 0 | 0 | 332 | 0 | 0 | 952 | - | 169 | 1227 | - | 444 |
| Stage 1 | - | - | - | - | - | - | 390 | - | - | 1002 | - | - |
| Stage 2 | - | - | - | - | - | - | 562 | - | - | 225 | - | - |
| Critical Hdwy | 4.24 | - | - | 4.4 | - | - | 7.56 | - | 7 | 7.6 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.56 | - | - | 6.6 | - | - |
| Follow-up Hdwy | 2.27 | - | - | 2.35 | - | - | 3.53 | - | 3.35 | 3.55 | - | 3.32 |
| Pot Cap-1 Maneuver | 732 | - | - | 1136 | - | - | 212 | 0 | 836 | 131 | 0 | 561 |
| Stage 1 | - | - | - | - | - | - | 603 | 0 | - | 254 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 476 | 0 | - | 749 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 731 | - | - | 1134 | - | - | ~ 153 | - | 833 | 113 | - | 559 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | ~ 153 | - | - | 113 | - | - |
| Stage 1 | - | - | - | - | - | - | 578 | - | - | 244 | - | - |
| Stage 2 | - | - | - | - | - | - | 351 | - | - | 665 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.7 | 0.5 | 129.3 | 23.7 |
| HCM LOS | | | F | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 153 | 833 | 731 | - | - | 1134 | - | - | 113 | 559 |
| HCM Lane V/C Ratio | 1.131 | 0.073 | 0.04 | - | - | 0.053 | - | - | 0.372 | 0.22 |
| HCM Control Delay (s) | 171.4 | 9.7 | 10.1 | - | - | 8.4 | - | - | 54.6 | 13.2 |
| HCM Lane LOS | F | A | B | - | - | A | - | - | F | B |
| HCM 95th %tile Q(veh) | 9.4 | 0.2 | 0.1 | - | - | 0.2 | - | - | 1.5 | 0.8 |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

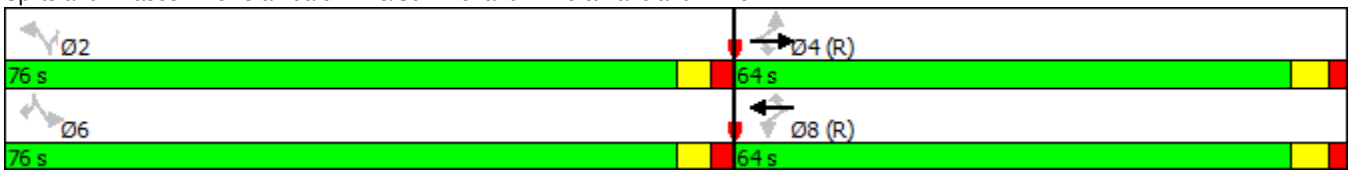
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 392 | 17 | 15 | 327 | 170 | 117 | 0 | 146 | 295 | 0 | 208 |
| Future Volume (vph) | 115 | 392 | 17 | 15 | 327 | 170 | 117 | 0 | 146 | 295 | 0 | 208 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | 0.0 | | 90.0 | 0.0 | | 90.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.99 | 1.00 | | 0.98 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1900 | 3762 | 1473 | 1681 | 3585 | 1743 | 1845 | 0 | 1881 | 1900 | 0 | 1863 |
| Flt Permitted | 0.546 | | | 0.426 | | | | | | | | |
| Satd. Flow (perm) | 1033 | 3762 | 1438 | 715 | 3585 | 1695 | 1840 | 0 | 1854 | 1891 | 0 | 1832 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 23 | | | 233 | | | 152 | | | 217 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 364.5 | | | 407.5 | | | 160.5 | | | 164.1 | |
| Travel Time (s) | | 21.9 | | | 24.5 | | | 11.6 | | | 11.8 | |
| Confl. Peds. (#/hr) | 2 | | 1 | 1 | | 2 | 1 | | 1 | 2 | | 2 |
| Peak Hour Factor | 1.00 | 0.79 | 1.00 | 0.94 | 1.00 | 0.73 | 0.98 | 0.95 | 0.96 | 0.93 | 0.95 | 0.96 |
| Heavy Vehicles (%) | 0% | 1% | 29% | 13% | 6% | 9% | 3% | 0% | 1% | 0% | 0% | 2% |
| Adj. Flow (vph) | 115 | 496 | 17 | 16 | 327 | 233 | 119 | 0 | 152 | 317 | 0 | 217 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 115 | 496 | 17 | 16 | 327 | 233 | 119 | 0 | 152 | 317 | 0 | 217 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | | 10.0 | 10.0 | | 10.0 |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 76.0 | | 76.0 | 76.0 | | 76.0 |
| Total Split (%) | 45.7% | 45.7% | 45.7% | 45.7% | 45.7% | 45.7% | 54.3% | | 54.3% | 54.3% | | 54.3% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 57.5 | 57.5 | 57.5 | 57.5 | 57.5 | 57.5 | 69.5 | | 69.5 | 69.5 | | 69.5 |
| Actuated g/C Ratio | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.50 | | 0.50 | 0.50 | | 0.50 |
| v/c Ratio | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | | 0.15 | 0.34 | | 0.21 |
| Control Delay | 29.6 | 28.7 | 6.8 | 25.7 | 27.3 | 3.9 | 19.5 | | 3.1 | 22.6 | | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 29.6 | 28.7 | 6.8 | 25.7 | 27.3 | 3.9 | 19.5 | | 3.1 | 22.6 | | 2.8 |
| LOS | C | C | A | C | C | A | B | | A | C | | A |
| Approach Delay | | 28.3 | | | 17.8 | | | 10.3 | | | 14.6 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | C | | | B | | | B | | | B | |
| Queue Length 50th (m) | 22.0 | 48.6 | 0.0 | 2.8 | 30.6 | 0.0 | 18.2 | | 0.0 | 54.6 | | 0.0 |
| Queue Length 95th (m) | 38.1 | 53.4 | 4.0 | 8.0 | 41.5 | 5.2 | 30.2 | | 11.7 | 77.2 | | 13.4 |
| Internal Link Dist (m) | | 340.5 | | | 383.5 | | | 136.5 | | | 140.1 | |
| Turn Bay Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | | | 90.0 | | | 90.0 |
| Base Capacity (vph) | 424 | 1545 | 604 | 293 | 1472 | 833 | 913 | | 996 | 938 | | 1018 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.27 | 0.32 | 0.03 | 0.05 | 0.22 | 0.28 | 0.13 | | 0.15 | 0.34 | | 0.21 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 72 (51%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 19.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 65.9% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 5: Clarkdale Drive/Summerland Drive & Lakeland Drive



| Intersection | |
|---|---|
| Int Delay, s/veh | 4.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 24 | 65 | 116 | 73 | 37 | 47 |
| Future Vol, veh/h | 24 | 65 | 116 | 73 | 37 | 47 |
| Conflicting Peds, #/hr | 1 | 0 | 0 | 0 | 0 | 1 |
| 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 | 100 | 40 | 73 | 45 | 36 | 73 |
| Heavy Vehicles, % | 0 | 3 | 6 | 1 | 3 | 4 |
| Mvmt Flow | 24 | 163 | 159 | 162 | 103 | 64 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 617 | 136 | 168 | 0 | - | 0 |
| Stage 1 | 136 | - | - | - | - | - |
| Stage 2 | 481 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.23 | 4.16 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.327 | 2.254 | - | - | - |
| Pot Cap-1 Maneuver | 457 | 910 | 1386 | - | - | - |
| Stage 1 | 895 | - | - | - | - | - |
| Stage 2 | 626 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 399 | 909 | 1386 | - | - | - |
| Mov Cap-2 Maneuver | 399 | - | - | - | - | - |
| Stage 1 | 894 | - | - | - | - | - |
| Stage 2 | 547 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11 | 3.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1386 | - | 781 | - | - |
| HCM Lane V/C Ratio | 0.115 | - | 0.239 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 11 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | 0.9 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.4 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 53 | 43 | 7 | 161 | 0 | 0 |
| Future Vol, veh/h | 53 | 43 | 7 | 161 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 100 | 25 | 25 | 64 | 25 | 25 |
| Heavy Vehicles, % | 3 | 2 | 2 | 10 | 2 | 2 |
| Mvmt Flow | 53 | 172 | 28 | 252 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 225 | 0 | 447 | 139 |
| Stage 1 | - | - | - | - | 139 | - |
| Stage 2 | - | - | - | - | 308 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1344 | - | 569 | 909 |
| Stage 1 | - | - | - | - | 888 | - |
| Stage 2 | - | - | - | - | 745 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1344 | - | 555 | 909 |
| Mov Cap-2 Maneuver | - | - | - | - | 555 | - |
| Stage 1 | - | - | - | - | 888 | - |
| Stage 2 | - | - | - | - | 727 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.8 | 0 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 1344 | - |
| HCM Lane V/C Ratio | - | - | - | 0.021 | - |
| HCM Control Delay (s) | 0 | - | - | 7.7 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | - | - | - | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 33.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 26 | 27 | 68 | 88 | 80 | 64 |
| Future Vol, veh/h | 26 | 27 | 68 | 88 | 80 | 64 |
| Conflicting Peds, #/hr | 0 | 3 | 4 | 0 | 0 | 4 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 32 | 25 | 79 | 35 | 27 |
| Heavy Vehicles, % | 4 | 0 | 1 | 11 | 1 | 0 |
| Mvmt Flow | 28 | 84 | 272 | 111 | 229 | 237 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 116 | 0 | 729 | 78 |
| Stage 1 | - | - | - | - | 74 | - |
| Stage 2 | - | - | - | - | 655 | - |
| Critical Hdwy | - | - | 4.11 | - | 6.41 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.41 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.41 | - |
| Follow-up Hdwy | - | - | 2.209 | - | 3.509 | 3.3 |
| Pot Cap-1 Maneuver | - | - | 1479 | - | 391 | 988 |
| Stage 1 | - | - | - | - | 951 | - |
| Stage 2 | - | - | - | - | 519 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1474 | - | 313 | 981 |
| Mov Cap-2 Maneuver | - | - | - | - | 313 | - |
| Stage 1 | - | - | - | - | 948 | - |
| Stage 2 | - | - | - | - | 417 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.7 | 63.9 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 479 | - | - | 1474 | - |
| HCM Lane V/C Ratio | 0.972 | - | - | 0.185 | - |
| HCM Control Delay (s) | 63.9 | - | - | 8 | 0 |
| HCM Lane LOS | F | - | - | A | A |
| HCM 95th %tile Q(veh) | 12.4 | - | - | 0.7 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 45 | 60 | 75 | 98 | 27 | 18 |
| Future Vol, veh/h | 45 | 60 | 75 | 98 | 27 | 18 |
| Conflicting Peds, #/hr | 1 | 2 | 2 | 0 | 0 | 1 |
| 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 | 56 | 35 | 28 | 84 | 68 | 38 |
| Heavy Vehicles, % | 0 | 2 | 9 | 2 | 15 | 0 |
| Mvmt Flow | 80 | 171 | 268 | 117 | 40 | 47 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 718 | 67 | 89 | 0 | - | 0 |
| Stage 1 | 65 | - | - | - | - | - |
| Stage 2 | 653 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.22 | 4.19 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.318 | 2.281 | - | - | - |
| Pot Cap-1 Maneuver | 399 | 997 | 1463 | - | - | - |
| Stage 1 | 963 | - | - | - | - | - |
| Stage 2 | 522 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 320 | 994 | 1461 | - | - | - |
| Mov Cap-2 Maneuver | 320 | - | - | - | - | - |
| Stage 1 | 961 | - | - | - | - | - |
| Stage 2 | 419 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.4 | 5.6 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1461 | - | 594 | - | - |
| HCM Lane V/C Ratio | 0.183 | - | 0.424 | - | - |
| HCM Control Delay (s) | 8 | 0 | 15.4 | - | - |
| HCM Lane LOS | A | A | C | - | - |
| HCM 95th %tile Q(veh) | 0.7 | - | 2.1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 11.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 112 | 10 | 0 | 45 | 9 | 0 |
| Future Vol, veh/h | 112 | 10 | 0 | 45 | 9 | 0 |
| 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 | 25 | 25 | 25 | 52 | 75 | 25 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 448 | 40 | 0 | 87 | 12 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 99 | 12 | - | 0 | - | 0 |
| Stage 1 | 12 | - | - | - | - | - |
| Stage 2 | 87 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | - | - |
| Pot Cap-1 Maneuver | 900 | 1069 | 0 | - | - | 0 |
| Stage 1 | 1011 | - | 0 | - | - | 0 |
| Stage 2 | 936 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 900 | 1069 | - | - | - | - |
| Mov Cap-2 Maneuver | 900 | - | - | - | - | - |
| Stage 1 | 1011 | - | - | - | - | - |
| Stage 2 | 936 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.4 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | EBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 912 | - |
| HCM Lane V/C Ratio | - | 0.535 | - |
| HCM Control Delay (s) | - | 13.4 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q(veh) | - | 3.3 | - |

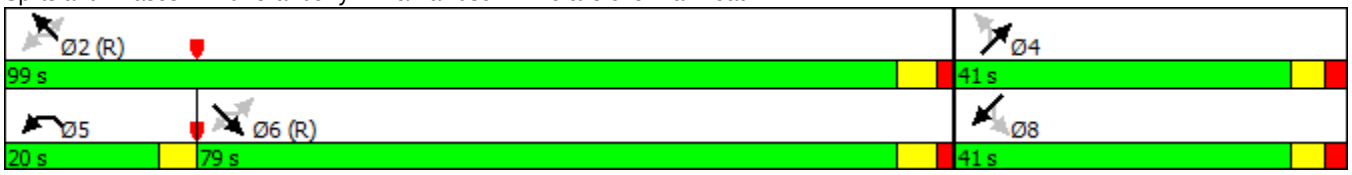
| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 33 | 454 | 70 | 113 | 704 | 72 | 36 | 11 | 66 | 160 | 92 | 51 |
| Future Volume (vph) | 33 | 454 | 70 | 113 | 704 | 72 | 36 | 11 | 66 | 160 | 92 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.99 | | 0.98 | 0.99 | 0.99 | | 0.99 | 0.99 | |
| Frt | | | 0.850 | | | 0.850 | | 0.892 | | | 0.955 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1845 | 3654 | 1468 | 1845 | 3725 | 1568 | 1667 | 1646 | 0 | 1827 | 1714 | 0 |
| Flt Permitted | 0.397 | | | 0.398 | | | 0.483 | | | 0.692 | | |
| Satd. Flow (perm) | 732 | 3654 | 1415 | 730 | 3725 | 1533 | 800 | 1646 | 0 | 1255 | 1714 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 121 | | | 141 | | 72 | | | 15 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 1 | | 7 | 7 | | 1 | 8 | | 7 | 7 | | 8 |
| Peak Hour Factor | 0.92 | 0.77 | 0.58 | 1.00 | 1.00 | 0.51 | 0.75 | 0.39 | 0.92 | 0.66 | 0.66 | 0.85 |
| Heavy Vehicles (%) | 3% | 4% | 10% | 3% | 2% | 3% | 14% | 0% | 2% | 4% | 4% | 8% |
| Adj. Flow (vph) | 36 | 590 | 121 | 113 | 704 | 141 | 48 | 28 | 72 | 242 | 139 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 36 | 590 | 121 | 113 | 704 | 141 | 48 | 100 | 0 | 242 | 199 | 0 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | 5 | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 5 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 7.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 12.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 79.0 | 79.0 | 79.0 | 20.0 | 99.0 | 99.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 56.4% | 56.4% | 56.4% | 14.3% | 70.7% | 70.7% | 29.3% | 29.3% | | 29.3% | 29.3% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | Min | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 84.3 | 84.3 | 84.3 | 98.8 | 96.8 | 96.8 | 30.2 | 30.2 | | 30.2 | 30.2 | |
| Actuated g/C Ratio | 0.60 | 0.60 | 0.60 | 0.71 | 0.69 | 0.69 | 0.22 | 0.22 | | 0.22 | 0.22 | |
| v/c Ratio | 0.08 | 0.27 | 0.13 | 0.20 | 0.27 | 0.13 | 0.28 | 0.24 | | 0.90 | 0.52 | |
| Control Delay | 14.2 | 14.3 | 2.7 | 8.0 | 9.0 | 1.5 | 48.5 | 16.2 | | 86.1 | 49.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 14.2 | 14.3 | 2.7 | 8.0 | 9.0 | 1.5 | 48.5 | 16.2 | | 86.1 | 49.0 | |
| LOS | B | B | A | A | A | A | D | B | | F | D | |
| Approach Delay | | 12.4 | | | 7.8 | | | 26.7 | | | 69.4 | |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | A | | | C | | | E | |
| Queue Length 50th (m) | 4.4 | 40.5 | 0.0 | 10.0 | 38.1 | 0.0 | 11.5 | 6.4 | | 67.6 | 46.7 | |
| Queue Length 95th (m) | 10.7 | 45.6 | 0.4 | 17.7 | 49.4 | 0.0 | 19.7 | 0.0 | | 67.7 | 48.6 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 441 | 2201 | 900 | 638 | 2575 | 1103 | 197 | 459 | | 309 | 433 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.27 | 0.13 | 0.18 | 0.27 | 0.13 | 0.24 | 0.22 | | 0.78 | 0.46 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 64 (46%), Referenced to phase 2:NWTL and 6:SETL, Start of Green | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.90 | | | |
| Intersection Signal Delay: 22.4 | | Intersection LOS: C | |
| Intersection Capacity Utilization 84.9% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

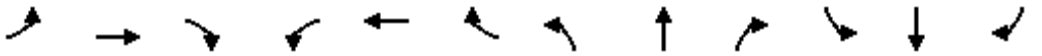
* User Entered Value

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road



# 1: Davenport Drive/Summerwood Drive & Lakeland Drive
## 2021 Total w/ Improvements

AM Peak Hour



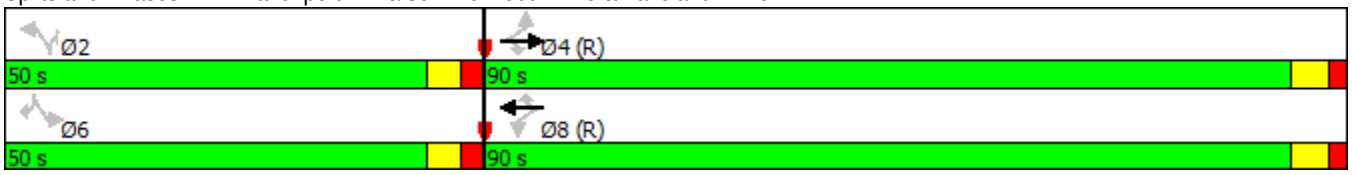
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 0 | 61 | 42 | 0 | 123 |
| Future Volume (vph) | 29 | 307 | 20 | 50 | 880 | 7 | 90 | 0 | 61 | 42 | 0 | 123 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 115.0 | 120.0 | | 115.0 | 0.0 | | 30.0 | 0.0 | | 45.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.97 | 1.00 | | 0.97 | 1.00 | | 0.98 | 1.00 | | 0.98 |
| Frt | | | | | | | | | 0.850 | | | 0.850 |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1776 | 3689 | 1900 | 1652 | 3689 | 1473 | 1845 | 0 | 1538 | 1810 | 0 | 1583 |
| Flt Permitted | 0.290 | | | 0.561 | | | | | | | | |
| Satd. Flow (perm) | 514 | 3689 | 1848 | 922 | 3689 | 1432 | 1836 | 0 | 1513 | 1801 | 0 | 1557 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 36 | | | 23 | | | 61 | | | 123 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 810.1 | | | 384.2 | | | 224.5 | | | 173.1 | |
| Travel Time (s) | | 48.6 | | | 23.1 | | | 16.2 | | | 12.5 | |
| Confl. Peds. (#/hr) | 2 | | 2 | 2 | | 2 | 2 | | 2 | 2 | | 2 |
| Peak Hour Factor | 1.00 | 0.93 | 0.56 | 0.83 | 1.00 | 1.00 | 0.52 | 0.96 | 1.00 | 1.00 | 0.96 | 1.00 |
| Heavy Vehicles (%) | 7% | 3% | 0% | 15% | 3% | 29% | 3% | 0% | 5% | 5% | 0% | 2% |
| Adj. Flow (vph) | 29 | 330 | 36 | 60 | 880 | 7 | 173 | 0 | 61 | 42 | 0 | 123 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 29 | 330 | 36 | 60 | 880 | 7 | 173 | 0 | 61 | 42 | 0 | 123 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 |
| Minimum Split (s) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 50.0 | | 50.0 | 50.0 | | 50.0 |
| Total Split (%) | 64.3% | 64.3% | 64.3% | 64.3% | 64.3% | 64.3% | 35.7% | | 35.7% | 35.7% | | 35.7% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 83.5 | 83.5 | 83.5 | 83.5 | 83.5 | 83.5 | 43.5 | | 43.5 | 43.5 | | 43.5 |
| Actuated g/C Ratio | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.31 | | 0.31 | 0.31 | | 0.31 |
| v/c Ratio | 0.09 | 0.15 | 0.03 | 0.11 | 0.40 | 0.01 | 0.30 | | 0.12 | 0.08 | | 0.22 |
| Control Delay | 13.1 | 12.7 | 3.5 | 12.9 | 15.6 | 0.3 | 38.6 | | 8.6 | 34.7 | | 6.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 13.1 | 12.7 | 3.5 | 12.9 | 15.6 | 0.3 | 38.6 | | 8.6 | 34.7 | | 6.6 |
| LOS | B | B | A | B | B | A | D | | A | C | | A |
| Approach Delay | | 11.9 | | | 15.4 | | | 30.7 | | | 13.8 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | B | | | C | | | B | |
| Queue Length 50th (m) | 3.5 | 20.3 | 0.0 | 7.2 | 64.9 | 0.0 | 38.4 | | 0.0 | 8.7 | | 0.0 |
| Queue Length 95th (m) | 8.7 | 27.6 | 1.4 | 13.1 | 78.6 | 0.4 | 32.1 | | 10.9 | 18.2 | | 15.0 |
| Internal Link Dist (m) | | 786.1 | | | 360.2 | | | 200.5 | | | 149.1 | |
| Turn Bay Length (m) | 120.0 | | 115.0 | 120.0 | | 115.0 | | | 30.0 | | | 45.0 |
| Base Capacity (vph) | 306 | 2200 | 1116 | 549 | 2200 | 863 | 570 | | 512 | 559 | | 568 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.09 | 0.15 | 0.03 | 0.11 | 0.40 | 0.01 | 0.30 | | 0.12 | 0.08 | | 0.22 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 51 (36%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.40 | | | |
| Intersection Signal Delay: 16.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 60.6% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 1: Davenport Drive/Summerwood Drive & Lakeland Drive



| Intersection | |
|---|---|
| Intersection Delay, s/veh | 16.1 |
| Intersection LOS | C |

| Movement | EBU | EBT | EBR | WBU | WBL | WBT | NBU | NBL | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 26 | 27 | 0 | 68 | 88 | 0 | 80 | 64 |
| Future Vol, veh/h | 0 | 26 | 27 | 0 | 68 | 88 | 0 | 80 | 64 |
| Peak Hour Factor | 0.92 | 0.93 | 0.32 | 0.92 | 0.25 | 0.79 | 0.92 | 0.35 | 0.27 |
| Heavy Vehicles, % | 2 | 4 | 0 | 2 | 1 | 11 | 2 | 1 | 0 |
| Mvmt Flow | 0 | 28 | 84 | 0 | 272 | 111 | 0 | 229 | 237 |
| Number of Lanes | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 9.8 | 15.9 | 17.8 |
| HCM LOS | A | C | C |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|---|---|---|---|
| Vol Left, % | 56% | 0% | 44% |
| Vol Thru, % | 0% | 49% | 56% |
| Vol Right, % | 44% | 51% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 144 | 53 | 156 |
| LT Vol | 80 | 0 | 68 |
| Through Vol | 0 | 26 | 88 |
| RT Vol | 64 | 27 | 0 |
| Lane Flow Rate | 466 | 112 | 383 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.664 | 0.174 | 0.583 |
| Departure Headway (Hd) | 5.136 | 5.571 | 5.475 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 703 | 643 | 659 |
| Service Time | 3.169 | 3.618 | 3.509 |
| HCM Lane V/C Ratio | 0.663 | 0.174 | 0.581 |
| HCM Control Delay | 17.8 | 9.8 | 15.9 |
| HCM Lane LOS | C | A | C |
| HCM 95th-tile Q | 5.1 | 0.6 | 3.8 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 0 | 53 | 7 | 0 | 66 |
| Future Vol, veh/h | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 0 | 53 | 7 | 0 | 66 |
| Conflicting Peds, #/hr | 28 | 0 | 12 | 3 | 0 | 19 | 12 | 0 | 3 | 19 | 0 | 28 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Yield | - | - | Yield | - | - | Yield | - | - | Yield |
| Storage Length | 1200 | - | 1150 | 1200 | - | 1150 | 0 | - | 300 | 0 | - | 450 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 94 | 97 | 100 | 98 | 100 | 100 | 97 | 100 | 100 | 97 | 53 |
| Heavy Vehicles, % | 5 | 3 | 0 | 8 | 3 | 8 | 0 | 0 | 8 | 14 | 0 | 3 |
| Mvmt Flow | 88 | 667 | 72 | 39 | 484 | 24 | 25 | 0 | 53 | 7 | 0 | 125 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 512 | 0 | 0 | 679 | 0 | 0 | 1203 | - | 365 | 1119 | - | 298 |
| Stage 1 | - | - | - | - | - | - | 855 | - | - | 590 | - | - |
| Stage 2 | - | - | - | - | - | - | 348 | - | - | 529 | - | - |
| Critical Hdwy | 4.2 | - | - | 4.26 | - | - | 7.5 | - | 7.06 | 7.78 | - | 6.96 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.5 | - | - | 6.78 | - | - |
| Follow-up Hdwy | 2.25 | - | - | 2.28 | - | - | 3.5 | - | 3.38 | 3.64 | - | 3.33 |
| Pot Cap-1 Maneuver | 1029 | - | - | 870 | - | - | 142 | 0 | 615 | 147 | 0 | 695 |
| Stage 1 | - | - | - | - | - | - | 323 | 0 | - | 432 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 647 | 0 | - | 472 | 0 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1005 | - | - | 856 | - | - | 100 | - | 599 | 116 | - | 662 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 100 | - | - | 116 | - | - |
| Stage 1 | - | - | - | - | - | - | 292 | - | - | 385 | - | - |
| Stage 2 | - | - | - | - | - | - | 489 | - | - | 386 | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.9 | 0.7 | 24.7 | 13.1 |
| HCM LOS | | | C | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 100 | 599 | 1005 | - | - | 856 | - | - | 116 | 662 |
| HCM Lane V/C Ratio | 0.25 | 0.088 | 0.088 | - | - | 0.046 | - | - | 0.06 | 0.188 |
| HCM Control Delay (s) | 52.6 | 11.6 | 8.9 | - | - | 9.4 | - | - | 38 | 11.7 |
| HCM Lane LOS | F | B | A | - | - | A | - | - | E | B |
| HCM 95th %tile Q(veh) | 0.9 | 0.3 | 0.3 | - | - | 0.1 | - | - | 0.2 | 0.7 |

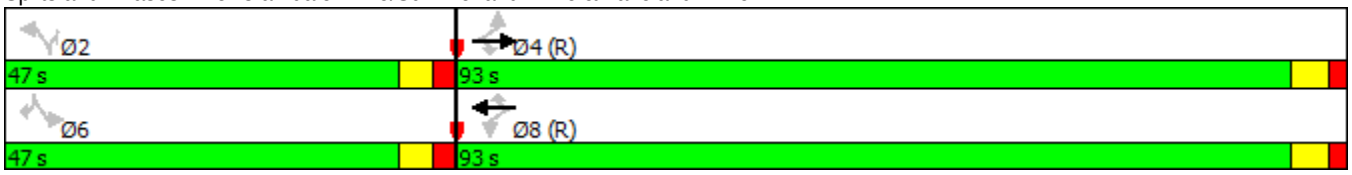
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 206 | 293 | 102 | 56 | 372 | 198 | 60 | 0 | 34 | 137 | 0 | 149 |
| Future Volume (vph) | 206 | 293 | 102 | 56 | 372 | 198 | 60 | 0 | 34 | 137 | 0 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | 0.0 | | 90.0 | 0.0 | | 90.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 0.99 | | 0.96 | | | | 0.99 | | | | | 0.98 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1900 | 3551 | 1881 | 1900 | 3725 | 1900 | 1776 | 0 | 1696 | 1696 | 0 | 1827 |
| Flt Permitted | 0.536 | | | 0.521 | | | | | | | | |
| Satd. Flow (perm) | 1007 | 3551 | 1808 | 990 | 3725 | 1900 | 1755 | 0 | 1696 | 1696 | 0 | 1784 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 102 | | | 257 | | | 48 | | | 191 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 364.5 | | | 407.5 | | | 160.5 | | | 164.1 | |
| Travel Time (s) | | 21.9 | | | 24.5 | | | 11.6 | | | 11.8 | |
| Confl. Peds. (#/hr) | 5 | | 5 | | | | 5 | | | | | 5 |
| Peak Hour Factor | 0.97 | 0.72 | 1.00 | 1.00 | 0.98 | 0.77 | 0.88 | 0.88 | 0.71 | 1.00 | 0.88 | 0.78 |
| Heavy Vehicles (%) | 0% | 7% | 1% | 0% | 2% | 0% | 7% | 0% | 12% | 12% | 0% | 4% |
| Adj. Flow (vph) | 212 | 407 | 102 | 56 | 380 | 257 | 68 | 0 | 48 | 137 | 0 | 191 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 212 | 407 | 102 | 56 | 380 | 257 | 68 | 0 | 48 | 137 | 0 | 191 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | | 10.0 | 10.0 | | 10.0 |
| Minimum Split (s) | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 26.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 | 47.0 | | 47.0 | 47.0 | | 47.0 |
| Total Split (%) | 66.4% | 66.4% | 66.4% | 66.4% | 66.4% | 66.4% | 33.6% | | 33.6% | 33.6% | | 33.6% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 86.5 | 86.5 | 86.5 | 86.5 | 86.5 | 86.5 | 40.5 | | 40.5 | 40.5 | | 40.5 |
| Actuated g/C Ratio | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.29 | | 0.29 | 0.29 | | 0.29 |
| v/c Ratio | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | | 0.09 | 0.28 | | 0.29 |
| Control Delay | 14.8 | 11.8 | 2.1 | 11.4 | 11.6 | 1.6 | 37.8 | | 9.8 | 40.4 | | 6.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 14.8 | 11.8 | 2.1 | 11.4 | 11.6 | 1.6 | 37.8 | | 9.8 | 40.4 | | 6.1 |
| LOS | B | B | A | B | B | A | D | | A | D | | A |
| Approach Delay | | 11.3 | | | 7.9 | | | 26.2 | | | 20.4 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | A | | | C | | | C | |
| Queue Length 50th (m) | 28.3 | 24.2 | 0.0 | 6.3 | 22.3 | 0.0 | 14.7 | | 0.0 | 31.0 | | 0.0 |
| Queue Length 95th (m) | 45.2 | 24.7 | 7.1 | 12.6 | 29.7 | 4.8 | 27.0 | | 5.7 | 50.3 | | 10.3 |
| Internal Link Dist (m) | | 340.5 | | | 383.5 | | | 136.5 | | | 140.1 | |
| Turn Bay Length (m) | 120.0 | | 120.0 | 120.0 | | 120.0 | | | 90.0 | | | 90.0 |
| Base Capacity (vph) | 622 | 2194 | 1156 | 611 | 2301 | 1272 | 507 | | 524 | 490 | | 651 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.34 | 0.19 | 0.09 | 0.09 | 0.17 | 0.20 | 0.13 | | 0.09 | 0.28 | | 0.29 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 12.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 57.9% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 5: Clarkdale Drive/Summerland Drive & Lakeland Drive



| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 57 | 82 | 44 | 36 | 59 | 32 |
| Future Vol, veh/h | 57 | 82 | 44 | 36 | 59 | 32 |
| Conflicting Peds, #/hr | 2 | 4 | 4 | 0 | 0 | 2 |
| 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 | 95 | 64 | 52 | 75 | 43 | 100 |
| Heavy Vehicles, % | 0 | 5 | 11 | 6 | 2 | 6 |
| Mvmt Flow | 60 | 128 | 85 | 48 | 137 | 32 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 376 | 161 | 173 | 0 | - | 0 |
| Stage 1 | 157 | - | - | - | - | - |
| Stage 2 | 219 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.25 | 4.21 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.345 | 2.299 | - | - | - |
| Pot Cap-1 Maneuver | 629 | 876 | 1351 | - | - | - |
| Stage 1 | 876 | - | - | - | - | - |
| Stage 2 | 822 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 584 | 870 | 1346 | - | - | - |
| Mov Cap-2 Maneuver | 584 | - | - | - | - | - |
| Stage 1 | 873 | - | - | - | - | - |
| Stage 2 | 766 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.4 | 5 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1346 | - | 752 | - | - |
| HCM Lane V/C Ratio | 0.063 | - | 0.25 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 11.4 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | 1 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 111 | 0 | 0 | 57 | 3 | 1 |
| Future Vol, veh/h | 111 | 0 | 0 | 57 | 3 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 69 | 100 | 100 | 100 | 25 | 25 |
| Heavy Vehicles, % | 6 | 2 | 2 | 8 | 2 | 2 |
| Mvmt Flow | 161 | 0 | 0 | 57 | 12 | 4 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 161 | 0 | 218 | 161 |
| Stage 1 | - | - | - | - | 161 | - |
| Stage 2 | - | - | - | - | 57 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1418 | - | 770 | 884 |
| Stage 1 | - | - | - | - | 868 | - |
| Stage 2 | - | - | - | - | 966 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1418 | - | 770 | 884 |
| Mov Cap-2 Maneuver | - | - | - | - | 770 | - |
| Stage 1 | - | - | - | - | 868 | - |
| Stage 2 | - | - | - | - | 966 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 796 | - | - | 1418 | - |
| HCM Lane V/C Ratio | 0.02 | - | - | - | - |
| HCM Control Delay (s) | 9.6 | - | - | 0 | - |
| HCM Lane LOS | A | - | - | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 61 | 51 | 43 | 35 | 22 | 62 |
| Future Vol, veh/h | 61 | 51 | 43 | 35 | 22 | 62 |
| Conflicting Peds, #/hr | 0 | 18 | 18 | 0 | 18 | 18 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 71 | 31 | 29 | 100 | 29 | 26 |
| Heavy Vehicles, % | 7 | 2 | 0 | 14 | 5 | 3 |
| Mvmt Flow | 86 | 165 | 148 | 35 | 76 | 238 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 268 | 0 | 536 | 204 |
| Stage 1 | - | - | - | - | 186 | - |
| Stage 2 | - | - | - | - | 350 | - |
| Critical Hdwy | - | - | 4.1 | - | 6.45 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.45 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.45 | - |
| Follow-up Hdwy | - | - | 2.2 | - | 3.545 | 3.327 |
| Pot Cap-1 Maneuver | - | - | 1307 | - | 500 | 834 |
| Stage 1 | - | - | - | - | 839 | - |
| Stage 2 | - | - | - | - | 707 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1287 | - | 428 | 809 |
| Mov Cap-2 Maneuver | - | - | - | - | 428 | - |
| Stage 1 | - | - | - | - | 826 | - |
| Stage 2 | - | - | - | - | 615 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 6.6 | 15.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 666 | - | - | 1287 | - |
| HCM Lane V/C Ratio | 0.472 | - | - | 0.115 | - |
| HCM Control Delay (s) | 15.1 | - | - | 8.2 | 0 |
| HCM Lane LOS | C | - | - | A | A |
| HCM 95th %tile Q(veh) | 2.5 | - | - | 0.4 | - |

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

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 18 | 76 | 55 | 53 | 91 | 24 |
| Future Vol, veh/h | 18 | 76 | 55 | 53 | 91 | 24 |
| Conflicting Peds, #/hr | 10 | 23 | 23 | 0 | 0 | 10 |
| 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 | 64 | 33 | 46 | 100 | 100 | 43 |
| Heavy Vehicles, % | 0 | 3 | 9 | 4 | 2 | 0 |
| Mvmt Flow | 28 | 230 | 120 | 53 | 91 | 56 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 444 | 165 | 170 | 0 | - | 0 |
| Stage 1 | 142 | - | - | - | - | - |
| Stage 2 | 302 | - | - | - | - | - |
| Critical Hdwy | 6.4 | 6.23 | 4.19 | - | - | - |
| Critical Hdwy Stg 1 | 5.4 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.4 | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 3.327 | 2.281 | - | - | - |
| Pot Cap-1 Maneuver | 575 | 877 | 1366 | - | - | - |
| Stage 1 | 890 | - | - | - | - | - |
| Stage 2 | 755 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 502 | 843 | 1339 | - | - | - |
| Mov Cap-2 Maneuver | 502 | - | - | - | - | - |
| Stage 1 | 873 | - | - | - | - | - |
| Stage 2 | 672 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.8 | 5.5 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1339 | - | 785 | - | - |
| HCM Lane V/C Ratio | 0.089 | - | 0.329 | - | - |
| HCM Control Delay (s) | 8 | 0 | 11.8 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.3 | - | 1.4 | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 9.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 76 | 12 | 0 | 14 | 24 | 0 |
| Future Vol, veh/h | 76 | 12 | 0 | 14 | 24 | 0 |
| 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 | 25 | 25 | 25 | 100 | 75 | 25 |
| Heavy Vehicles, % | 4 | 4 | 4 | 4 | 4 | 4 |
| Mvmt Flow | 304 | 48 | 0 | 14 | 32 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 46 | 32 | - | 0 | - | 0 |
| Stage 1 | 32 | - | - | - | - | - |
| Stage 2 | 14 | - | - | - | - | - |
| Critical Hdwy | 7.14 | 6.24 | - | - | - | - |
| Critical Hdwy Stg 1 | 6.14 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.14 | - | - | - | - | - |
| Follow-up Hdwy | 3.536 | 3.336 | - | - | - | - |
| Pot Cap-1 Maneuver | 950 | 1036 | 0 | - | - | 0 |
| Stage 1 | 979 | - | 0 | - | - | 0 |
| Stage 2 | 1001 | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 950 | 1036 | - | - | - | - |
| Mov Cap-2 Maneuver | 950 | - | - | - | - | - |
| Stage 1 | 979 | - | - | - | - | - |
| Stage 2 | 1001 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.9 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | EBLn1 | SBT |
|---|---|---|---|
| Capacity (veh/h) | - | 961 | - |
| HCM Lane V/C Ratio | - | 0.366 | - |
| HCM Control Delay (s) | - | 10.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q(veh) | - | 1.7 | - |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 107 | 852 | 37 | 47 | 667 | 153 | 36 | 31 | 57 | 74 | 22 | 60 |
| Future Volume (vph) | 107 | 852 | 37 | 47 | 667 | 153 | 36 | 31 | 57 | 74 | 22 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | 0.0 | 0.0 | | 120.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 1.00 | | 0.97 | 1.00 | | 0.98 | 0.99 | 0.96 | | 0.96 | 0.98 | |
| Frt | | | 0.850 | | | 0.850 | | 0.909 | | | 0.893 | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1810 | 3762 | 1538 | 1863 | 3725 | 1615 | 1667 | 1604 | 0 | 1845 | 1569 | 0 |
| Flt Permitted | 0.411 | | | 0.273 | | | 0.702 | | | 0.423 | | |
| Satd. Flow (perm) | 743 | 3762 | 1488 | 507 | 3725 | 1576 | 1160 | 1604 | 0 | 750 | 1569 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 52 | | | 165 | | 58 | | | 60 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 405.8 | | | 388.5 | | | 372.2 | | | 450.4 | |
| Travel Time (s) | | 24.3 | | | 23.3 | | | 26.8 | | | 32.4 | |
| Confl. Peds. (#/hr) | 2 | | 6 | 6 | | 2 | 9 | | 46 | 46 | | 9 |
| Peak Hour Factor | 0.76 | 0.81 | 0.71 | 0.98 | 1.00 | 0.93 | 0.45 | 0.48 | 0.57 | 1.00 | 0.92 | 1.00 |
| Heavy Vehicles (%) | 5% | 1% | 5% | 2% | 2% | 0% | 14% | 3% | 4% | 3% | 5% | 7% |
| Adj. Flow (vph) | 141 | 1052 | 52 | 48 | 667 | 165 | 80 | 65 | 100 | 74 | 24 | 60 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1052 | 52 | 48 | 667 | 165 | 80 | 165 | 0 | 74 | 84 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | 8 | |
| Permitted Phases | 6 | | 6 | 2 | | 2 | 4 | | | 8 | | |
| Detector Phase | 6 | 6 | 6 | 2 | 2 | 2 | 4 | 4 | | 8 | 8 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Minimum Split (s) | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 89.0 | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 68.5% | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | 3.5 | | 3.5 | 3.5 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Min | Min | | Min | Min | |
| Act Effct Green (s) | 102.4 | 102.4 | 102.4 | 102.4 | 102.4 | 102.4 | 14.6 | 14.6 | | 14.6 | 14.6 | |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.11 | 0.11 | | 0.11 | 0.11 | |
| v/c Ratio | 0.24 | 0.35 | 0.04 | 0.12 | 0.23 | 0.13 | 0.62 | 0.71 | | 0.88 | 0.37 | |
| Control Delay | 5.4 | 4.8 | 1.2 | 4.8 | 4.1 | 0.9 | 74.2 | 52.3 | | 126.6 | 23.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 5.4 | 4.8 | 1.2 | 4.8 | 4.1 | 0.9 | 74.2 | 52.3 | | 126.6 | 23.3 | |
| LOS | A | A | A | A | A | A | E | D | | F | C | |
| Approach Delay | | 4.7 | | | 3.5 | | | 59.5 | | | 71.7 | |

| Lane Group | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | A | | | A | | | E | | | E | |
| Queue Length 50th (m) | 8.1 | 34.1 | 0.0 | 2.5 | 18.9 | 0.0 | 21.0 | 28.3 | | 20.1 | 6.0 | |
| Queue Length 95th (m) | 15.4 | 47.4 | 1.9 | 7.5 | 32.0 | 5.5 | 17.3 | 17.7 | | #40.3 | 21.1 | |
| Internal Link Dist (m) | | 381.8 | | | 364.5 | | | 348.2 | | | 426.4 | |
| Turn Bay Length (m) | 130.0 | | 90.0 | 115.0 | | 115.0 | 60.0 | | | | | |
| Base Capacity (vph) | 585 | 2964 | 1183 | 399 | 2935 | 1276 | 307 | 468 | | 199 | 460 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.24 | 0.35 | 0.04 | 0.12 | 0.23 | 0.13 | 0.26 | 0.35 | | 0.37 | 0.18 | |

**Intersection Summary**

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 104 (80%), Referenced to phase 2:NWTL and 6:SETL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15
* User Entered Value
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Cranberry Drive/Davidson Drive & Clover Bar Road

# 1: Davenport Drive/Summerwood Drive & Lakeland Drive
## 2021 Total

PM School Peak

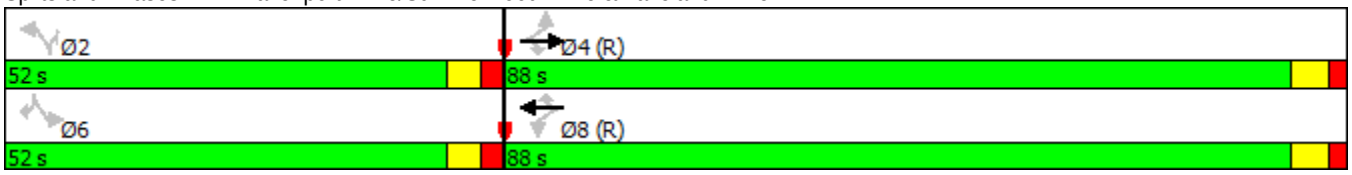
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 0 | 53 | 7 | 0 | 66 |
| Future Volume (vph) | 88 | 627 | 70 | 39 | 474 | 24 | 25 | 0 | 53 | 7 | 0 | 66 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 120.0 | | 115.0 | 120.0 | | 115.0 | 0.0 | | 30.0 | 0.0 | | 45.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 7.5 | | |
| Lane Util. 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 |
| Ped Bike Factor | 0.95 | | 0.93 | 1.00 | | 0.91 | 0.97 | | 0.98 | 0.96 | | 0.92 |
| Frt | | | | | | | | | 0.850 | | | 0.850 |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 1810 | 3689 | 1900 | 1759 | 3689 | 1759 | 1900 | 0 | 1495 | 1667 | 0 | 1568 |
| Flt Permitted | 0.472 | | | 0.377 | | | | | | | | |
| Satd. Flow (perm) | 810 | 3689 | 1775 | 661 | 3689 | 1597 | 1847 | 0 | 1467 | 1593 | 0 | 1449 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 72 | | | 24 | | | 53 | | | 125 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 810.1 | | | 384.2 | | | 224.5 | | | 173.1 | |
| Travel Time (s) | | 48.6 | | | 23.1 | | | 16.2 | | | 12.5 | |
| Confl. Peds. (#/hr) | 28 | | 12 | 3 | | 19 | 12 | | 3 | 19 | | 28 |
| Peak Hour Factor | 1.00 | 0.94 | 0.97 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | 0.53 |
| Heavy Vehicles (%) | 5% | 3% | 0% | 8% | 3% | 8% | 0% | 0% | 8% | 14% | 0% | 3% |
| Adj. Flow (vph) | 88 | 667 | 72 | 39 | 484 | 24 | 25 | 0 | 53 | 7 | 0 | 125 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 88 | 667 | 72 | 39 | 484 | 24 | 25 | 0 | 53 | 7 | 0 | 125 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | | Perm | Perm | | Perm |
| Protected Phases | | 4 | | | 8 | | | | | | | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | 8 | 8 | 2 | | 2 | 6 | | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 |
| Minimum Split (s) | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | 24.0 | | 24.0 | 24.0 | | 24.0 |
| Total Split (s) | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 52.0 | | 52.0 | 52.0 | | 52.0 |
| Total Split (%) | 62.9% | 62.9% | 62.9% | 62.9% | 62.9% | 62.9% | 37.1% | | 37.1% | 37.1% | | 37.1% |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 | | 3.5 | 3.5 | | 3.5 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | | 2.5 | 2.5 | | 2.5 |
| Lost Time Adjust (s) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | | 0.5 |
| Total Lost Time (s) | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | | 6.5 | 6.5 | | 6.5 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | Max | | Max | Max | | Max |
| Act Effct Green (s) | 81.5 | 81.5 | 81.5 | 81.5 | 81.5 | 81.5 | 45.5 | | 45.5 | 45.5 | | 45.5 |
| Actuated g/C Ratio | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.32 | | 0.32 | 0.32 | | 0.32 |
| v/c Ratio | 0.19 | 0.31 | 0.07 | 0.10 | 0.23 | 0.03 | 0.04 | | 0.10 | 0.01 | | 0.23 |
| Control Delay | 15.0 | 15.4 | 2.8 | 13.9 | 14.4 | 4.4 | 32.9 | | 8.6 | 32.3 | | 6.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 15.0 | 15.4 | 2.8 | 13.9 | 14.4 | 4.4 | 32.9 | | 8.6 | 32.3 | | 6.5 |
| LOS | B | B | A | B | B | A | C | | A | C | | A |
| Approach Delay | | 14.3 | | | 13.9 | | | 16.4 | | | 7.8 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach LOS | | B | | | B | | | B | | | A | |
| Queue Length 50th (m) | 11.5 | 47.5 | 0.0 | 4.8 | 32.5 | 0.0 | 5.0 | | 0.0 | 1.4 | | 0.0 |
| Queue Length 95th (m) | 21.3 | 59.0 | 6.9 | 10.9 | 41.9 | 4.2 | 12.1 | | 10.2 | 5.2 | | 0.0 |
| Internal Link Dist (m) | | 786.1 | | | 360.2 | | | 200.5 | | | 149.1 | |
| Turn Bay Length (m) | 120.0 | | 115.0 | 120.0 | | 115.0 | | | 30.0 | | | 45.0 |
| Base Capacity (vph) | 471 | 2147 | 1063 | 384 | 2147 | 939 | 600 | | 512 | 517 | | 555 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.19 | 0.31 | 0.07 | 0.10 | 0.23 | 0.03 | 0.04 | | 0.10 | 0.01 | | 0.23 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 140 | | | |
| Actuated Cycle Length: 140 | | | |
| Offset: 54 (39%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | | | |
| Natural Cycle: 50 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.31 | | | |
| Intersection Signal Delay: 13.7 | | Intersection LOS: B | |
| Intersection Capacity Utilization 52.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

* User Entered Value

Splits and Phases: 1: Davenport Drive/Summerwood Drive & Lakeland Drive



| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.3 |
| Intersection LOS | B |

| Movement | EBU | EBT | EBR | WBU | WBL | WBT | NBU | NBL | NBR |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 61 | 51 | 0 | 43 | 35 | 0 | 22 | 62 |
| Future Vol, veh/h | 0 | 61 | 51 | 0 | 43 | 35 | 0 | 22 | 62 |
| Peak Hour Factor | 0.92 | 0.71 | 0.31 | 0.92 | 0.29 | 1.00 | 0.92 | 0.29 | 0.26 |
| Heavy Vehicles, % | 2 | 7 | 2 | 2 | 0 | 14 | 2 | 5 | 3 |
| Mvmt Flow | 0 | 86 | 165 | 0 | 148 | 35 | 0 | 76 | 238 |
| Number of Lanes | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | |
| Opposing Lanes | 1 | 1 | 0 |
| Conflicting Approach Left | | NB | EB |
| Conflicting Lanes Left | 0 | 1 | 1 |
| Conflicting Approach Right | NB | | WB |
| Conflicting Lanes Right | 1 | 0 | 1 |
| HCM Control Delay | 10.1 | 9.9 | 10.8 |
| HCM LOS | B | A | B |

| Lane | NBLn1 | EBLn1 | WBLn1 |
|---|---|---|---|
| Vol Left, % | 26% | 0% | 55% |
| Vol Thru, % | 0% | 54% | 45% |
| Vol Right, % | 74% | 46% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 84 | 112 | 78 |
| LT Vol | 22 | 0 | 43 |
| Through Vol | 0 | 61 | 35 |
| RT Vol | 62 | 51 | 0 |
| Lane Flow Rate | 314 | 250 | 183 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.403 | 0.329 | 0.258 |
| Departure Headway (Hd) | 4.62 | 4.729 | 5.063 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 773 | 754 | 704 |
| Service Time | 2.68 | 2.798 | 3.137 |
| HCM Lane V/C Ratio | 0.406 | 0.332 | 0.26 |
| HCM Control Delay | 10.8 | 10.1 | 9.9 |
| HCM Lane LOS | B | B | A |
| HCM 95th-tile Q | 2 | 1.4 | 1 |

# APPENDIX C

## School Zones/Areas Warrants

Davenport Drive

## TABLE 2.1 SCHOOL ZONE INPUT WORKSHEET

| INSTALLATION CRITERION | MAXIMUM POINT VALUE (MPV) | DESCRIPTION | | WEIGHTING FACTOR (WF) | SCORE (MPV * WF) |
|---|---|---|---|---|---|
| School **T**ype | 40 | Elementary | | 1.0 | |
| | | Middle / Junior High | | 0.4 | |
| | | High School | | 0.2 | |
| | | Post Secondary / College / University | | 0.0 | T = 40 |
| **F**encing | 20 | Fully Traversable | | 1.0 | |
| | | Partially Traversable | | 0.5 | |
| | | Non-Traversable | | 0.1 | F = 10 |
| Road **C**lassification | 20 | Urban Land Use | Rural Land Use | | |
| | | Local | | 1.0 | |
| | | Minor Collector Collector | Local Collector | 0.75 0.5 | |
| | | Major Collector / Minor Arterial | Arterial | 0.25 | |
| | | Major Arterial / Expressway | Freeway* | 0.0 | C = 10 |
| Property **L**ine Separation | 10 | Abuts Roadway | | 1.0 | |
| | | Within 50 metres | | 0.5 | |
| | | Further than 50 metres | | 0.0 | L = 5 |
| School **E**ntrance | 5 | Main Entrance / Multiple Secondary Entrances | | 1.0 | |
| | | Secondary Entrance | | 0.6 | |
| | | None | | 0.0 | E = 3 |
| **S**idewalks | 5 | None or non-school side | | 1.0 | |
| | | School side | | 0.6 | |
| | | Both sides | | 0.0 | S = 0 |

| TOTAL SCORE (sum of T,F,C,L,E and S) | 68 |
|---|---|

* All major provincial highways shall be treated as “Freeway” for the purpose of assignment of the weighting factor for the “Road Classification” under “Rural Land Use”.

Davenport Place

## TABLE 2.1 SCHOOL ZONE INPUT WORKSHEET

| INSTALLATION CRITERION | MAXIMUM POINT VALUE (MPV) | DESCRIPTION | | WEIGHTING FACTOR (WF) | SCORE (MPV * WF) |
|---|---|---|---|---|---|
| School **T**ype | 40 | Elementary | | (1.0) | |
| | | Middle / Junior High | | 0.4 | |
| | | High School | | 0.2 | |
| | | Post Secondary / College / University | | 0.0 | T = 40 |
| **F**encing | 20 | Fully Traversable | | 1.0 | |
| | | Partially Traversable | | (0.5) | |
| | | Non-Traversable | | 0.1 | F = 10 |
| Road **C**lassification | 20 | Urban Land Use | Rural Land Use | | |
| | | Local | | (1.0) | |
| | | Minor Collector Collector | Local Collector | 0.75 0.5 | |
| | | Major Collector / Minor Arterial | Arterial | 0.25 | |
| | | Major Arterial / Expressway | Freeway* | 0.0 | C = 20 |
| Property **L**ine Separation | 10 | Abuts Roadway | | 1.0 | |
| | | Within 50 metres | | (0.5) | |
| | | Further than 50 metres | | 0.0 | L = 5 |
| School **E**ntrance | 5 | Main Entrance / Multiple Secondary Entrances | | (1.0) | |
| | | Secondary Entrance | | 0.6 | |
| | | None | | 0.0 | E = 5 |
| **S**idewalks | 5 | None or non-school side | | 1.0 | |
| | | School side | | 0.6 | |
| | | Both sides | | (0.0) | S = 0 |

| TOTAL SCORE (sum of T,F,C,L,E and S) | 80 |
|---|---|

* All major provincial highways shall be treated as “Freeway” for the purpose of assignment of the weighting factor for the “Road Classification” under “Rural Land Use”.

# APPENDIX D

## Best Practice Student Loading Process

**Best Practice**
***Student Loading Process for Elementary School***

Making the student loading operations organized and more efficient will directly affect the pedestrian safety and ultimately affect the delays and queue length of the school related traffic.

- Make sure there is a clear demarcation of the loading area and of the vehicle bays in the loading area.
- A designated student loading zone should be established along the curb located near the school building entrance. The loading zone should have five (5) loading bays and be identified by installing 4-inch wide solid white pavement markings. Each bay should be a minimum of 8-feet wide, from the edge of curb, and the lengths of 20-feet for the end bays and 28 to 30-feet for the middle bays.
- Each bay should have its own teacher/supervisor/safety patrol assisting children to and from their appropriate vehicles.
- Enforce single lane loading, specifically in the student loading area, to help reduce pedestrian-vehicle conflicts.
- Short term parking spaces should be identified past the student loading zone and near the building entrance. This parking can be identified by installing "Visitor Parking" signs at the spaces to be assigned. These spaces are for parents requiring extended periods of time to load. If a parent stops in the loading zone, to wait to load their student, a loading assistant should direct that parent to the Visitor Parking.
- Enforce "No Parking," "No Left Turns," etc. to prevent circumvention of the carpool loading process.
- Pedestrian crosswalks, were necessary, should be located before and/or after the identified student loading zone. Crossing pedestrians will be more visible and can safely cross during the times vehicles are stopped being loading process.

**Morning Loading Period**

- Have a loading assistant (faculty member, parent volunteer, or identified student patrol) at each student loading bay.
    - It would be the loading assistant's responsibility to assist the student from their vehicle.

**Afternoon Loading Period**

- Identify each student loading bay using colors or numbers painted on sidewalk and/or traffic cones placed beside each bay.
- Weather permitting, have the children wait in an organized fashion in the loading area or adjacent to it by classes or grade.
- Use a vehicle-student identification system during the pickup process.
    - Parents should display a child identification card placed in the right front corner or sun visor of their vehicle's windshield. The card will indicate a corresponding number to their child in the windshield of their vehicle. This will expedite the flow of traffic, as a teacher/supervisor doesn't have to stop cars to ask whom the parent is picking up and it also assists in safety concerns.
- Use an "Advanced Identification" loading process to better organize and expedite the student loading.
    - This process will require the placement of a loading assistant (faculty member, parent volunteer, or identified student patrol) before the student loading zone. It would be the loading assistant's responsibility to read the child identification card placed in vehicle windshields and determine the name of the next student to be loaded. Once the information is obtained, it is forwarded (typically by walkie-talkie or megaphone) to another loading assistant who has access to the students. By the time the parent reaches the student loading zone, the student is waiting next to the curb ready to be loaded into the vehicle.

Figure 6-4. Example Best Practice Student Loading Process from NCDOT
*Source: NCDOT*