# Snipe Tract Park
# TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

Lower Makefield Township, Bucks County, PA
& PennDOT District 6-0

Prepared For:
**Lower Makefield Township**
1100 Edgewood Road
Yardley, Pennsylvania 19067

**June 8, 2017**
*TPD # LOMT.00047*

Prepared By:
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# EXECUTIVE SUMMARY

The purpose of this study is to examine the potential traffic impact associated with the proposed Snipe Tract Park development on the roadway network in Lower Makefield Township, Bucks County, PA. Based on this evaluation, the following conclusions were reached:

1. The project scope and the extent of the study area intersections included in this TIS are as follows:

    - Yardley Newtown Road (S.R. 0332) & Mirror Lake Road (S.R. 2087)
    - Yardley Newtown Road (S.R. 0332) & Creamery Road
    - Quarry Road & Creamery Road
    - Quarry Road & Dolington Road (S.R. 2075)
    - Quarry Road & Quarry Hill Court

2. The project site is located on the west side of Dolington Road, north of the intersection of Quarry Road & Dolington Road. The proposed site will consist of 3 soccer fields and a half practice field. To be conservative, TPD analyzed the development as 4 soccer fields.

3. Access to the site will be served by two (2) full access driveways; one located on Dolington Road (S.R. 2075) and one located on Quarry Road.

4. Under 2019 projected conditions, the study area intersections will operate at the same overall intersection level of service (ILOS) as under 2019 base conditions, during the weekday A.M., P.M., and Saturday midday peak hours.

5. All approaches and turning movements at the site driveway intersections will operate at LOS B or better under 2019 projected conditions during the weekday A.M., P.M., and Saturday midday peak hours.

6. All proposed driveway location sight distances will exceed PennDOT's Desirable and Safe Stopping Sight Distance (SSSD) criteria.

7. Upon full build-out of the site, the proposed development is expected to generate 5 new vehicle-trips during the weekday A.M. peak hour, 70 new vehicle-trips during the weekday P.M. peak hour and 121 new vehicle-trips during the Saturday midday peak hour.

8. Traffic Planning and Design Inc. (TPD) recommends the following roadway improvements as outlined at the study area intersections. It should be noted these are not required per PennDOT standards, but through coordination with the Township and Police Department are being installed under this project:

    a. Upgrade existing geometry at Dolington Road (S.R. 2075) and Quarry Road intersection.

    b. Add a southbound right turn lane and northbound left turn lane onto Dolington Road access.

    c. Add a westbound right turn lane onto Quarry Road access.

    d. Add additional pedestrian facilities crossing Quarry Road at the Site Access and Creamery Road intersections.

9. Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection ILOS for each study area intersection.

TABLE I
OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

| Intersection | Weekday A.M. Peak Hour | | | Weekday P.M. Peak Hour | | | Sat Midday Peak Hour | | | Meets LOS Requirements? |
|---|---|---|---|---|---|---|---|---|---|---|
| | Existing | Opening Year 2019 | | Existing | Opening Year 2019 | | Existing | Opening Year 2019 | | |
| | | Base | Projected | | Base | Projected | | Base | Projected | |
| Yardley Newtown Road (S.R. 0332) & Mirror Lake Road (S.R. 2087) | **A (8.3)** | **A (8.3)** | **A (8.3)** | **A (9.1)** | **A (9.1)** | **A (9.3)** | **A (8.9)** | **A (9.0)** | **A (9.0)** | Yes |
| Yardley Newtown Road (S.R. 0332) & Creamery Road | **B (18.0)** | **B (18.8)** | **B (18.9)** | **C (21.1)** | **C (22.5)** | **C (24.9)** | **B (10.4)** | **B (10.1)** | **B (11.1)** | Yes |
| Quarry Road & Creamery Road | **C (18.5)** | **C (24.3)** | **D (25.1)** | **A (7.6)** | **A (7.8)** | **A (8.3)** | **A (6.6)** | **A (6.6)** | **A (8.2)** | Yes |
| Quarry Road & Dolington Road (S.R. 2075) | **A (3.4)** | **A (3.5)** | **A (3.6)** | **A (4.3)** | **A (4.4)** | **A (5.1)** | **A (3.8)** | **A (3.8)** | **A (5.7)** | Yes |
| Dolington Road (S.R. 2075) & Site Driveway | -- | -- | **A (0.2)** | -- | -- | **A (1.5)** | -- | -- | **A (2.9)** | Yes |
| Quarry Road & Site Driveway/Quarry Hill Court | **A (3.2)** | **A (3.2)** | **A (3.3)** | **A (1.3)** | **A (1.3)** | **A (1.6)** | **A (0.6)** | **A (0.5)** | **A (1.8)** | Yes |

*Base = No-Build scenario / Projected = Build scenario*
*Unsignalized ILOS calculated in accordance with Figure 5 of Policies and Procedures for Transportation Impact Studies.*

# INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a Transportation Impact Study (TIS) for the proposed Snipe Tract Park in Lower Makefield Township, York County, Pennsylvania. The project site is located on the west side of Dolington Road, north of the intersection of Quarry Road & Dolington Road, as shown in **Figure 1**. The land use context of the site and surrounding area is defined as Suburban Neighborhood in the Smart Transportation Guidebook, dated March 2008. As shown in **Figure 2**, the proposed site will consist of 3 soccer fields and 1 practice field. To be conservative, TPD analyzed the development as 4 soccer fields.

This report has been prepared in accordance with PennDOT's *Policies and Procedures for Transportation Impact Studies*, dated January 28, 2009.

## Site Access Locations

Access to the site will be served by one full access driveway located on Dolington Road and one full access driveway to Quarry Road.

# EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**. Photographs of the study area intersections are included in **Appendix A.**

TABLE 1
ROADWAY CHARACTERISTICS WITHIN STUDY AREA

| Roadway | Ownership | Functional Classification/ Roadway Type | Predominant Directional Orientation | Average Daily Traffic | Posted Speed Limit |
|---|---|---|---|---|---|
| Yardley Newtown Road | State (S.R. 0332) | Minor Arterial | East-West | 6,872 | 45 mph |
| Mirror Lake Road | State (S.R. 2087) | Minor Arterial | North-South | 5,169 | 40 mph |
| Creamery Road | Township | Local Road | North-South | n/a | 35 mph |
| Dolington Road | State (S.R. 2075) | Minor Arterial | North-South | 2,268 | 40 mph |
| Quarry Road | Township | Minor Arterial | East-West | 1,857 | 25 mph |
| Quarry Hill Court | Township | Local Road | North-South | n/a | 25 mph |

## Land Use Context

In Chapter 4 of the *Smart Transportation Guidebook*, dated March 2008, there is guidance pertaining to defining the land use context(s) for a given area. Based upon review of this information, the land uses surrounding the proposed site best fits the Suburban Neighborhood designation, as described below:

> ***Suburban Neighborhood***, *"predominately low density residential communities… typically arranged in a curvilinear internal system of streets with limited connections to regional road network or surrounding streets. . . .Neighborhoods can include community facilities such as schools, churches, recreational facilities, and some other stores and offices."*

## Roadway Type

In Chapter 5 of the Smart Transportation Guidebook, there is guidance pertaining to defining the transportation context(s) for a given area. Comparing the existing condition roadway characteristics to the various options presented in Table 5.1 of the *Smart Transportation Guidebook*, the study area roadways best fit the following categories, as described below:

***Community Collector***, traffic volumes of 5,000 to 15,000 vehicles per day, intersection spacing of 300 to 660 feet, a desired operating speed of 25-55 mph, and a description as follows: *"often similar in appearance to a community arterial. Typically classified as Major Collector."*

- Yardley Newtown Road (S.R. 0332)
- Mirror Lake Road (S.R. 2087)

***Neighborhood Collector***, traffic volumes of <6,000 vehicles per day, intersection spacing of 300 to 660 feet, a desired operating speed of 25-35 mph, and a description as follows: *"similar in appearance to local roadways. Typically classified as Minor Collector."*

- Dolington Road (S.R. 2075)

***Local Road***, traffic volumes of <3,000 vehicles per day, intersection spacing of 000 to 660 feet, a desired operating speed of 20-30 mph.

- Creamery Road
- Quarry Road
- Quarry Hill Court

## Bicycle and Pedestrian Facilities

Based on observations during field visits at the study area intersections, sidewalks and crosswalks or paved shoulders currently accommodate pedestrian and/or bicycle traffic in the vicinity of the proposed development. Pedestrian crossing signals, push buttons, and crosswalks are present on the eastbound and westbound approaches at the intersection of Yardley Newtown Road (S.R. 0332) & Creamery Road.

Sidewalk is present along the east side of Quarry Road to accommodate both elementary schools; Afton and Quarry Hill. The sidewalk shifts over to the west side once Quarry Road switches to Dolington Road (S.R. 2075).

# EXISTING TRAFFIC CONDITIONS

## Manual Turning Movement Counts

Manual traffic counts were conducted on 15-minute intervals during the weekday morning (7:00 to 9:00 A.M.), weekday evening ( 4:00 to 6:00 P.M.) and Saturday midday (11:00 A.M. to 1:00 P.M.) peak periods. Data pertaining to heavy vehicles, pedestrians and transit vehicles were observed during the manual counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
MANUAL TRAFFIC COUNT INFORMATION

| Intersection | Date of Traffic Counts | Time Period | Intersection Peak Hour[1] |
|---|---|---|---|
| Yardley Newtown Road (S.R. 0332) & Mirror Lake Road (S.R. 2087) | Thursday, June 2, 2016 | Weekday A.M. | 7:30 to 8:30 A.M. |
| | | Weekday P.M. | 5:00 to 6:00 P.M. |
| | Saturday, June 4, 2016 | Saturday Midday | 12:00 P.M. to 1:00 P.M. |
| Yardley Newtown Road (S.R. 0332) & Creamery Road | Thursday, June 2, 2016 | Weekday A.M. | 8:00 to 9:00 A.M. |
| | | Weekday P.M. | 5:00 to 6:00 P.M. |
| | Saturday, June 4, 2016 | Saturday Midday | 12:00 P.M. to 1:00 P.M. |
| Quarry Road & Creamery Road | Thursday, June 2, 2016 | Weekday A.M. | 8:00 to 9:00 A.M. |
| | | Weekday P.M. | 5:00 to 6:00 P.M. |
| | Saturday, June 4, 2016 | Saturday Midday | 12:00 P.M. to 1:00 P.M. |
| Quarry Road & Dolington Road (S.R. 2075) | Thursday, June 2, 2016 | Weekday A.M. | 8:00 to 9:00 A.M. |
| | | Weekday P.M. | 5:00 to 6:00 P.M. |
| | Saturday, June 4, 2016 | Saturday Midday | 12:00 P.M. to 1:00 P.M. |
| Quarry Road & Site Driveway/Quarry Hill Court | Tuesday, November 1, 2016 | Weekday A.M. | 8:00 to 9:00 A.M. |
| | | Weekday P.M. | 5:00 to 6:00 P.M. |
| | Saturday, October 29, 2016 | Saturday Midday | 12:00 P.M. to 1:00 P.M. |

*1 Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur.*

Existing condition traffic volumes for the weekday A.M., weekday P.M., and Saturday peak hours are illustrated in **Figures 4-6**, respectively. Manual traffic count data sheets are provided in **Appendix B**.

# BASE (NO-BUILD) CONDITIONS

## Annual Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors for August 2016 to July 2017 obtained from the PennDOT Bureau of Planning and Research (BPR). The PennDOT BPR suggests using a background growth trend factor of 1.29% per year in Bucks County for urban non-interstate roadways. As such, the background growth factor was applied annually to yield overall growth percentages of 3.92% (1.29% per year, compounded over 3 years) for the 2019 opening year.

## 2019 Base (No-Build) Conditions Volume Development

The additional traffic volumes due to background growth and background developments were added to the existing traffic data to produce 2019 base (no-build) condition traffic. The 2019 base condition volumes for the weekday A.M., weekday P.M. and Saturday midday peak hours are illustrated in **Figures 7-9**.

# PROPOSED SITE ACCESS

Access to the site will be served by two (2) full access driveways; one located on Dolington Road (S.R. 2075) and one located on Quarry Road.

## Sight Distance Analysis

A sight distance analysis was prepared for the proposed site driveways. In general, recommended safe sight distances depend upon the posted speed limit and roadway grades. The existing sight distances at the proposed driveways were measured in accordance with PennDOT Publication 282 Highway Occupancy Permit Guidelines and compared to PennDOT's desirable sight distance standard, which is identified in 67 PA Code

Chapter 441.8(h), "Access to and Occupancy of Highways by Driveways and Local Roads." In addition, measured sight distances at the proposed driveways were compared to PennDOT's safe stopping sight distance standard, which is calculated by the following equation:

$$\mathbf{SSSD = 1.47VT + V^2/[30(f \pm g)]}$$

SSSD = safe stopping sight distance (acceptable sight distance)
V = Vehicle Speed
T = Perception Reaction Time of Driver (2.5 seconds)
f = Coefficient of Friction for Wet Pavements
g = Percent of Roadway Grade Divided by 100

**Table 4** show the measured, desirable, acceptable (SSSD), and required sight distances at the site driveways for vehicles entering and exiting the site.

TABLE 4
SIGHT DISTANCE ANALYSIS
SITE DRIVEWAY TO DOLINGTON ROAD (S.R. 2075)

| | Direction | Speed | Grade[1] | Sight Distances (feet) | | |
|---|---|---|---|---|---|---|
| | | | | DES | SSSD | EXIST |
| **Exiting Movements** | To the left | 40 mph | -6% | 538 | 352 | **800** |
| | To the right | 40 mph | +1% | 460 | 309 | **650** |
| **Enter Left Turns** | Approaching same direction | 40 mph | +1% | 373 | 309 | **500** |
| | Approaching opposite direction | 40 mph | -6% | 373 | 352 | **800** |

*DES = PennDOT Desirable Sight Distance*
*SSSD = PennDOT Acceptable Sight Distance*
*EXIST = Existing (measured) Sight Distance*
*1 = Roadway Grade Approaching Driveway*

TABLE 5
SIGHT DISTANCE ANALYSIS
SITE DRIVEWAY TO QUARRY ROAD

| | Direction | Speed | Grade[1] | Sight Distances (feet) | | |
|---|---|---|---|---|---|---|
| | | | | DES | SSSD | EXIST |
| **Exiting Movements** | To the left | 25 mph | +1% | 250 | 145 | **500+** |
| | To the right | 25 mph | -2% | 195 | 150 | **500+** |
| **Enter Left Turns** | Approaching same direction | 25 mph | -2% | 190 | 150 | **500+** |
| | Approaching opposite direction | 25 mph | +1% | 190 | 145 | **500+** |

*DES = PennDOT Desirable Sight Distance*
*SSSD = PennDOT Acceptable Sight Distance*
*EXIST = Existing (measured) Sight Distance*
*1 = Roadway Grade Approaching Driveway*

As shown in **Tables 4 and 5** above, the measured sight distances at the site driveways exceed PennDOT's desirable sight distance requirements.

## TRIP GENERATION

The trip generation rates for the proposed development were obtained from the manual *Trip Generation*, Ninth Edition, 2012, an Institute of Transportation Engineers (ITE) Informational Report. The statistics in *Trip*

*Generation* are empirical data based on more than 4,800 trip generation studies. The data are categorized by Land Use Codes, with total vehicular trips for a given land use estimated using an independent variable and statistically generated rates or equations.

For the proposed development, Land Use Code 488 Soccer Complex from *Trip Generation* was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour; (3) weekday P.M. peak hour; (4) Saturday midday peak hour. **Table 6** shows the rates/equations and directional percentages for the analyzed time periods.

TABLE 6
ITE TRIP GENERATION DATA

| Land Use | ITE # | Size (X) | Time Period | Equation/Rate | Enter % |
|---|---|---|---|---|---|
| Soccer Complex | 488 | 4 | Weekday AM Peak Hour | T=1.12*(X) | 57% |
| | | | Weekday PM Peak Hour | T=17.70*(X) | 67% |
| | | | Saturday Peak Hour | T=30.34*(X) | 48% |
| | | | Average Weekday | T=71.33*(X) | 50% |

*T = number of site-generated vehicular trips:*
*X = independent variable*

The calculated trip generation for the proposed development for the opening year is shown in **Table 7.**

TABLE 7
TRIP GENERATION SUMMARY

| Land Use | Time Period | New Trips | | |
|---|---|---|---|---|
| | | Total | Enter | Exit |
| Soccer Complex | Weekday AM Peak Hour | 5 | 3 | 2 |
| | Weekday PM Peak Hour | 71 | 48 | 23 |
| | Saturday Peak Hour | 121 | 58 | 63 |
| | Average Weekday | 286 | 143 | 143 |

Based on the trip generation analysis summarized in **Table 7**, the proposed development will generate approximately **5 new** trips during the weekday A.M. peak hour, **71 new** trips during the weekday P.M. peak hour, and **121 new** trips during the Saturday midday peak hour.

# TRIP DISTRIBUTION

## New Trips

The distribution of trips generated by the proposed development was based on the local road network, the existing traffic patterns, the proposed use of the site, and the site driveway locations. The new trips for the proposed development were distributed to the local roadway network based on the percentages shown in **Table 8**. The pass-by trips for the proposed development were distributed to the local road network based on the existing traffic volumes passing the proposed site driveways.

TABLE 8
TRIP DISTRIBUTION PERCENTAGES – New Trips

| Direction - To/From | Assignment (To/From) | Distribution Percentage |
|---|---|---|
| North | Via Dolington Road (S.R. 2075) | 10% |
| South | Via Mirror Lake Road (S.R. 2087) | 15% |
| East | Via Dolington Road (S.R. 2075) | 15% |
| East | Via Yardley Newtown Road (S.R. 0332) | 20% |
| West | Via Quarry Road | 10% |
| West | Via Yardley Newtown Road (S.R. 0332) | 30% |

The assignment of site-generated trips for the proposed development during the weekday A.M., P.M., and Saturday midday peak hours are shown in **Figures 10-12**.

## PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the proposed development were added to the 2019 base (no-build) condition traffic volumes to develop 2019 projected (build) condition traffic volumes.

Projected condition traffic volumes for the opening year of 2019 for the weekday A.M., P.M., and Saturday midday peak hours are shown in **Figures 13-15**.

## DRIVEWAY CLASSIFICATION

Driveways intersecting state roads are classified in the Pennsylvania Code, Title 67, Chapter 441. Low volume driveways are used by 25 to 750 vehicles per day. A medium volume driveway is used by 750 to 1500 vehicles per day. High volume driveways are used by more than 1500 vehicles per day. Based on the anticipated site trip generation and the assignment of site traffic, the classifications of the site driveways intersecting the state road Dolington Road (S.R. 2075) is listed in **Table 9.**

TABLE 9
DRIVEWAY CLASSIFICATIONS

| State Road | Driveway | Weekday Trips | Weekday Vehicles | Driveway Type |
|---|---|---|---|---|
| Dolington Road (S.R. 2075) | Full-Access Intersection | 136 | 68 | Low Volume |
| Quarry Road | Full-Access Intersection | 150 | 75 | Low Volume |

*Note: A "trip" equals an entering or an exiting vehicle. Therefore, weekday vehicles = weekday trips/2.*

## LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 10**. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left or right turn).

TABLE 10
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS [1]

| Level of Service | Control Delay Per Vehicle (Seconds) | |
|---|---|---|
| | Signalized | Unsignalized |
| A | < 10 | < 10 |
| B | > 10 and < 20 | > 10 and < 15 |
| C | > 20 and < 35 | > 15 and < 25 |
| D | > 35 and < 55 | > 25 and < 35 |
| E | > 55 and < 80 | > 35 and < 50 |
| F | > 80 or v/c > 1.0 | > 50 or v/c > 1.0 |

[1] *Obtained from Exhibits 18-4 and 19-1 of the Transportation Research Board's Highway Capacity Manual 2010*

## CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M., P.M., and Saturday midday peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the 2010 *Highway Capacity Manual* (HCM) using *Synchro 8* software, a Trafficware product.

The following conditions were analyzed, as applicable:

- Existing conditions;
- 2019 Base conditions (Build-out year without development);
- 2019 Projected conditions (Build-out year with development).

It should be noted that based on methodologies contained in Chapter 10 of PennDOT's Publication 46, TPD adjusted the following 2010 HCM default values in the *Synchro 8* capacity analysis. These adjustments were made at the signalized intersections within the study area for all time periods based on the study area location being classified as Suburban:

In addition, capacity analyses were conducted at the proposed site driveway intersections under the 2018 projected conditions. The capacity analysis worksheets are included in **Appendix C**. The PennDOT-approved signal plans are included in **Appendix D**.

PennDOT's Transportation Impact Study Guidelines outlined in Strike-Off Letter 470-09-4, dated February 12, 2009 contain the following criteria regarding levels of service:

- Page 29 of the Guidelines state that if evaluation of the With Development Horizon Year Scenario to the Without Development Horizon Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay is greater than 10-seconds. If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required.
- Page 29 of the Guidelines state that for mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.
- Page 31 of the Guidelines state that if signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- Page 31 of the Guidelines states new signalized or unsignalized intersection established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

## LEVELS OF SERVICE IN THE STUDY AREA

Level of service (LOS) matrices for the study area intersections are shown in **Table 11** for the weekday A.M., weekday P.M., and Saturday midday peak hours. Per PennDOT standards, the signal timings at the signalized study area intersections have been optimized under base conditions and projected conditions.

TABLE 11
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

| Intersection | Movement | Weekday A.M. Peak Hour | | | Weekday P.M. Peak Hour | | | Saturday Midday Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing Condition | Year 2019 | | Existing Condition | Year 2019 | | Existing Condition | Year 2019 | |
| | | | Base | Projected | | Base | Projected | | Base | Projected |
| Yardley Newtown Road (S.R. 0332) & Mirror Lake Road (S.R. 2087) | EB T | A | A | A | A | A | A | A | A | A |
| | EB R | A | A | A | A | A | A | A | A | A |
| | WB L/T | A* | A* | A* | B* | B* | B* | A* | A* | A* |
| | NB L | C | C | C | C | C | C | C | C | C |
| | NB R | C | C | C | C | C | C | C | C | C |
| | **ILOS** | **A (8.3)** | **A (8.3)** | **A (8.3)** | **A (9.1)** | **A (9.1)** | **A (9.3)** | **A (8.9)** | **A (9.0)** | **A (9.0)** |
| Yardley Newtown Road (S.R. 0332) & Creamery Road | EB L | A | A | A | A | B | B | A | A | A |
| | EB T | A | A | A | B | B | B | A | A | A |
| | WB T/R | B | B | B | B | B | B | A | B | B |
| | SB L/R | D | D (37.8) | D(37.9) | D | D(45.7) | D(53.3) | C | B | B |
| | **ILOS** | **B (18.0)** | **B (18.8)** | **B (18.9)** | **C (21.1)** | **C (22.5)** | **C (24.9)** | **B (10.4)** | **B (10.1)** | **B (11.1)** |
| Quarry Road & Creamery Road | WB L/T | B | B | B | A | A | A | A | A | A |
| | NB L | F (86.2) | F (119.4) | F (125.1) | C | C | C | B | B | B |
| | NB R | B | B | B | B | B | B | A | A | A |
| | **ILOS** | **C (18.5)** | **C (24.3)** | **D (25.5)** | **A (7.6)** | **A (7.8)** | **A (8.6)** | **A (6.6)** | **A (6.6)** | **A (7.0)** |
| Quarry Road & Dolington Road (S.R. 2075) | EB L/T | A | A | A | A | A | A | A | A | A |
| | SB L/R | B | B | B | B | B | B | B | B | B |
| | **ILOS** | **A (3.4)** | **A (3.5)** | **A (3.5)** | **A (4.3)** | **A (4.4)** | **A (4.7)** | **A (3.8)** | **A (3.8)** | **A (4.5)** |
| Dolington Road (S.R. 2075) & Site Driveway | EB L | -- | -- | A | -- | -- | B | -- | -- | A |
| | EB R | -- | -- | A | -- | -- | A | -- | -- | A |
| | NB L/T | -- | -- | A | -- | -- | A | -- | -- | A |
| | **ILOS** | **--** | **--** | **A (0.0)** | **--** | **--** | **A (0.8)** | **--** | **--** | **A (1.7)** |
| Quarry Road & Site Driveway/Quarry Hill Court | EB L/T/R | A | A | A | A | A | A | A | A | A |
| | WB L/T/R | B | B | A | A | A | A | A | A | A |
| | NB L/T/R | B | B | B | B | B | B | A | A | A |
| | SB L | -- | -- | E | -- | -- | C | -- | -- | B |
| | SB T/R | -- | -- | A | -- | -- | B | -- | -- | A |
| | **ILOS** | **A (3.2)** | **A (3.2)** | **A (3.3)** | **A (1.3)** | **A (1.3)** | **A (1.6)** | **A (0.6)** | **A (0.5)** | **A (1.8)** |

*Base = No-Build scenario / Projected = Build scenario*
**=Advanced left turn/through phase. HCM analysis not applicable*

As shown in **Table 11**, all study area intersections will operate at the same overall intersection level of service (ILOS) under base conditions (no-build) and projected conditions (build), or fall within PennDOT's allowable 10-second variance in intersection delay.
All approaches and turning movements at the site driveway intersections will operate at **LOS E or better** under 2019 projected conditions during the weekday A.M., P.M., and Saturday midday peak hours. All levels of service at the study area intersection comply with the requirement outlined in PennDOT's TIS Guidelines.

## 95TH PERCENTILE QUEUE ANALYSIS

Queue analyses were conducted at the study area intersections using *Synchro 8* software. For this analysis, the 95th percentile queue is defined as the queue length that is exceeded in 5% of the signal cycles. As an example, for a signal with a 90-second cycle, this means that the 95th percentile queue length will be exceeded during 2

of the 40 signal cycles that occur during the peak hour. The queue analysis results are summarized in **Table 12** for the analyzed peak hours.

TABLE 12
95TH PERCENTILE QUEUE ANALYSIS

| Intersection | Movement | Storage Length | Weekday A.M. Peak Hour | | Weekday P.M. Peak Hour | | Saturday Midday Peak Hour | |
|---|---|---|---|---|---|---|---|---|
| | | | Year 2019 | | Year 2019 | | Year 2019 | |
| | | | Base | Projected | Base | Projected | Base | Projected |
| Yardley Newtown Road (S.R. 0332) & Mirror Lake Road (S.R. 2087) | EB T | -- | 148 | 148 | 200 | 213 | 123 | 135 |
| | EB R | 115 | 28 | 28 | 78 | 78 | 38 | 38 |
| | WB L/T | -- | 224* | 224* | 343* | 368* | 153* | 171* |
| | NB L | 140 | 133 | 133 | 98 | 98 | 110 | 110 |
| | NB R | -- | 123 | 123 | 210 | 215 | 155 | 165 |
| Yardley Newtown Road (S.R. 0332) & Creamery Road | EB L | 110 | 118 | 123 | 160 | 170 | 58 | 73 |
| | EB T | -- | 60 | 60 | 238 | 238 | 78 | 85 |
| | WB T/R | -- | 253 | 253 | 203 | 213 | 140 | 158 |
| | SB L/R | -- | 298 | 300 | 343 | 383 | 118 | 145 |
| Quarry Road & Creamery Road | WB L/T | -- | 25 | 25 | 25 | 25 | 25 | 25 |
| | NB L | 90 | 248 | 253 | 35 | 40 | 25 | 25 |
| | NB R | -- | 38 | 40 | 25 | 33 | 25 | 25 |
| Quarry Road & Dolington Road (S.R. 2075) | EB L/T | -- | 25 | 25 | 25 | 25 | 25 | 25 |
| | SB L/R | -- | 30 | 30 | 25 | 33 | 25 | 35 |
| Dolington Road (S.R. 2075) & Site Driveway | EB L | -- | -- | 25 | -- | 25 | -- | 25 |
| | EB R | -- | -- | 25 | -- | 25 | -- | 25 |
| | NB L/T | -- | -- | 25 | -- | 25 | -- | 25 |
| Quarry Road & Site Driveway/Quarry Hill Court | EB L/T/R | -- | -- | 25 | -- | 25 | -- | 25 |
| | WB L/T/R | -- | 35 | 35 | 25 | 25 | 25 | 25 |
| | NB L/T/R | -- | 25 | 25 | 25 | 25 | 25 | 25 |
| | SB L | -- | -- | 25 | -- | 25 | -- | 25 |
| | SB T/R | -- | -- | 25 | -- | 25 | -- | 25 |

**=Advanced left turn/through phase. HCM analysis not applicable*

As shown in **Table 12,** all of the projected condition queues will be accommodated within the existing storage lengths, or if comparable to the base (no-build) queue with construction and full build-out of the proposed development. Queue analysis worksheets are included with the capacity analysis worksheets provided in **Appendix D**.

## SITE CIRCULATION REVIEW

### Site Access

Access to the site is to be served by two full access driveways; one located on Dolington Road (S.R. 2075) and one located on Quarry Road. The addition of the Quarry Road access was added to the project to provide a second option for motorists who are looking to access the western portion of the site.

### Pedestrian Accommodations

With the proposed access to Quarry Road, it would allow for players/students and parents from nearby residential developments and schools access to the site in lieu of walking up Dolington Road. Also, to

alleviate existing parking issues at the nearby schools during school events, motorists will be allowed to park in the complex and cross Quarry Road.

### Event Operation/Emergency

Due to the site having distinct traffic patterns, having two access points for the site will reduce the amount of site congestion when games are starting or ending. Along with reducing congestion, two access points are optimal during emergency situations in the event one of the accesses becomes blocked.

## AUXILIARY TURN LANE ANALYSIS

### Methodology

TPD evaluated auxiliary turn lane warrants at the intersection of Dolington Road (S.R. 2075) and Site Driveway. The warrant analysis was conducted according to the methodologies contained in Chapter 11 of PennDOT's *Publication 46* and Strike-Off Letter 470-08-07, and where warrants were satisfied, the storage length was determined using the 95$^{th}$ percentile queues calculated using *Synchro 8* software for signalized intersections.

*Findings:*

### Dolington Road (S.R. 2075) and Site Driveway

Based on the aforementioned methodology, auxiliary turn lane warrants **are not satisfied** for a northbound left-turn lane during the weekday A.M., weekday P.M., and Saturday midday peak hours for the site driveway. To help with overall operation and possible onsite queuing caused by tournaments, **TPD recommends installing a right-turn lane and left turn lane at the site driveway.**

### Quarry Road and Site Driveway

Based on the aforementioned methodology, auxiliary turn lane warrants **are not satisfied** for a westbound left-turn lane during the weekday A.M., weekday P.M., and Saturday midday peak hours for the site driveway. To help with overall operation and possible onsite queuing caused by tournaments, **TPD recommends installing a right-turn lane at the site driveway.**

Auxiliary turn lane warrant analysis worksheets are contained in **Appendix E**.

# TRAFFIC SIGNAL WARRANT ANALYSIS

## Methodology

A traffic signal warrant analysis was conducted at the intersections of Quarry Road & Creamery Road and Quarry Road & Dolington Road (S.R. 2075) in accordance with PennDOT Publication 212, *Official Traffic Control Devices*, Subchapter D, "Highway Traffic Signals.

TPD examined traffic and pedestrian volumes at the intersection to determine if any of the following warrants are currently satisfied:

- Warrant 2, Four-Hour Vehicular Volume Warrant;
- Warrant 3, Peak Hour Volume Warrant.

### *Findings:*

## Quarry Road and Creamery Road

Warrant 2 - Four-Hour Vehicular Volume

Warrant 2, Four-Hour Volume, is satisfied when for each of any four hours of an average day, the volumes are plotted on a graph which is provided as part of the warrant. If the plotted points all fall above the curve on the graph, then the warrant is met. **Warrant 2 is not satisfied for Quarry Road and Creamery Road.**

Warrant 3 - Peak Hour Volume

Warrant 3, Peak Hour Volume, is intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue delay in entering or crossing the major street. To determine if the warrant is met, the volumes for both roadways are plotted on a graph which is provided as part of the warrant. If the plotted point falls above the curve on the graph, then the warrant is met. **Warrant 3 is not satisfied for Quarry Road and Creamery Road.**

## Quarry Road and Dolington Road (S.R. 2075)

Warrant 2 - Four-Hour Vehicular Volume

Warrant 2, Four-Hour Volume, is satisfied when for each of any four hours of an average day, the volumes are plotted on a graph which is provided as part of the warrant. If the plotted points all fall above the curve on the graph, then the warrant is met. **Warrant 2 is not satisfied for Quarry Road and Dolington Road (S.R. 2075).**

Warrant 3 - Peak Hour Volume

Warrant 3, Peak Hour Volume, is intended for application when traffic conditions are such that for one hour of the day minor street traffic suffers undue delay in entering or crossing the major street. To determine if the warrant is met, the volumes for both roadways are plotted on a graph which is provided as part of the warrant. If the plotted point falls above the curve on the graph, then the warrant is met. **Warrant 3 is not satisfied for Quarry Road and Dolington Road (S.R. 2075).**

The warrant analysis worksheets are included in **Appendix F.**

## ALTERNATIVES ANALYSIS – INTERSECTION CONTROL

TPD conducted capacity analysis for the intersections of Quarry Road & Dolington Road (S.R. 2075) and Quarry Road & Creamery Road for realignment of Dolington Road (S.R. 2075) to create a four-way intersection with Creamery Road. The results of the capacity analysis are summarized in **Table 13** below.

TABLE 13
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
2019 PROJECTED CONDITIONS

| Intersection | Movement | Two-way Stop Controlled | All-way Stop Controlled |
|---|---|---|---|
| Weekday A.M. Peak Hour | | | |
| Quarry Road & Dolington Road (S.R. 2075)/Creamery Road | EB L/T/R | A (8.5) | C (21.6) |
| | WB L/T/R | A (9.5) | C (15.7) |
| | NB L | F (71.9) | C (15.7) |
| | NB T/R | B (14.5) | B (12.9) |
| | SB L/T/R | D (31.0) | B (13.2) |
| | **ILOS** | **C (19.3)** | **C (16.9)** |
| Weekday P.M. Peak Hour | | | |
| Quarry Road & Dolington Road (S.R. 2075)/Creamery Road | EB L/T/R | A (8.4) | B (11.3) |
| | WB L/T/R | A (8.9) | B (13.8) |
| | NB L | D (27.9) | B (11.2) |
| | NB T/R | C (21.4) | B (13.5) |
| | SB L/T/R | D (26.1) | B (11.6) |
| | **ILOS** | **B (14.8)** | **B (12.6)** |
| Saturday Midday Peak Hour | | | |
| Quarry Road & Dolington Road (S.R. 2075)/Creamery Road | EB L/T/R | A (8.3) | A (9.0) |
| | WB L/T/R | A (8.4) | A (9.9) |
| | NB L | B (13.9) | A (9.4) |
| | NB T/R | B (12.7) | A (9.8) |
| | SB L/T/R | C (15.4) | A (9.6) |
| | **ILOS** | **A (9.9)** | **A (9.6)** |

As shown in **Table 13**, an all-way stop would provide the best overall intersection level of service (ILOS). Due to the existing intersection configuration that operates under acceptable levels after the site is in use, **TPD does not recommend the realignment of Dolington Road.**

## RECOMMENDATIONS AND CONCLUSIONS

The recommendations and conclusions for this Transportation Impact Study are identified in the Executive Summary.

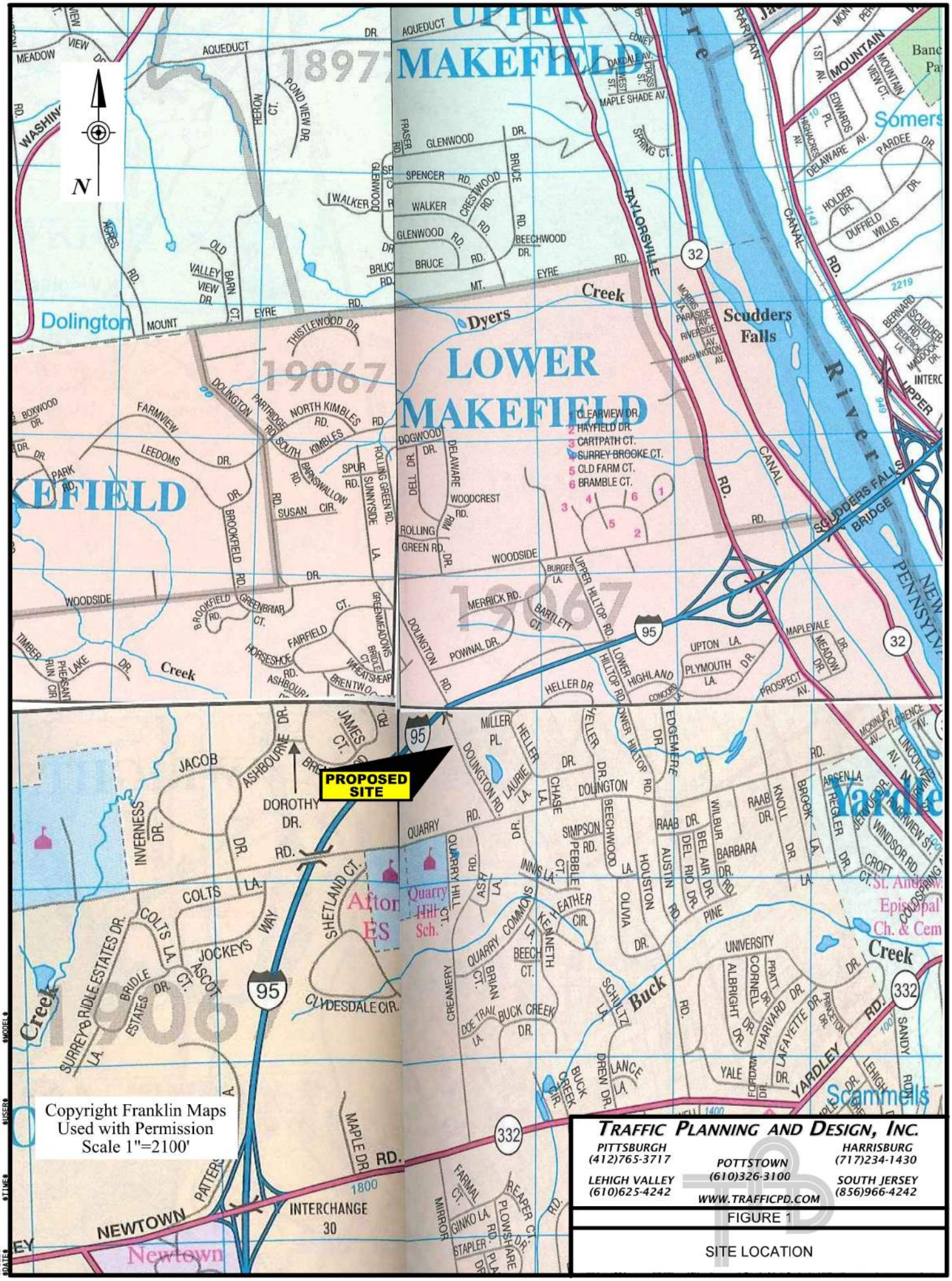




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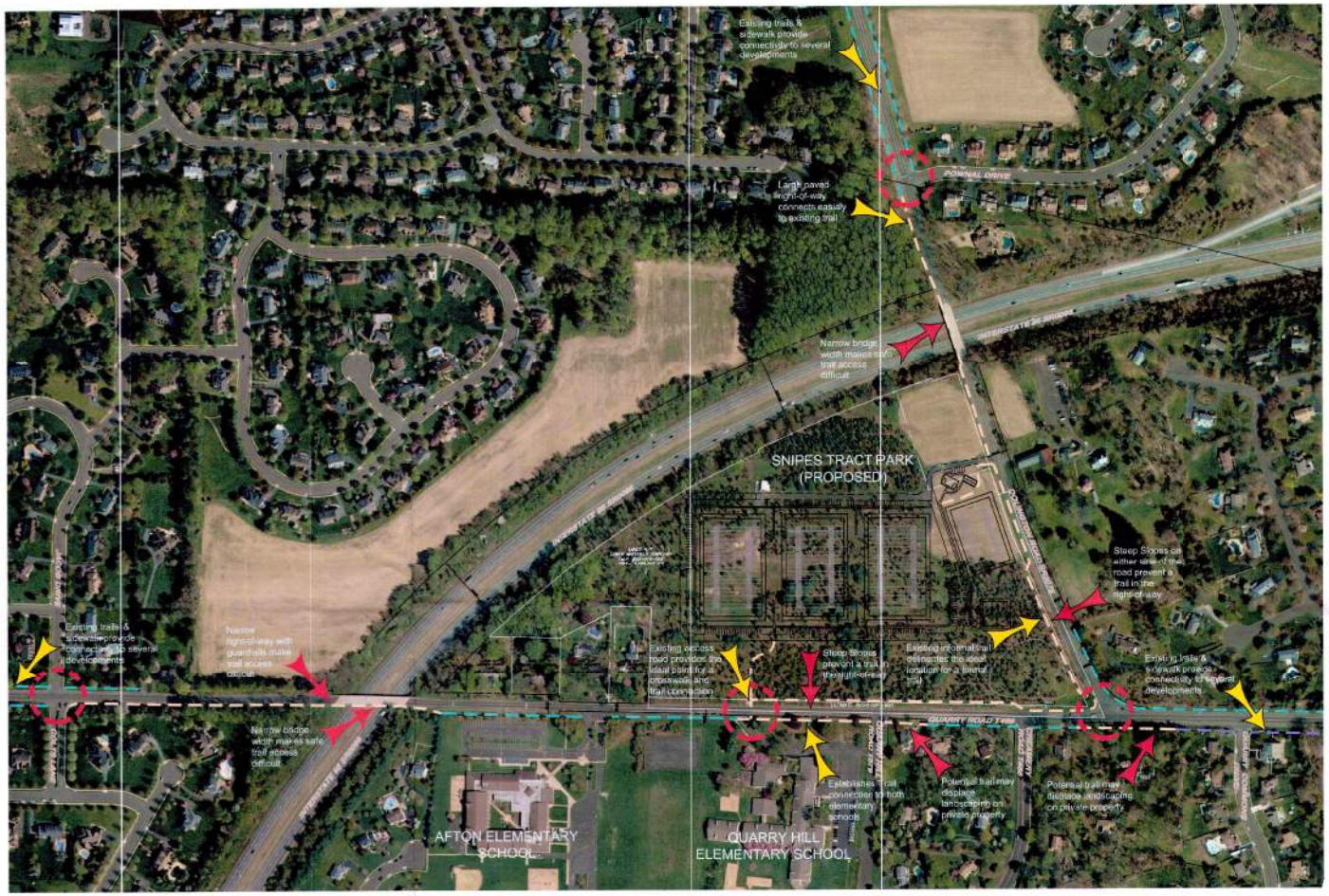
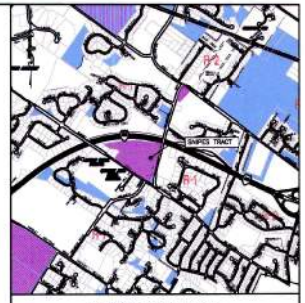
FIGURE 1

SITE LOCATION

$FILE$
$DATE$ $TIME$ $USER$ $MODEL$




LOCATION MAP

SCALE: 1"=2000'
SOURCE: LOWER MAKEFIELD TOWNSHIP STREET MAP

## LEGEND

- EXISTING ASPHALT PEDESTRIAN TRAIL (8' WIDE)
- EXISTING CONCRETE PEDESTRIAN SIDEWALK (5' WIDE)
- POTENTIAL PEDESTRIAN CONNECTIONS
- OPPORTUNITY
- CONSTRAINT
- EXISTING INTERSECTION, INTERVENTION REQUIRED FOR PEDESTRIAN SAFETY

## GENERAL NOTES

Aerial photography has been obtained from 2015 PASDA Southeast PA Aerial Photography.

The existing information contained herein was obtained from field observation on April 29, 2016.

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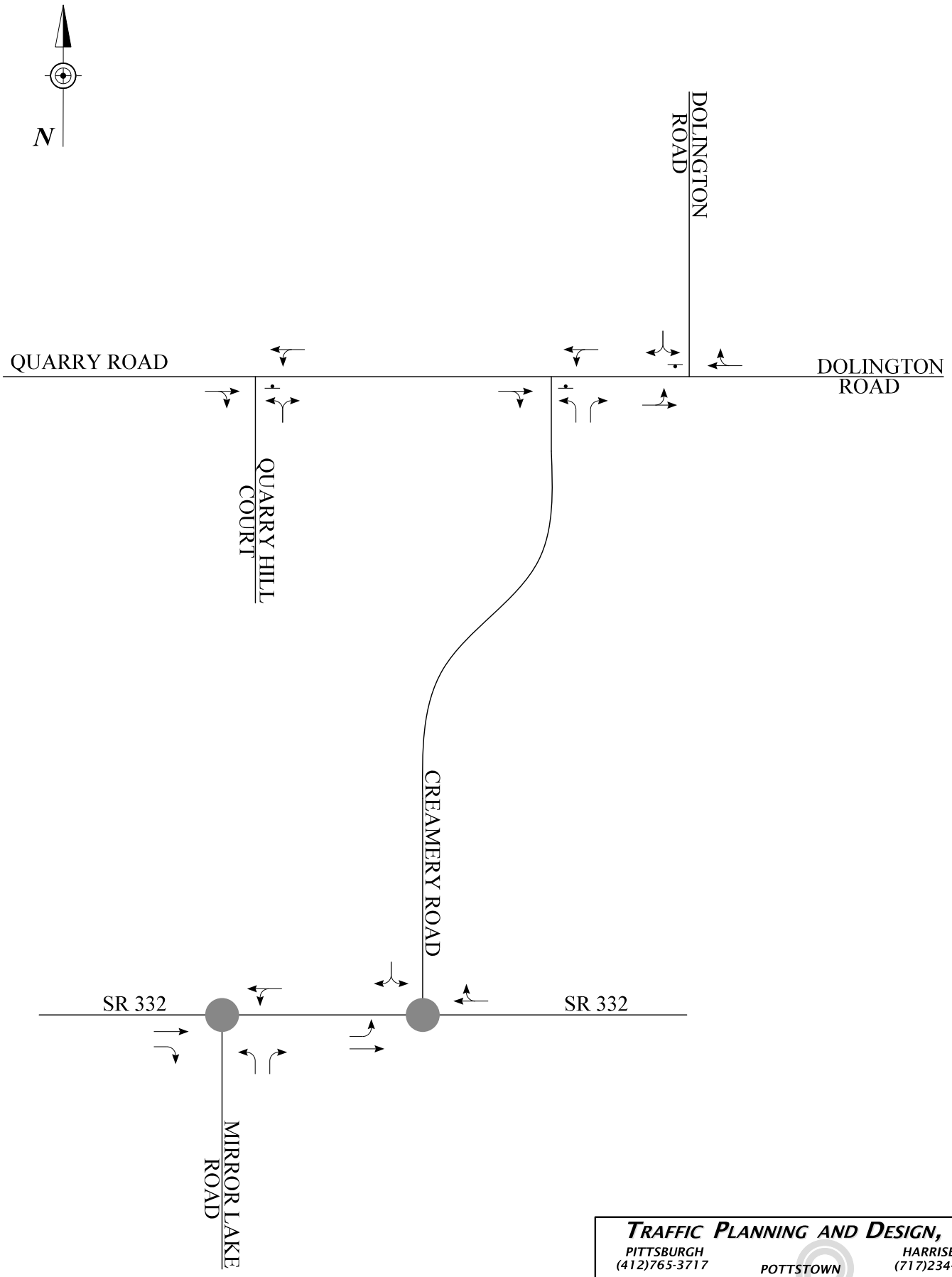
FIGURE 2

SITE PLAN




**KEY:**

- **STOP CONTROLLED**
- **SIGNALIZED INTERSECTION**

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FIGURE 3

LANE CONFIGURATIONS AND INTERSECTION CONTROL

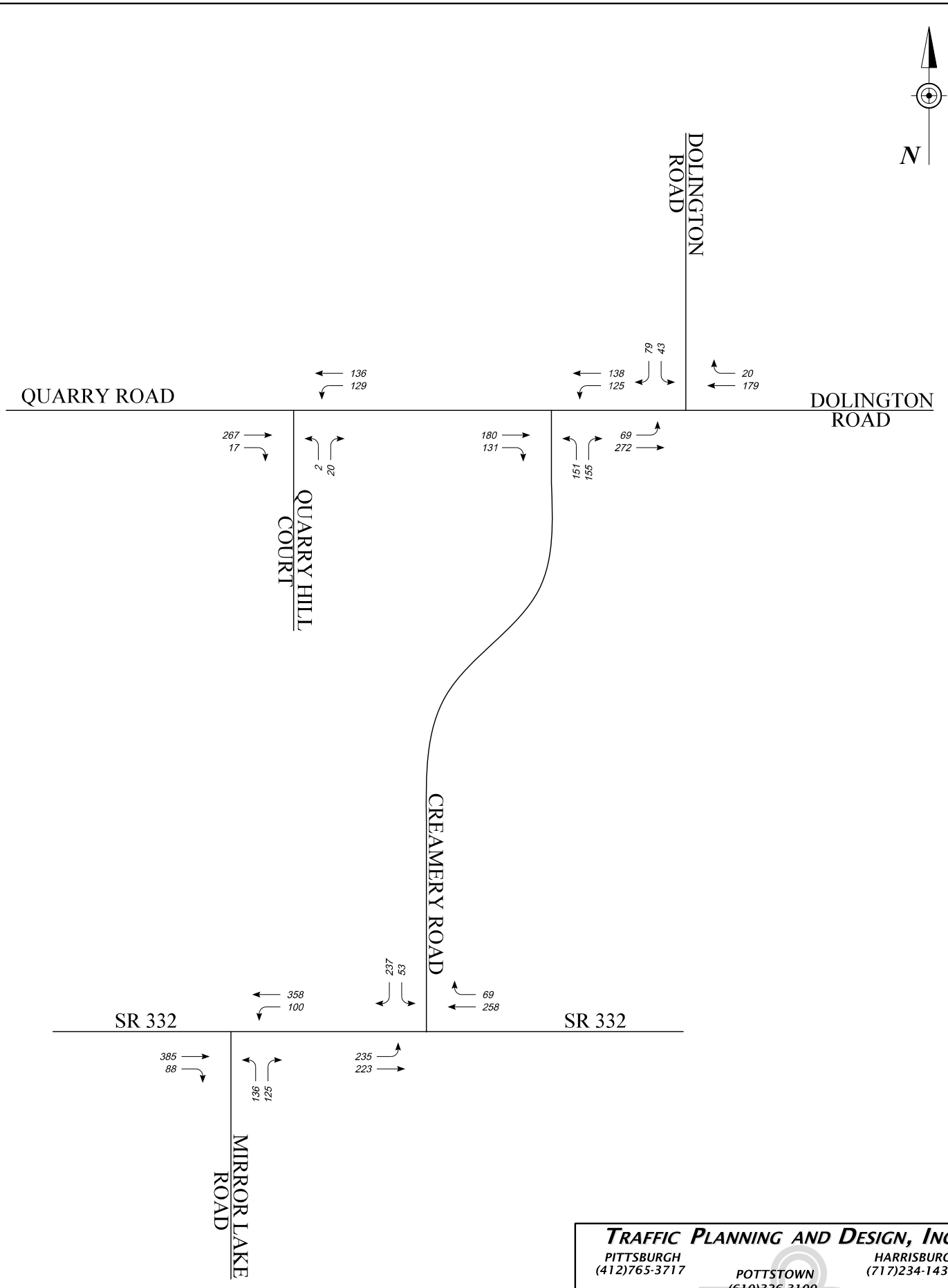


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FIGURE 4

EXISTING CONDITIONS
WEEKDAY A.M PEAK HOUR
TRAFFIC VOLUMES

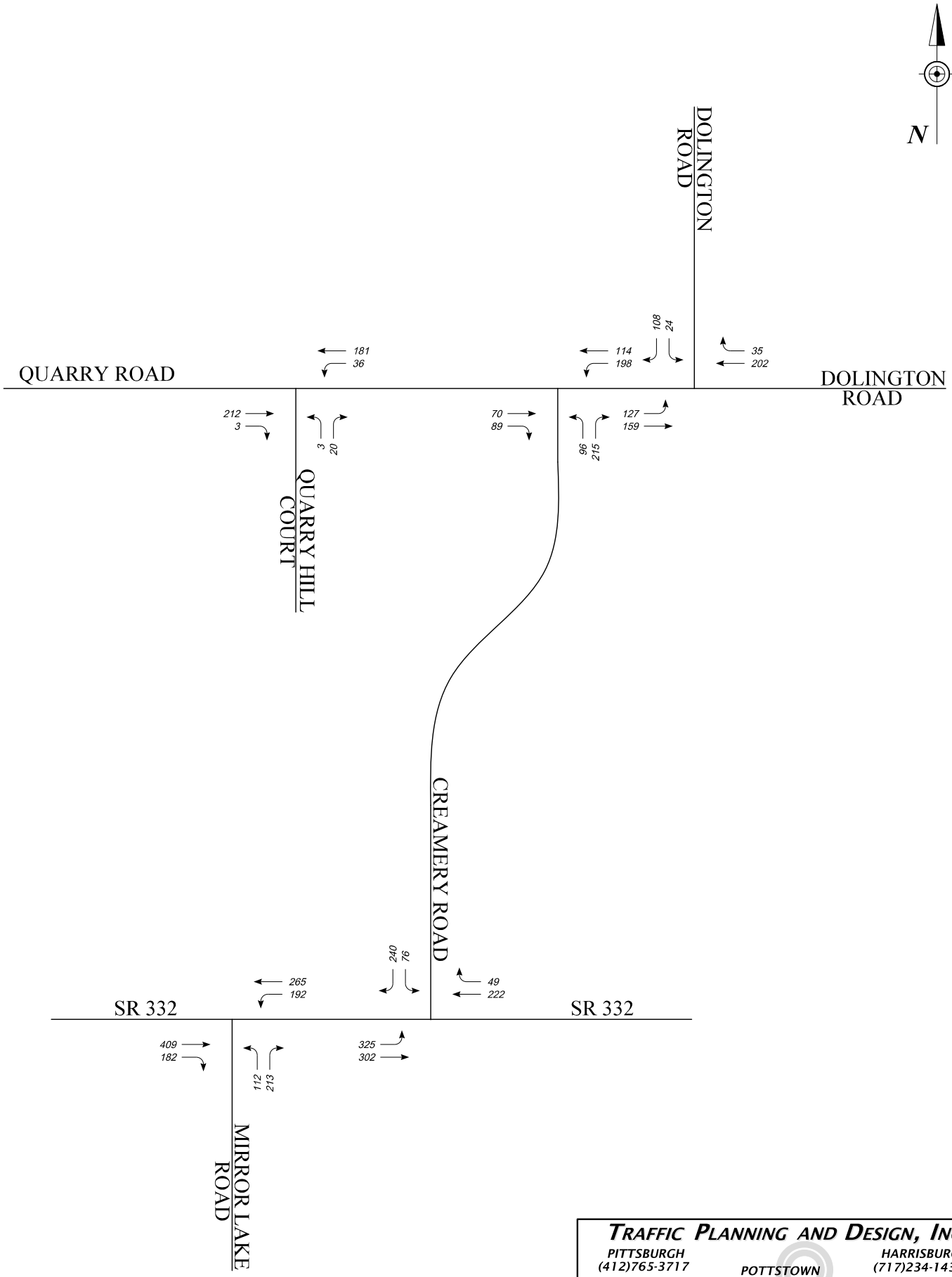


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FIGURE 5

EXISTING CONDITIONS
WEEKDAY P.M PEAK HOUR
TRAFFIC VOLUMES

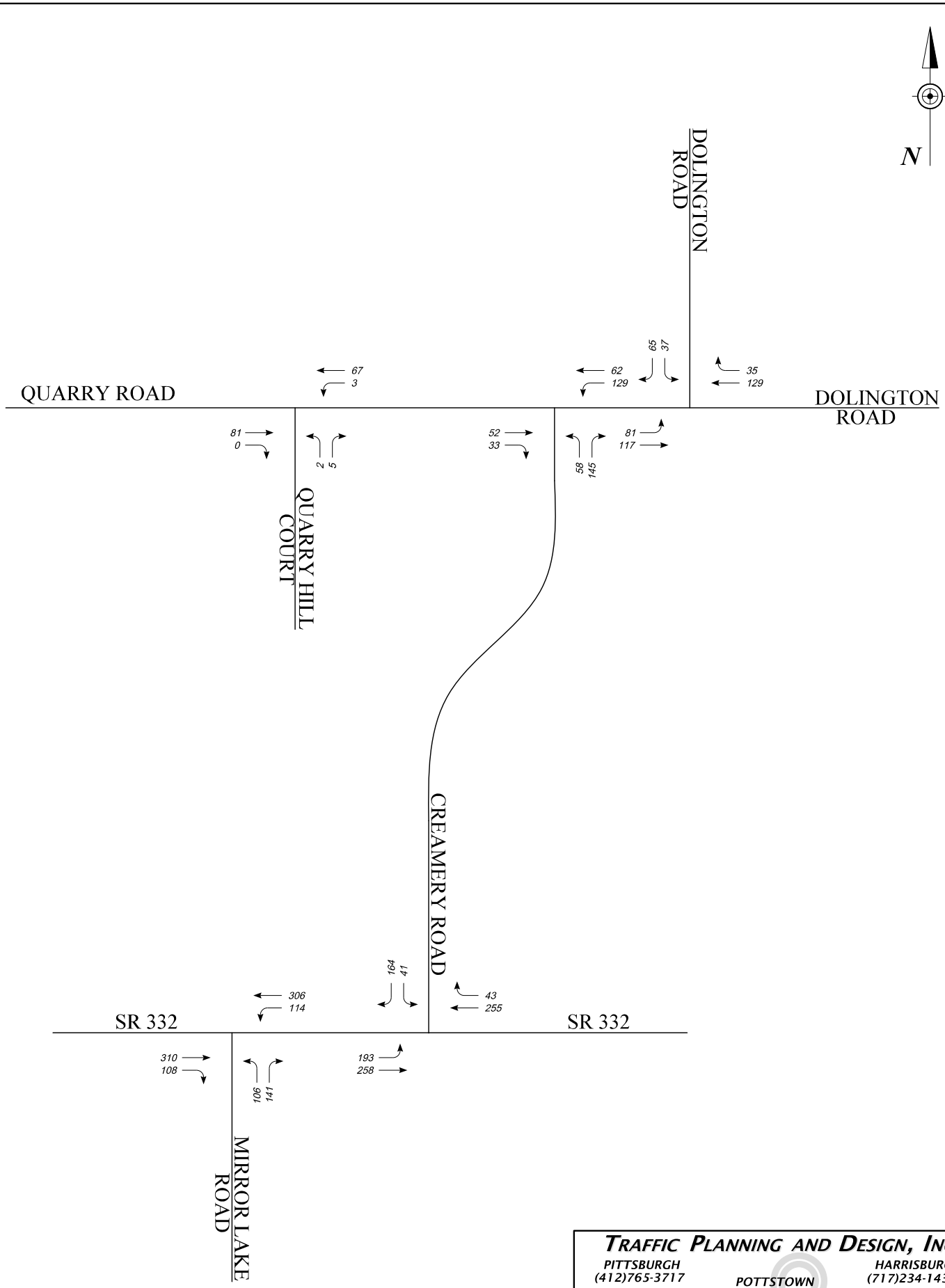


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FIGURE 6

EXISTING CONDITIONS
MIDDAY SAT PEAK HOUR
TRAFFIC VOLUMES

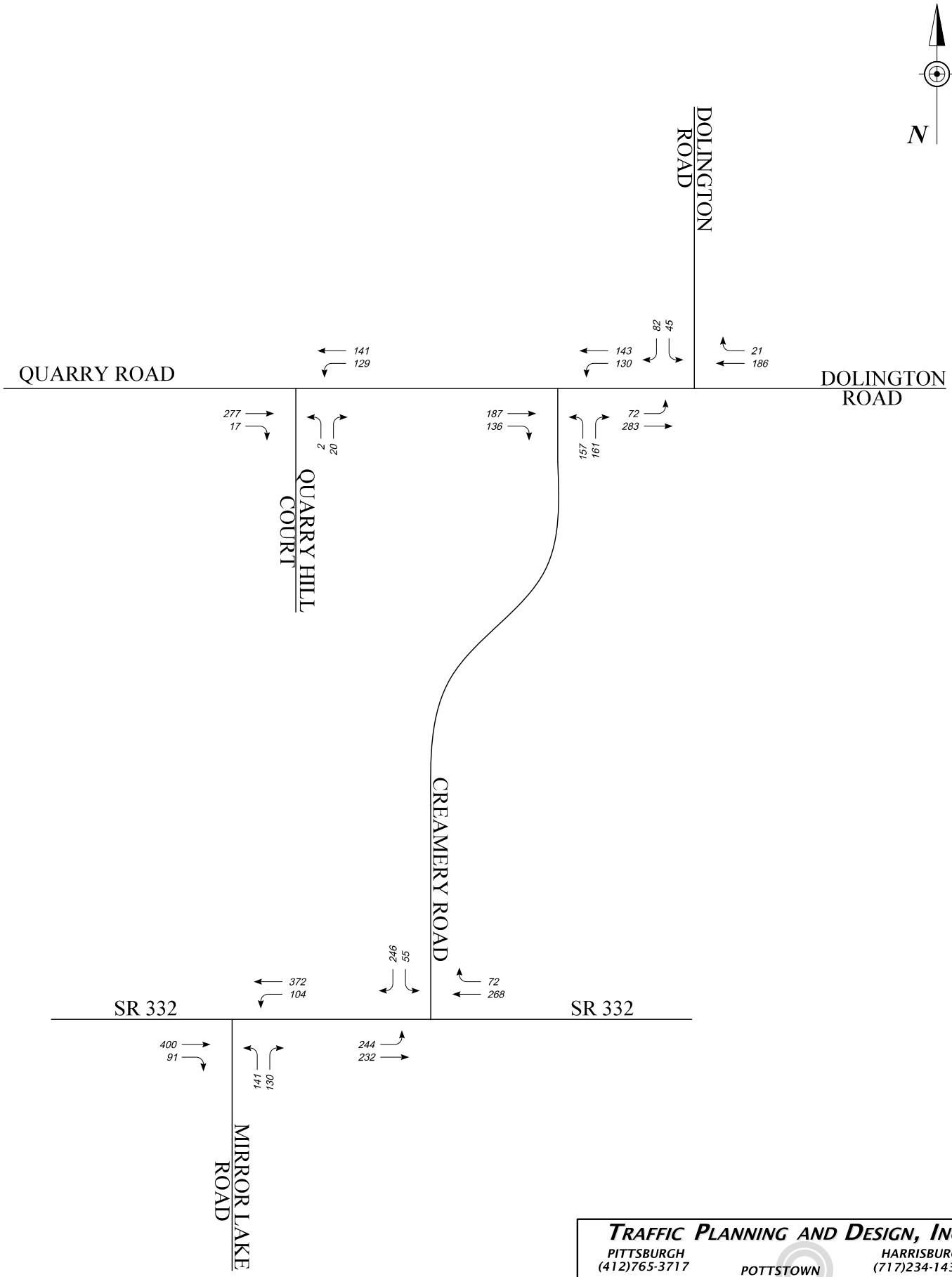


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FIGURE 7

2019 BASE CONDITIONS
WEEKDAY A.M PEAK HOUR
TRAFFIC VOLUMES

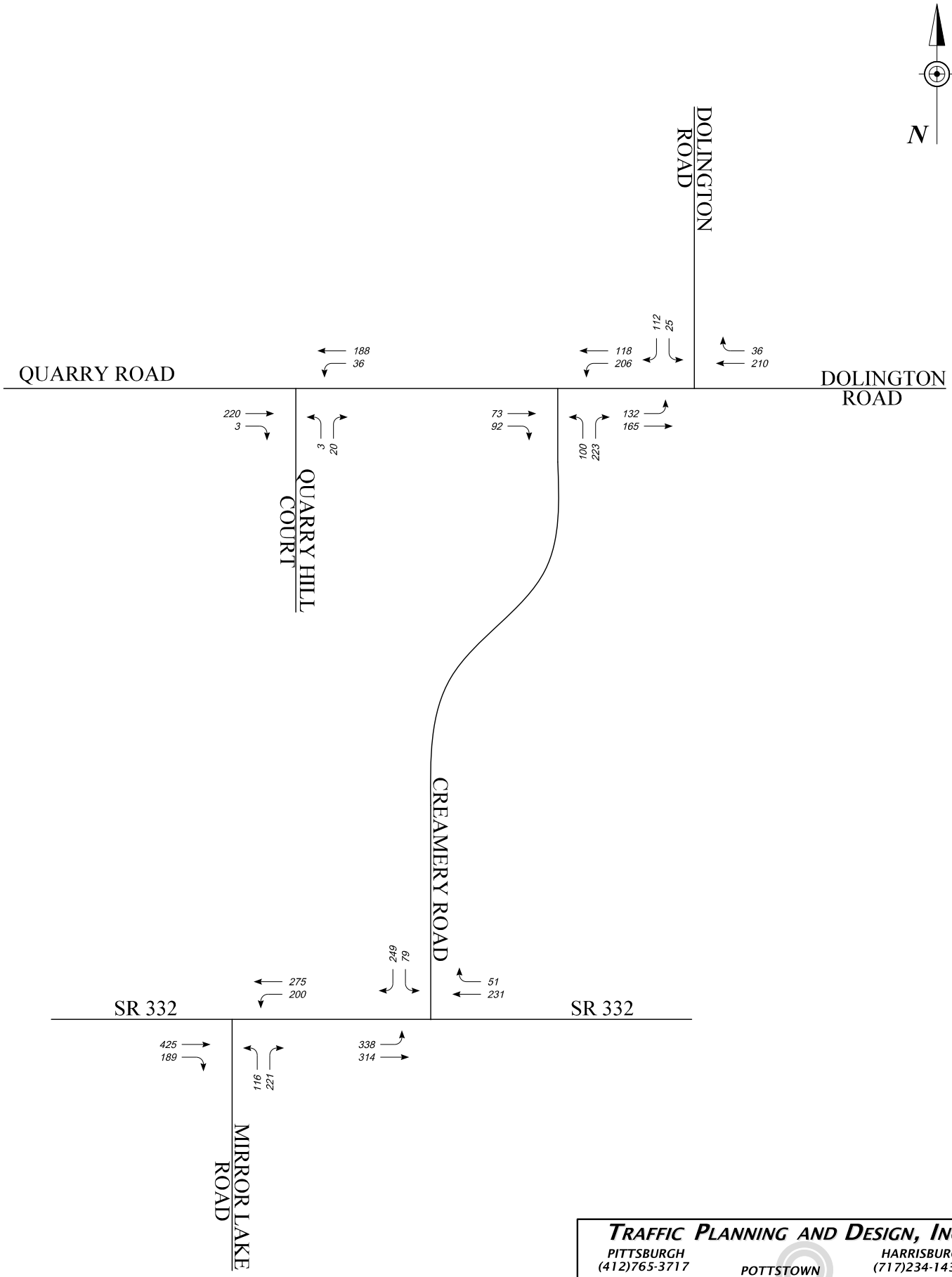


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FIGURE 8

2019 BASE CONDITIONS
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES

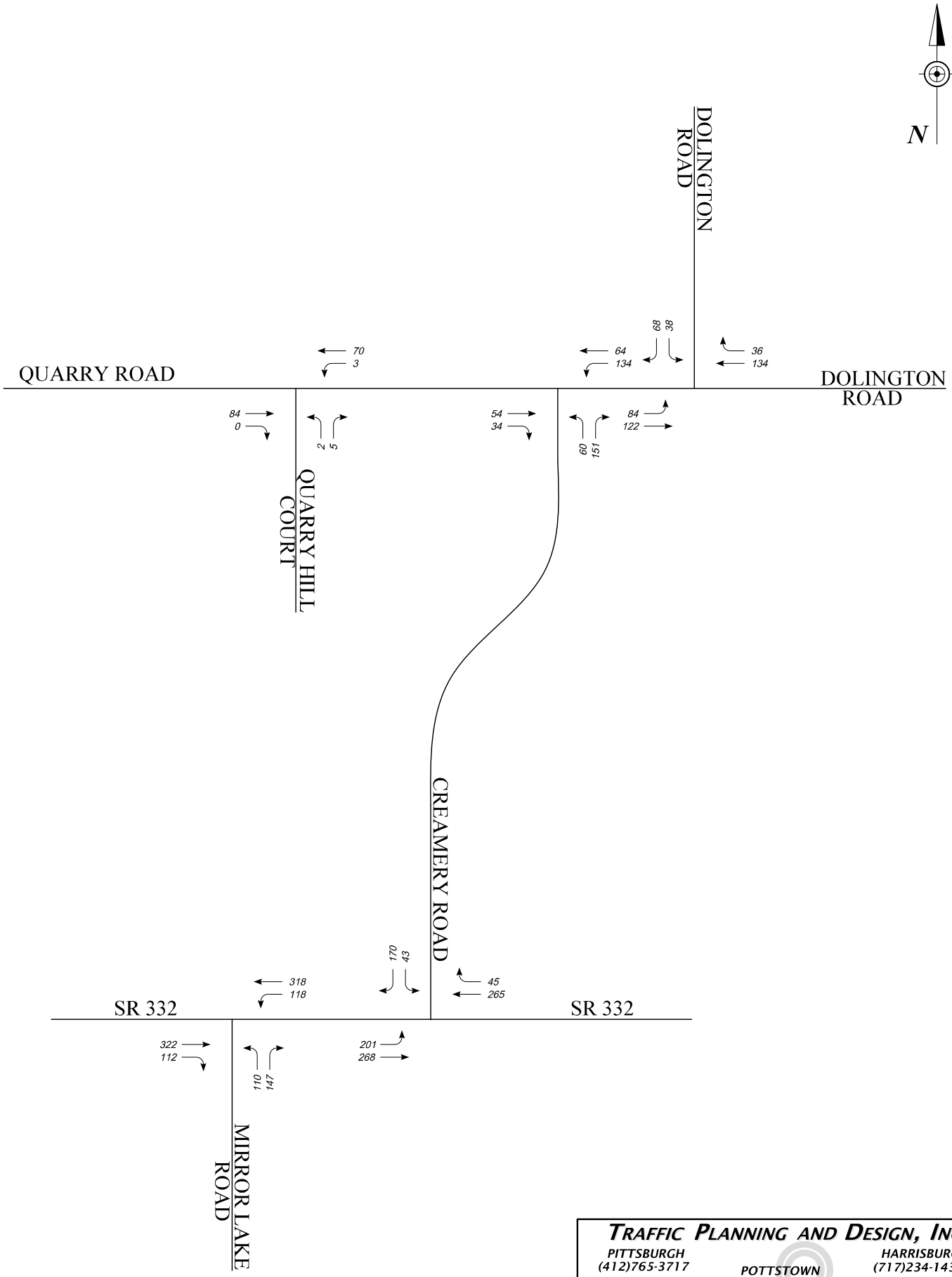


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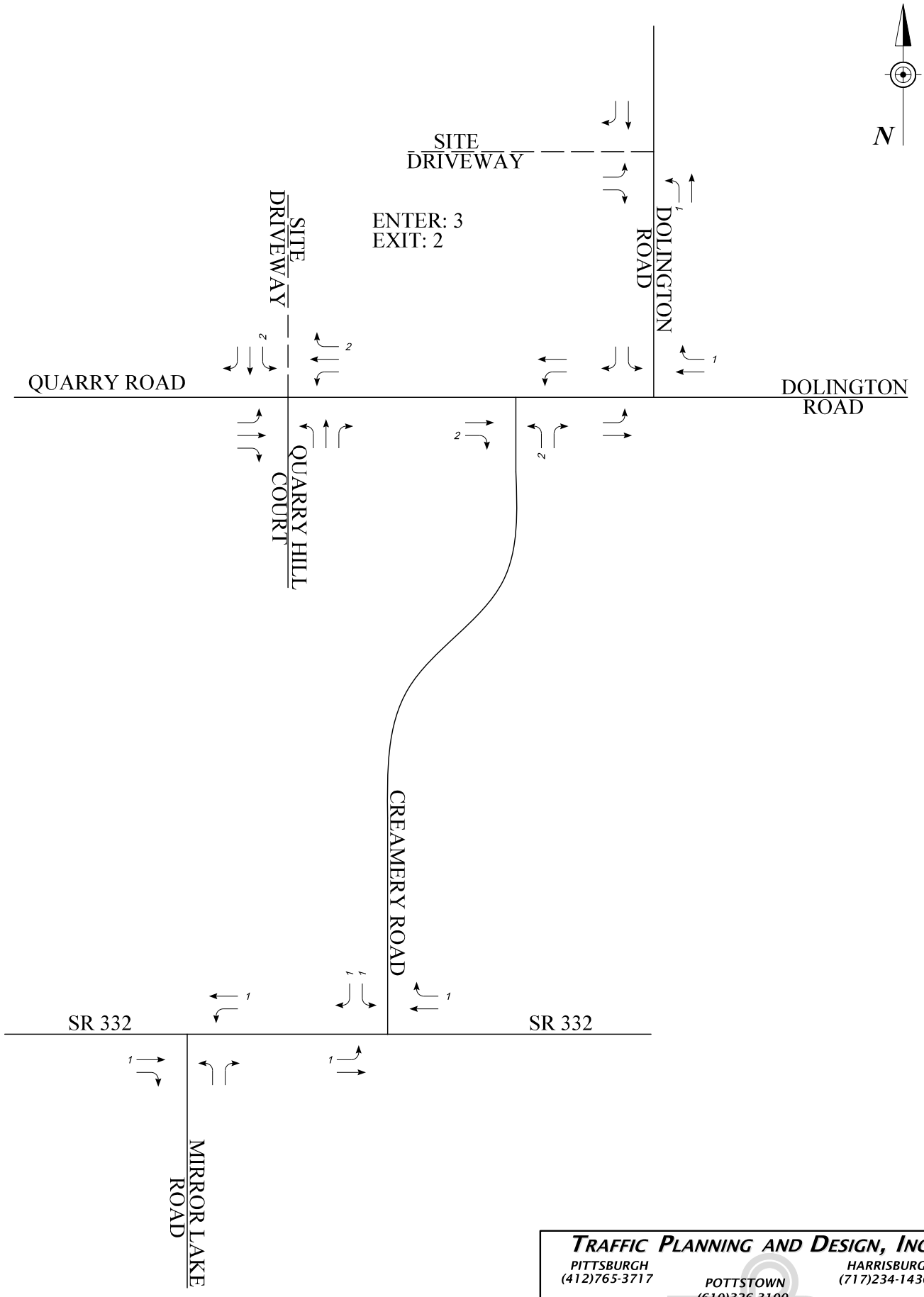
FIGURE 9

2019 BASE CONDITIONS
SAT MIDDAY PEAK HOUR
TRAFFIC VOLUMES




**KEY:**

– – – – – – **PROPOSED DRIVEWAY**

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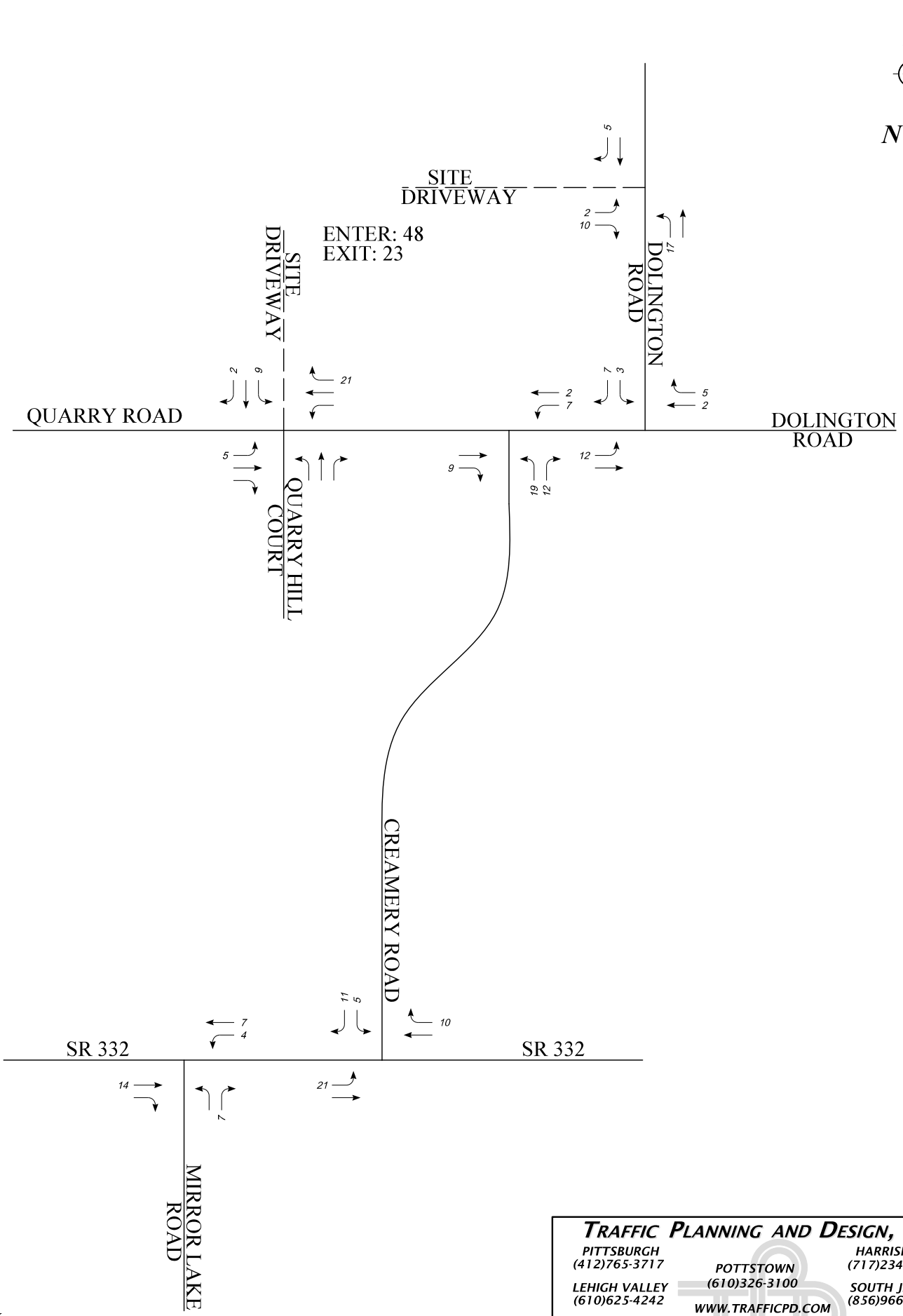
FIGURE 10

TRIP DISTRIBUTION
WEEKDAY A.M. PEAK HOUR
NEW TRIPS




**KEY:**

– – – – – – **PROPOSED DRIVEWAY**

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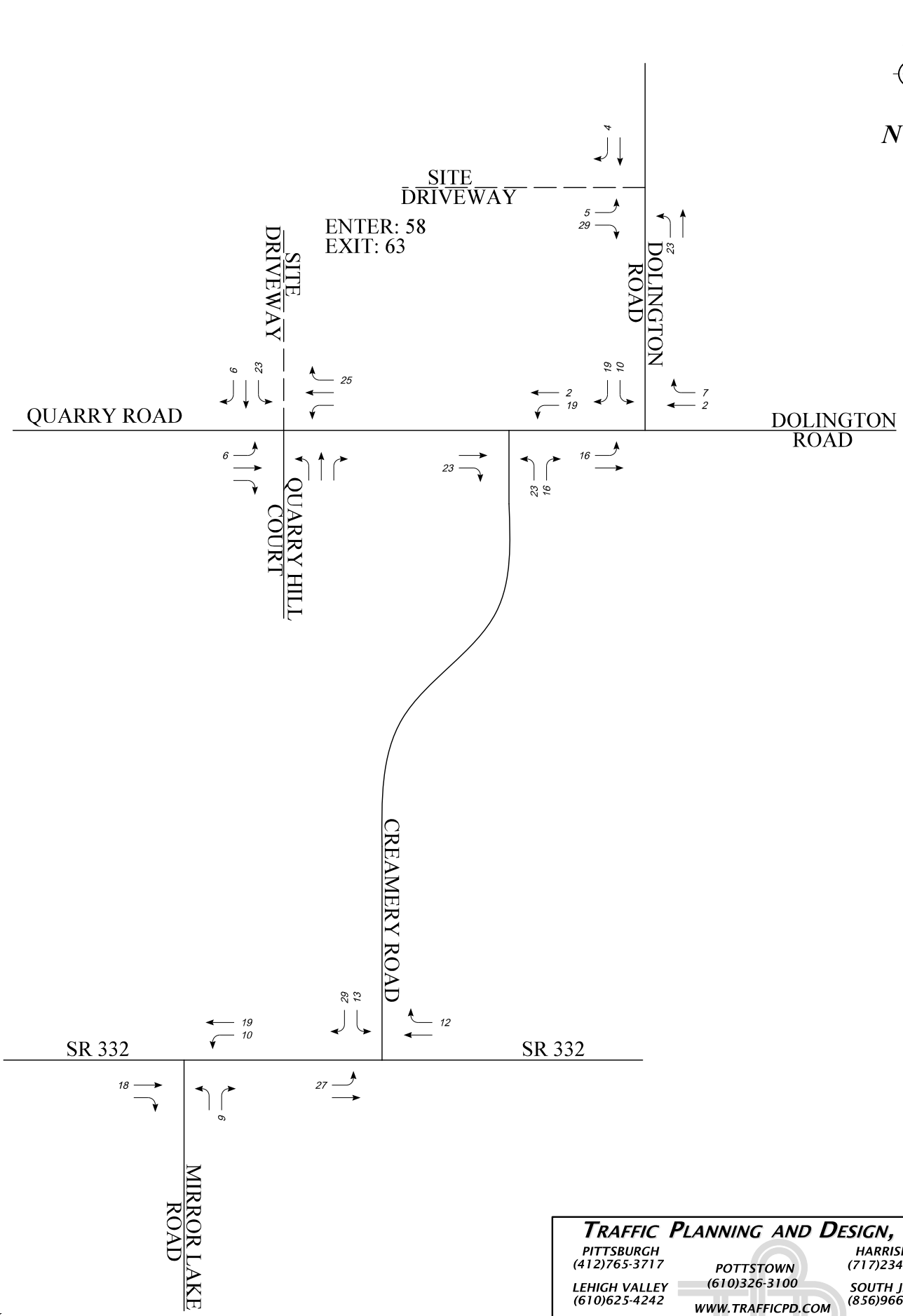
FIGURE 11

TRIP DISTRIBUTION
WEEKDAY P.M. PEAK HOUR
NEW TRIPS




**KEY:**

- - - - - - **PROPOSED DRIVEWAY**

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FIGURE 12

TRIP DISTRIBUTION
SAT MIDDAY PEAK HOUR
NEW TRIPS

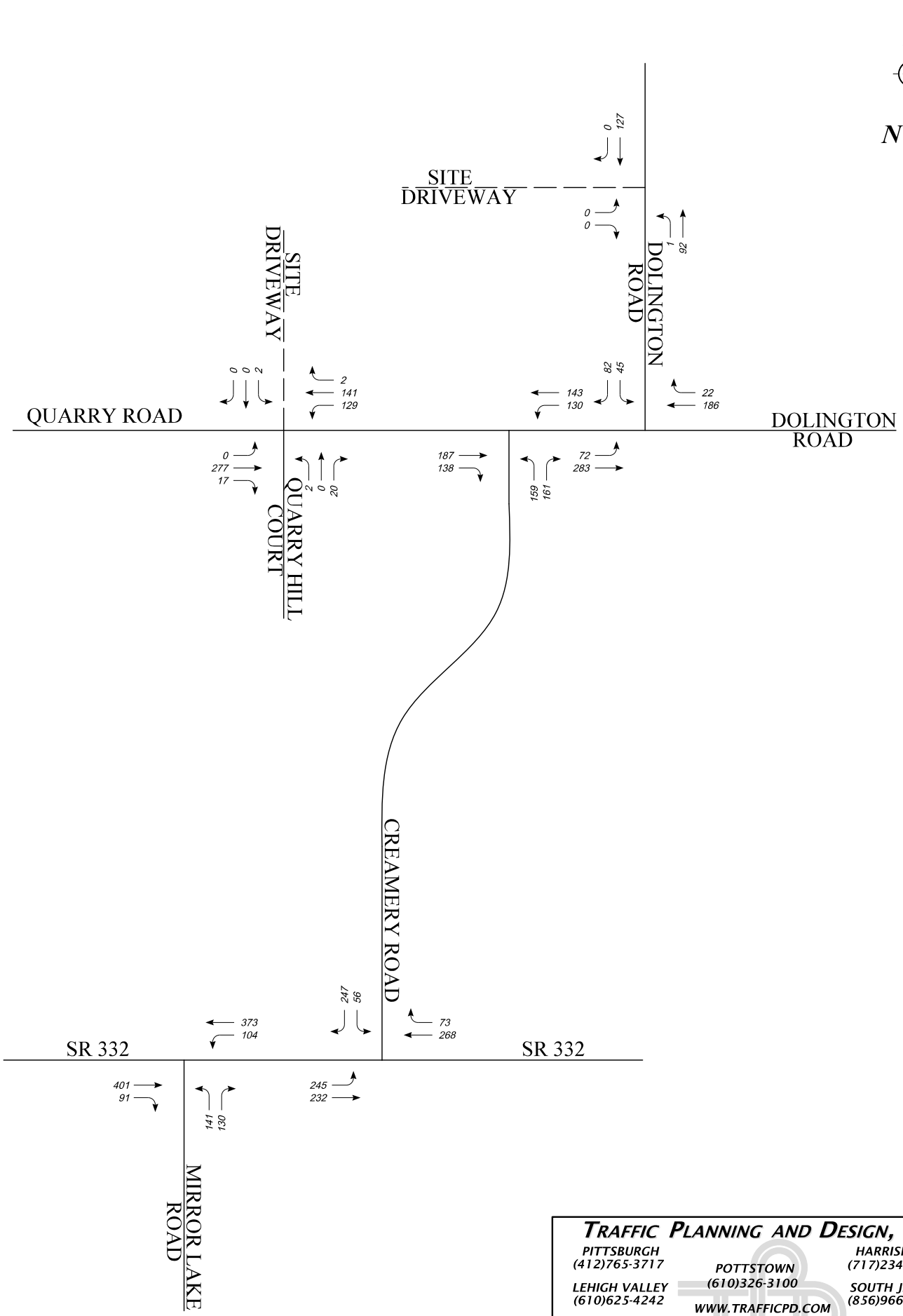


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FIGURE 13

2019 PROJECTED CONDITIONS
WEEKDAY A.M. PEAK HOUR
TRAFFIC VOLUMES

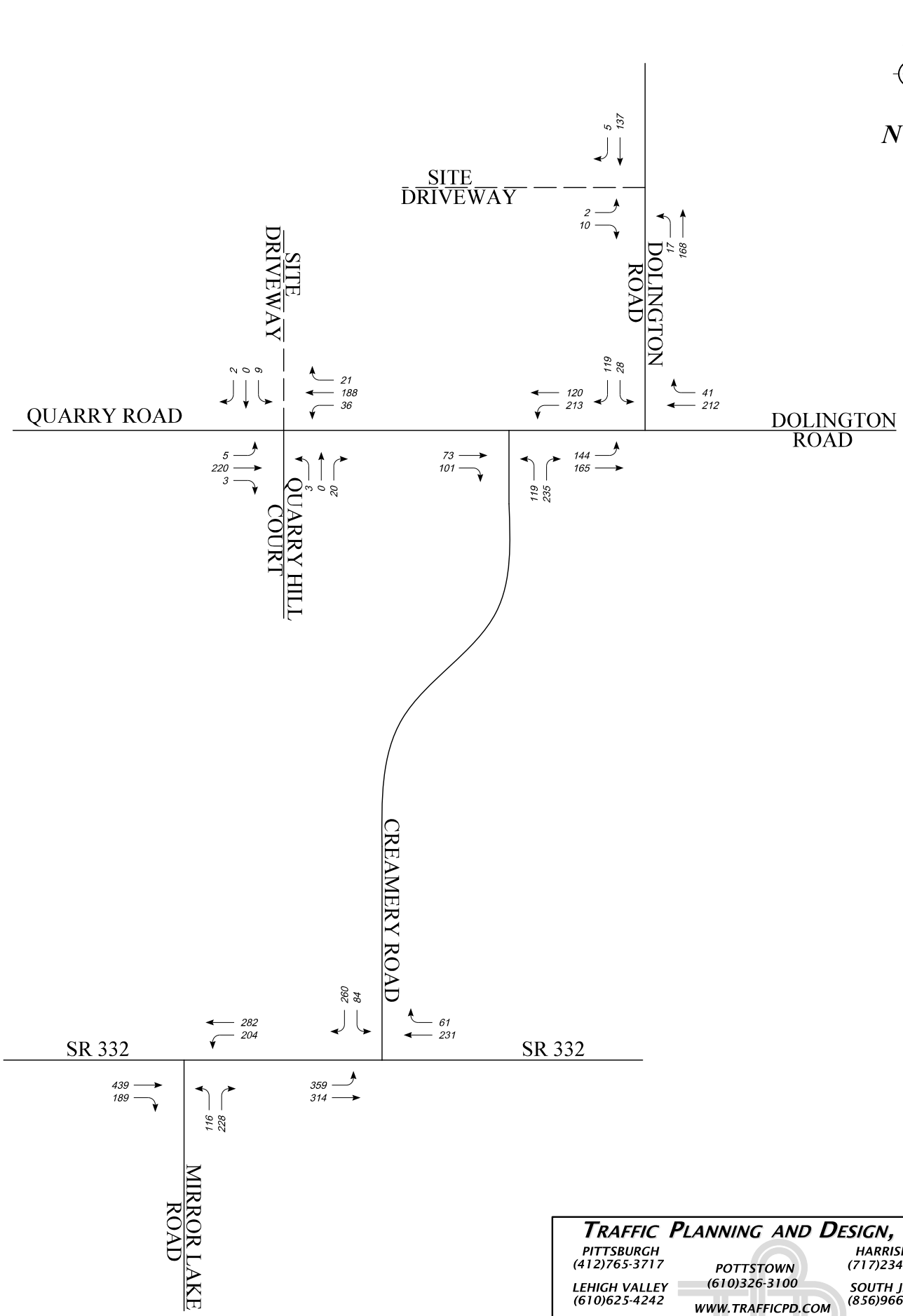


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FIGURE 14

2019 PROJECTED CONDITIONS
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES

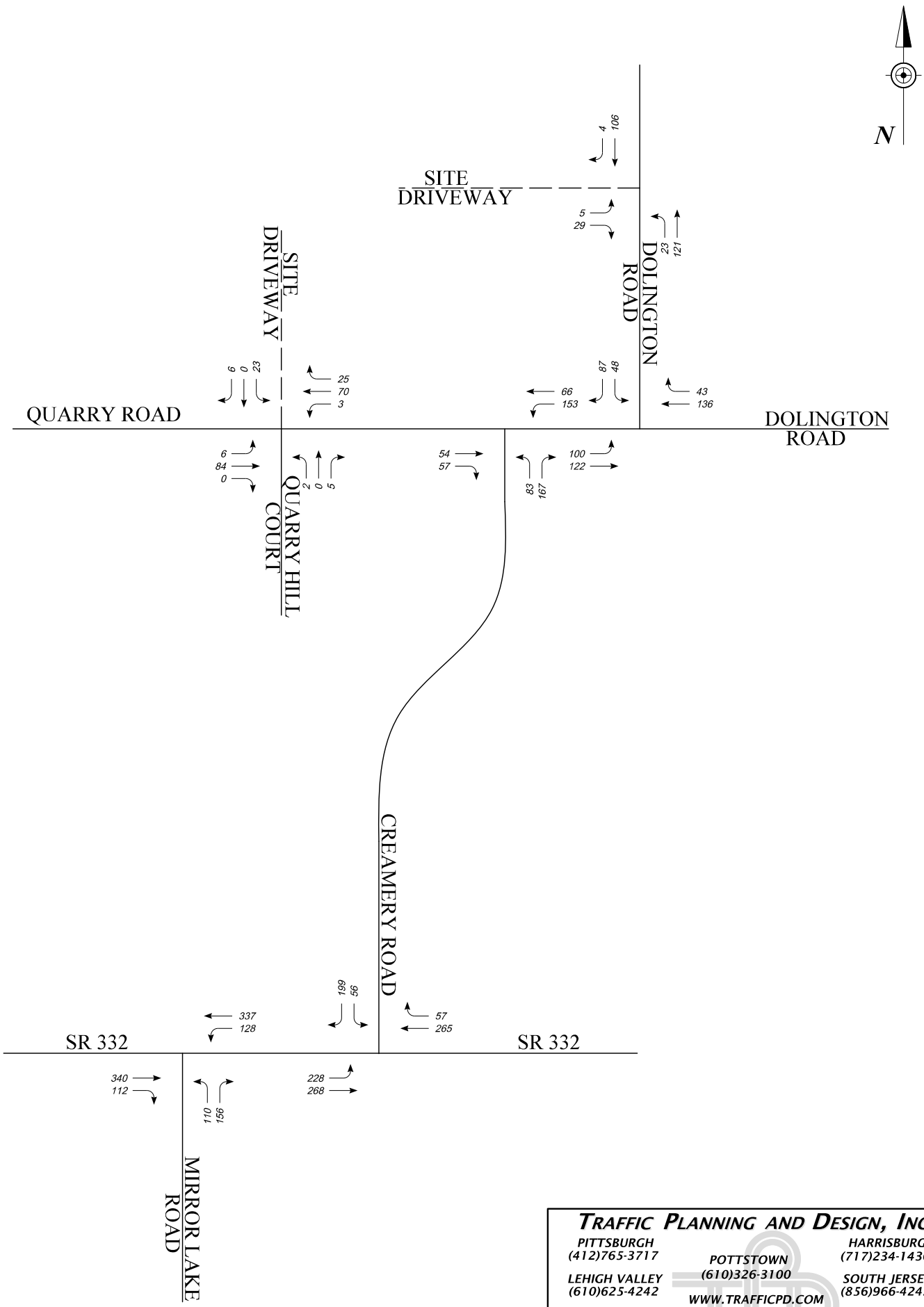


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FIGURE 15

2019 PROJECTED CONDITIONS
SAT MIDDAY PEAK HOUR
TRAFFIC VOLUMES

# *APPENDIX A:*

## *Study Area Photographs*

*Job #:* *LOMT.00047* *Date Taken:* *8/25/16* *Intersection Of:* *SR 332 & Mirror Lake Road*

| | |
|---|---|
| **Direction / Road:** | **EB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **EB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* SR 332 & Mirror Lake Road

| | |
|---|---|
| **Direction / Road:** | **WB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **WB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* SR 332 & Mirror Lake Road


| | |
|---|---|
| **Direction / Road:** | **NB Mirror Lake Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **NB Mirror Lake Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

| Job #: | LOMT.00047 | Date Taken: | 8/25/16 | Intersection Of: | SR 332 & Creamery Road |
|---|---|---|---|---|---|


| | |
|---|---|
| **Direction / Road:** | **EB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **100’** |

| | |
|---|---|
| **Direction / Road:** | **EB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* SR 332 & Creamery Road

| | |
|---|---|
| **Direction / Road:** | **WB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **WB SR 332** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* SR 332 & Creamery Road

| | |
|---|---|
| **Direction / Road:** | **SB Creamery Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **SB Creamery Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* *LOMT.00047* *Date Taken:* *8/25/16* *Intersection Of:* *Quarry Road and Creamery Road*

| | |
|---|---|
| **Direction / Road:** | **EB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **EB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* Quarry Road and Creamery Road

| | |
|---|---|
| **Direction / Road:** | **WB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |


| | |
|---|---|
| **Direction / Road:** | **WB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* LOMT.00047 *Date Taken:* 8/25/16 *Intersection Of:* Quarry Road and Creamery Road


| | |
|---|---|
| **Direction / Road:** | **NB Creamery Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **NB Creamery Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* *LOMT.00047* *Date Taken:* *8/25/16* *Intersection Of:* *Quarry Road and Dolington Road*

| | |
|---|---|
| **Direction / Road:** | **EB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **EB Quarry Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* *LOMT.00047* *Date Taken:* *8/25/16* *Intersection Of:* *Quarry Road and Dolington Road*

| | |
|---|---|
| **Direction / Road:** | **WB Dolington Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **WB Dolington Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

*Job #:* *LOMT.00047* *Date Taken:* *8/25/16* *Intersection Of:* *Quarry Road and Dolington Road*


| | |
|---|---|
| **Direction / Road:** | **SB Dolington Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **50’** |

| | |
|---|---|
| **Direction / Road:** | **SB Dolington Road** |
| **Approach / Departure:** | **Approach** |
| **Distance:** | **200’** |

# *APPENDIX B:*

## *Manual Traffic Count Printouts*

*Yardley Newtown Road (S.R. 0332) &*
*Mirror Lake Road (S.R. 2087)*

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Data

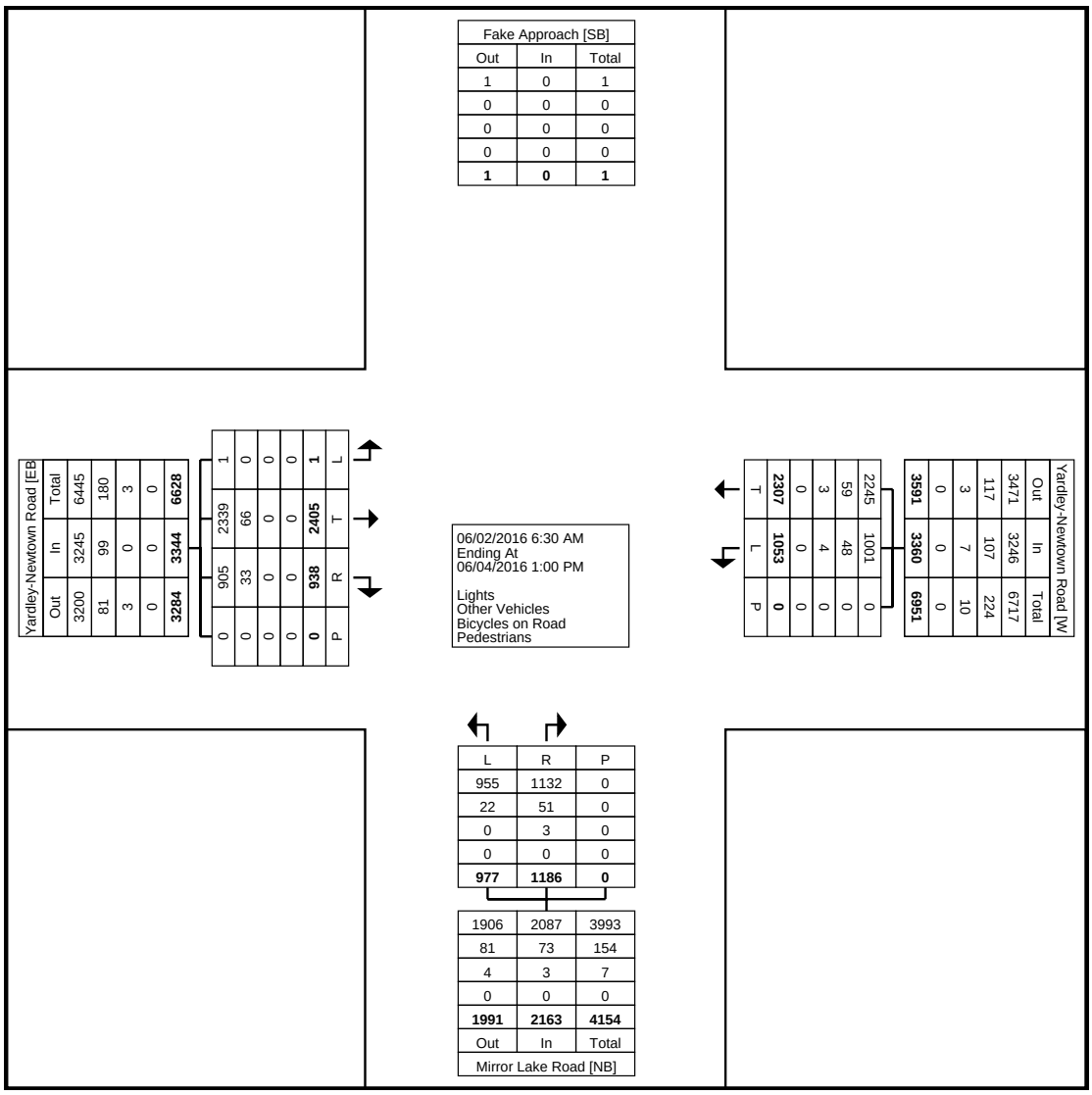
| Start Time | Yardley-Newtown Road Eastbound | | | | | Yardley-Newtown Road Westbound | | | | Mirror Lake Road Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 6:30 AM | 0 | 22 | 6 | 0 | 28 | 15 | 52 | 0 | 67 | 27 | 6 | 1 | 0 | 34 | 129 |
| 6:45 AM | 0 | 27 | 7 | 0 | 34 | 25 | 71 | 0 | 96 | 40 | 4 | 7 | 0 | 51 | 181 |
| Hourly Total | 0 | 49 | 13 | 0 | 62 | 40 | 123 | 0 | 163 | 67 | 10 | 8 | 0 | 85 | 310 |
| 7:00 AM | 0 | 33 | 7 | 0 | 40 | 19 | 70 | 0 | 89 | 57 | 11 | 2 | 0 | 70 | 199 |
| 7:15 AM | 0 | 51 | 11 | 0 | 62 | 20 | 94 | 0 | 114 | 44 | 18 | 7 | 0 | 69 | 245 |
| 7:30 AM | 0 | 90 | 14 | 0 | 104 | 21 | 84 | 0 | 105 | 42 | 31 | 8 | 0 | 81 | 290 |
| 7:45 AM | 0 | 117 | 24 | 0 | 141 | 23 | 94 | 0 | 117 | 40 | 27 | 1 | 0 | 68 | 326 |
| Hourly Total | 0 | 291 | 56 | 0 | 347 | 83 | 342 | 0 | 425 | 183 | 87 | 18 | 0 | 288 | 1060 |
| 8:00 AM | 0 | 100 | 26 | 0 | 126 | 26 | 94 | 0 | 120 | 26 | 25 | 8 | 0 | 59 | 305 |
| 8:15 AM | 1 | 78 | 24 | 0 | 103 | 30 | 86 | 0 | 116 | 28 | 19 | 6 | 0 | 53 | 272 |
| 8:30 AM | 0 | 71 | 21 | 0 | 92 | 22 | 81 | 0 | 103 | 36 | 32 | 18 | 0 | 86 | 281 |
| 8:45 AM | 0 | 64 | 30 | 0 | 94 | 61 | 93 | 0 | 154 | 37 | 25 | 11 | 0 | 73 | 321 |
| Hourly Total | 1 | 313 | 101 | 0 | 415 | 139 | 354 | 0 | 493 | 127 | 101 | 43 | 0 | 271 | 1179 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2:30 PM | 0 | 65 | 21 | 0 | 86 | 24 | 54 | 0 | 78 | 30 | 34 | 3 | 0 | 67 | 231 |
| 2:45 PM | 0 | 84 | 39 | 0 | 123 | 34 | 61 | 0 | 95 | 25 | 35 | 10 | 0 | 70 | 288 |
| Hourly Total | 0 | 149 | 60 | 0 | 209 | 58 | 115 | 0 | 173 | 55 | 69 | 13 | 0 | 137 | 519 |
| 3:00 PM | 0 | 78 | 25 | 0 | 103 | 26 | 49 | 0 | 75 | 25 | 45 | 2 | 0 | 72 | 250 |
| 3:15 PM | 0 | 75 | 43 | 0 | 118 | 31 | 65 | 0 | 96 | 21 | 51 | 2 | 0 | 74 | 288 |
| 3:30 PM | 0 | 66 | 34 | 0 | 100 | 50 | 79 | 0 | 129 | 21 | 29 | 8 | 0 | 58 | 287 |
| 3:45 PM | 0 | 80 | 42 | 0 | 122 | 50 | 89 | 0 | 139 | 26 | 34 | 7 | 0 | 67 | 328 |
| Hourly Total | 0 | 299 | 144 | 0 | 443 | 157 | 282 | 0 | 439 | 93 | 159 | 19 | 0 | 271 | 1153 |
| 4:00 PM | 0 | 67 | 31 | 0 | 98 | 46 | 56 | 0 | 102 | 22 | 42 | 1 | 0 | 65 | 265 |
| 4:15 PM | 0 | 85 | 43 | 0 | 128 | 34 | 76 | 0 | 110 | 28 | 36 | 3 | 0 | 67 | 305 |
| 4:30 PM | 0 | 89 | 46 | 0 | 135 | 48 | 73 | 0 | 121 | 35 | 23 | 17 | 0 | 75 | 331 |
| 4:45 PM | 0 | 86 | 59 | 0 | 145 | 31 | 54 | 0 | 85 | 30 | 36 | 14 | 0 | 80 | 310 |
| Hourly Total | 0 | 327 | 179 | 0 | 506 | 159 | 259 | 0 | 418 | 115 | 137 | 35 | 0 | 287 | 1211 |
| 5:00 PM | 0 | 98 | 40 | 0 | 138 | 40 | 84 | 0 | 124 | 32 | 26 | 20 | 0 | 78 | 340 |
| 5:15 PM | 0 | 100 | 49 | 0 | 149 | 48 | 42 | 0 | 90 | 29 | 29 | 33 | 0 | 91 | 330 |
| 5:30 PM | 0 | 93 | 41 | 0 | 134 | 51 | 66 | 0 | 117 | 28 | 15 | 29 | 0 | 72 | 323 |
| 5:45 PM | 0 | 118 | 52 | 0 | 170 | 53 | 73 | 0 | 126 | 23 | 44 | 17 | 0 | 84 | 380 |
| Hourly Total | 0 | 409 | 182 | 0 | 591 | 192 | 265 | 0 | 457 | 112 | 114 | 99 | 0 | 325 | 1373 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11:00 AM | 0 | 60 | 23 | 0 | 83 | 29 | 57 | 0 | 86 | 26 | 24 | 3 | 0 | 53 | 222 |
| 11:15 AM | 0 | 71 | 27 | 0 | 98 | 25 | 77 | 0 | 102 | 29 | 23 | 11 | 0 | 63 | 263 |
| 11:30 AM | 0 | 68 | 17 | 0 | 85 | 28 | 58 | 0 | 86 | 30 | 25 | 13 | 0 | 68 | 239 |
| 11:45 AM | 0 | 59 | 28 | 0 | 87 | 29 | 69 | 0 | 98 | 34 | 27 | 7 | 0 | 68 | 253 |
| Hourly Total | 0 | 258 | 95 | 0 | 353 | 111 | 261 | 0 | 372 | 119 | 99 | 34 | 0 | 252 | 977 |
| 12:00 PM | 0 | 70 | 27 | 0 | 97 | 37 | 72 | 0 | 109 | 21 | 17 | 13 | 0 | 51 | 257 |
| 12:15 PM | 0 | 80 | 29 | 0 | 109 | 25 | 74 | 0 | 99 | 32 | 23 | 15 | 0 | 70 | 278 |
| 12:30 PM | 0 | 60 | 19 | 0 | 79 | 30 | 85 | 0 | 115 | 27 | 23 | 11 | 0 | 61 | 255 |
| 12:45 PM | 0 | 100 | 33 | 0 | 133 | 22 | 75 | 0 | 97 | 26 | 27 | 12 | 0 | 65 | 295 |
| Hourly Total | 0 | 310 | 108 | 0 | 418 | 114 | 306 | 0 | 420 | 106 | 90 | 51 | 0 | 247 | 1085 |
| Grand Total | 1 | 2405 | 938 | 0 | 3344 | 1053 | 2307 | 0 | 3360 | 977 | 866 | 320 | 0 | 2163 | 8867 |
| Approach % | 0.0 | 71.9 | 28.1 | - | - | 31.3 | 68.7 | - | - | 45.2 | 40.0 | 14.8 | - | - | - |
| Total % | 0.0 | 27.1 | 10.6 | - | 37.7 | 11.9 | 26.0 | - | 37.9 | 11.0 | 9.8 | 3.6 | - | 24.4 | - |
| Lights | 1 | 2339 | 905 | - | 3245 | 1001 | 2245 | - | 3246 | 955 | 822 | 310 | - | 2087 | 8578 |
| % Lights | 100.0 | 97.3 | 96.5 | - | 97.0 | 95.1 | 97.3 | - | 96.6 | 97.7 | 94.9 | 96.9 | - | 96.5 | 96.7 |
| Other Vehicles | 0 | 66 | 33 | - | 99 | 48 | 59 | - | 107 | 22 | 41 | 10 | - | 73 | 279 |
| % Other Vehicles | 0.0 | 2.7 | 3.5 | - | 3.0 | 4.6 | 2.6 | - | 3.2 | 2.3 | 4.7 | 3.1 | - | 3.4 | 3.1 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 4 | 3 | - | 7 | 0 | 3 | 0 | - | 3 | 10 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.4 | 0.1 | - | 0.2 | 0.0 | 0.3 | 0.0 | - | 0.1 | 0.1 |
| Pedestrians | - | - | - | 0 | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Data Plot

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (7:30 AM)

| Start Time | Yardley-Newtown Road Eastbound | | | | | Yardley-Newtown Road Westbound | | | | Mirror Lake Road Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 7:30 AM | 0 | 90 | 14 | 0 | 104 | 21 | 84 | 0 | 105 | 42 | 31 | 8 | 0 | 81 | 290 |
| 7:45 AM | 0 | 117 | 24 | 0 | 141 | 23 | 94 | 0 | 117 | 40 | 27 | 1 | 0 | 68 | 326 |
| 8:00 AM | 0 | 100 | 26 | 0 | 126 | 26 | 94 | 0 | 120 | 26 | 25 | 8 | 0 | 59 | 305 |
| 8:15 AM | 1 | 78 | 24 | 0 | 103 | 30 | 86 | 0 | 116 | 28 | 19 | 6 | 0 | 53 | 272 |
| Total | 1 | 385 | 88 | 0 | 474 | 100 | 358 | 0 | 458 | 136 | 102 | 23 | 0 | 261 | 1193 |
| Approach % | 0.2 | 81.2 | 18.6 | - | - | 21.8 | 78.2 | - | - | 52.1 | 39.1 | 8.8 | - | - | - |
| Total % | 0.1 | 32.3 | 7.4 | - | 39.7 | 8.4 | 30.0 | - | 38.4 | 11.4 | 8.5 | 1.9 | - | 21.9 | - |
| PHF | 0.250 | 0.823 | 0.846 | - | 0.840 | 0.833 | 0.952 | - | 0.954 | 0.810 | 0.823 | 0.719 | - | 0.806 | 0.915 |
| Lights | 1 | 373 | 80 | - | 454 | 93 | 353 | - | 446 | 135 | 96 | 19 | - | 250 | 1150 |
| % Lights | 100.0 | 96.9 | 90.9 | - | 95.8 | 93.0 | 98.6 | - | 97.4 | 99.3 | 94.1 | 82.6 | - | 95.8 | 96.4 |
| Other Vehicles | 0 | 12 | 8 | - | 20 | 7 | 5 | - | 12 | 1 | 5 | 4 | - | 10 | 42 |
| % Other Vehicles | 0.0 | 3.1 | 9.1 | - | 4.2 | 7.0 | 1.4 | - | 2.6 | 0.7 | 4.9 | 17.4 | - | 3.8 | 3.5 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | - | 1 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 1.0 | 0.0 | - | 0.4 | 0.1 |
| Pedestrians | - | - | - | 0 | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
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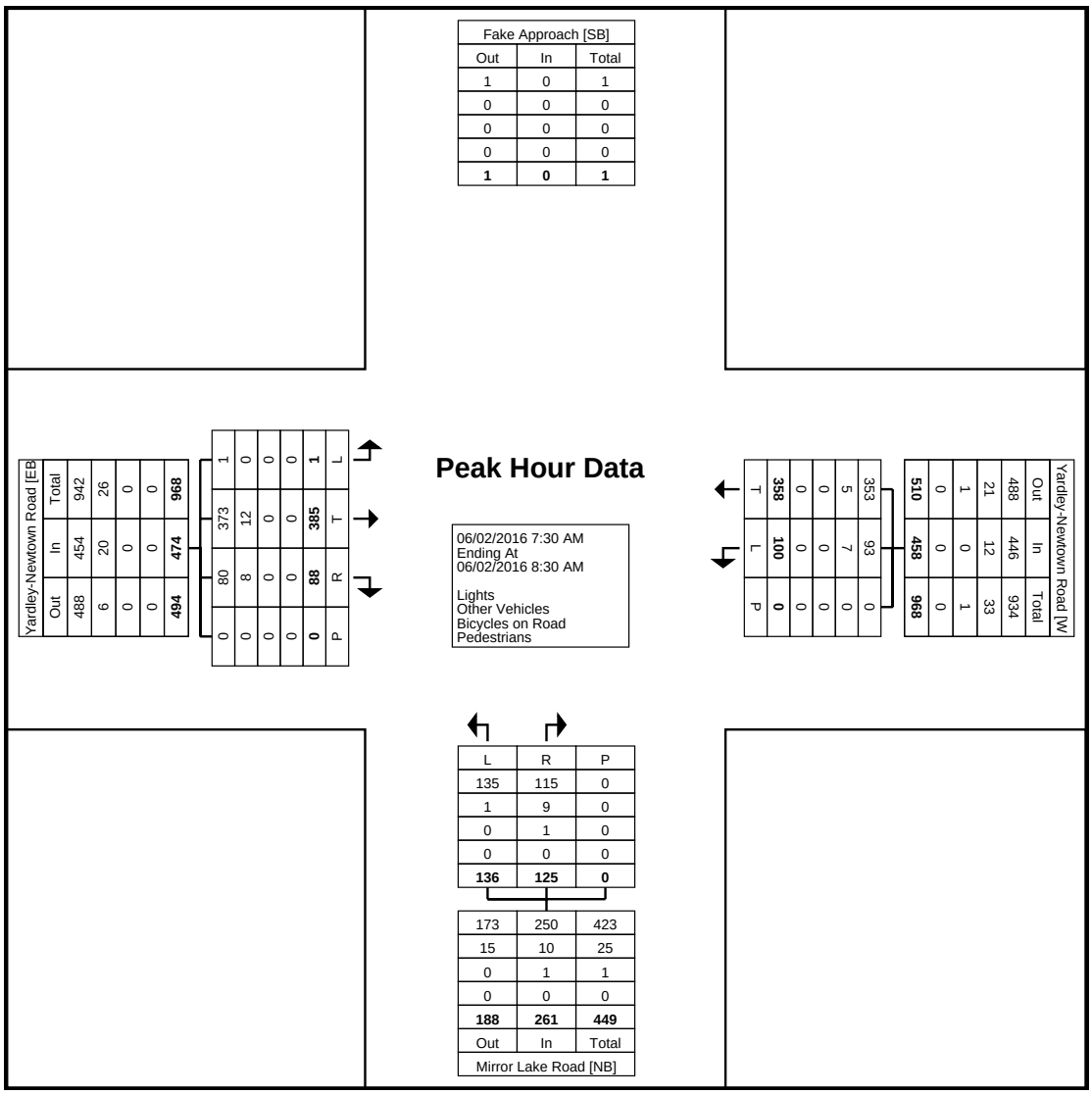
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (7:30 AM)

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (5:00 PM)

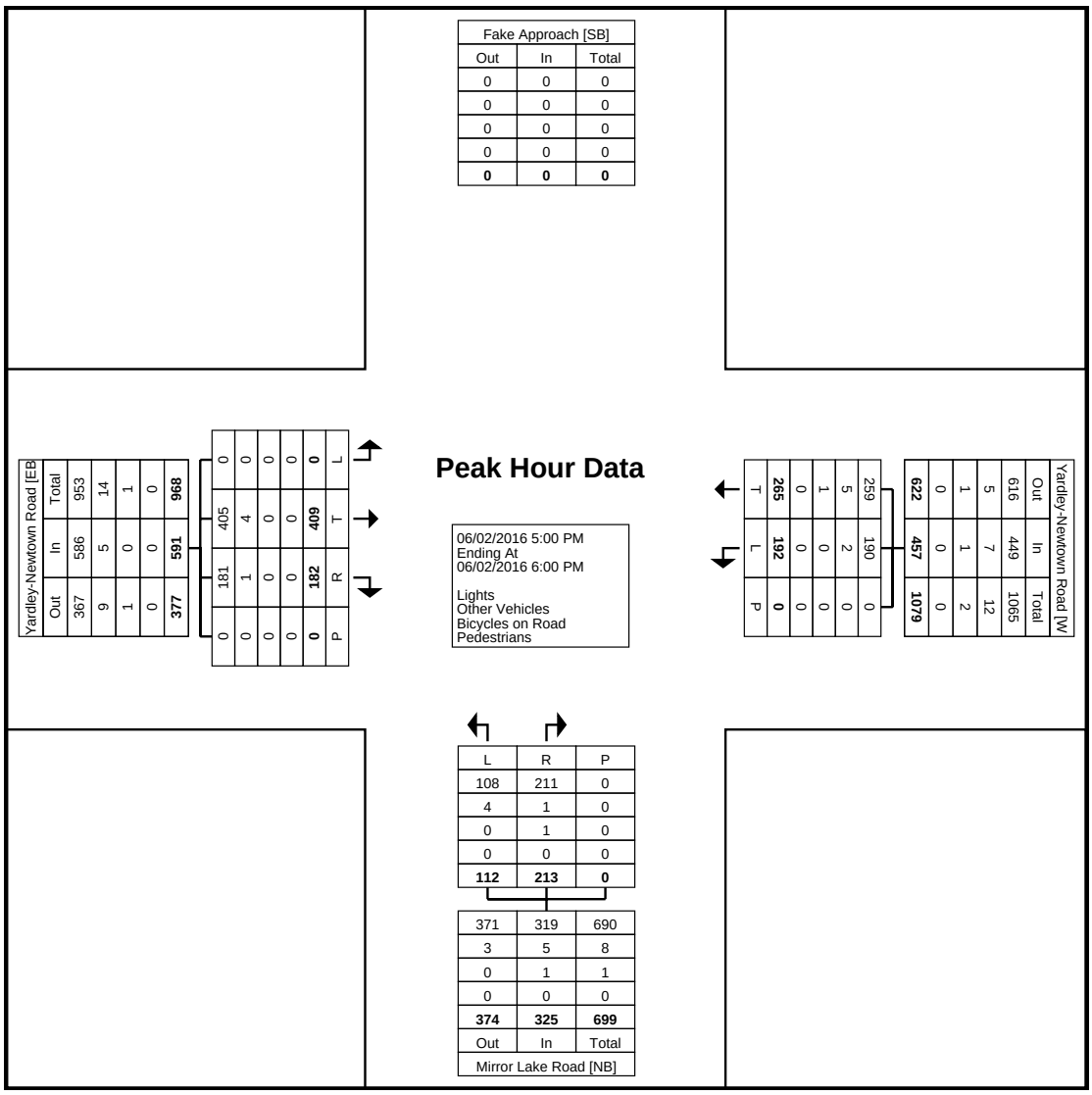
| Start Time | Yardley-Newtown Road Eastbound | | | | | Yardley-Newtown Road Westbound | | | | Mirror Lake Road Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 5:00 PM | 0 | 98 | 40 | 0 | 138 | 40 | 84 | 0 | 124 | 32 | 26 | 20 | 0 | 78 | 340 |
| 5:15 PM | 0 | 100 | 49 | 0 | 149 | 48 | 42 | 0 | 90 | 29 | 29 | 33 | 0 | 91 | 330 |
| 5:30 PM | 0 | 93 | 41 | 0 | 134 | 51 | 66 | 0 | 117 | 28 | 15 | 29 | 0 | 72 | 323 |
| 5:45 PM | 0 | 118 | 52 | 0 | 170 | 53 | 73 | 0 | 126 | 23 | 44 | 17 | 0 | 84 | 380 |
| Total | 0 | 409 | 182 | 0 | 591 | 192 | 265 | 0 | 457 | 112 | 114 | 99 | 0 | 325 | 1373 |
| Approach % | 0.0 | 69.2 | 30.8 | - | - | 42.0 | 58.0 | - | - | 34.5 | 35.1 | 30.5 | - | - | - |
| Total % | 0.0 | 29.8 | 13.3 | - | 43.0 | 14.0 | 19.3 | - | 33.3 | 8.2 | 8.3 | 7.2 | - | 23.7 | - |
| PHF | 0.000 | 0.867 | 0.875 | - | 0.869 | 0.906 | 0.789 | - | 0.907 | 0.875 | 0.648 | 0.750 | - | 0.893 | 0.903 |
| Lights | 0 | 405 | 181 | - | 586 | 190 | 259 | - | 449 | 108 | 112 | 99 | - | 319 | 1354 |
| % Lights | - | 99.0 | 99.5 | - | 99.2 | 99.0 | 97.7 | - | 98.2 | 96.4 | 98.2 | 100.0 | - | 98.2 | 98.6 |
| Other Vehicles | 0 | 4 | 1 | - | 5 | 2 | 5 | - | 7 | 4 | 1 | 0 | - | 5 | 17 |
| % Other Vehicles | - | 1.0 | 0.5 | - | 0.8 | 1.0 | 1.9 | - | 1.5 | 3.6 | 0.9 | 0.0 | - | 1.5 | 1.2 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 1 | - | 1 | 0 | 1 | 0 | - | 1 | 2 |
| % Bicycles on Road | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.4 | - | 0.2 | 0.0 | 0.9 | 0.0 | - | 0.3 | 0.1 |
| Pedestrians | - | - | - | 0 | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (5:00 PM)

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (12:00 PM)

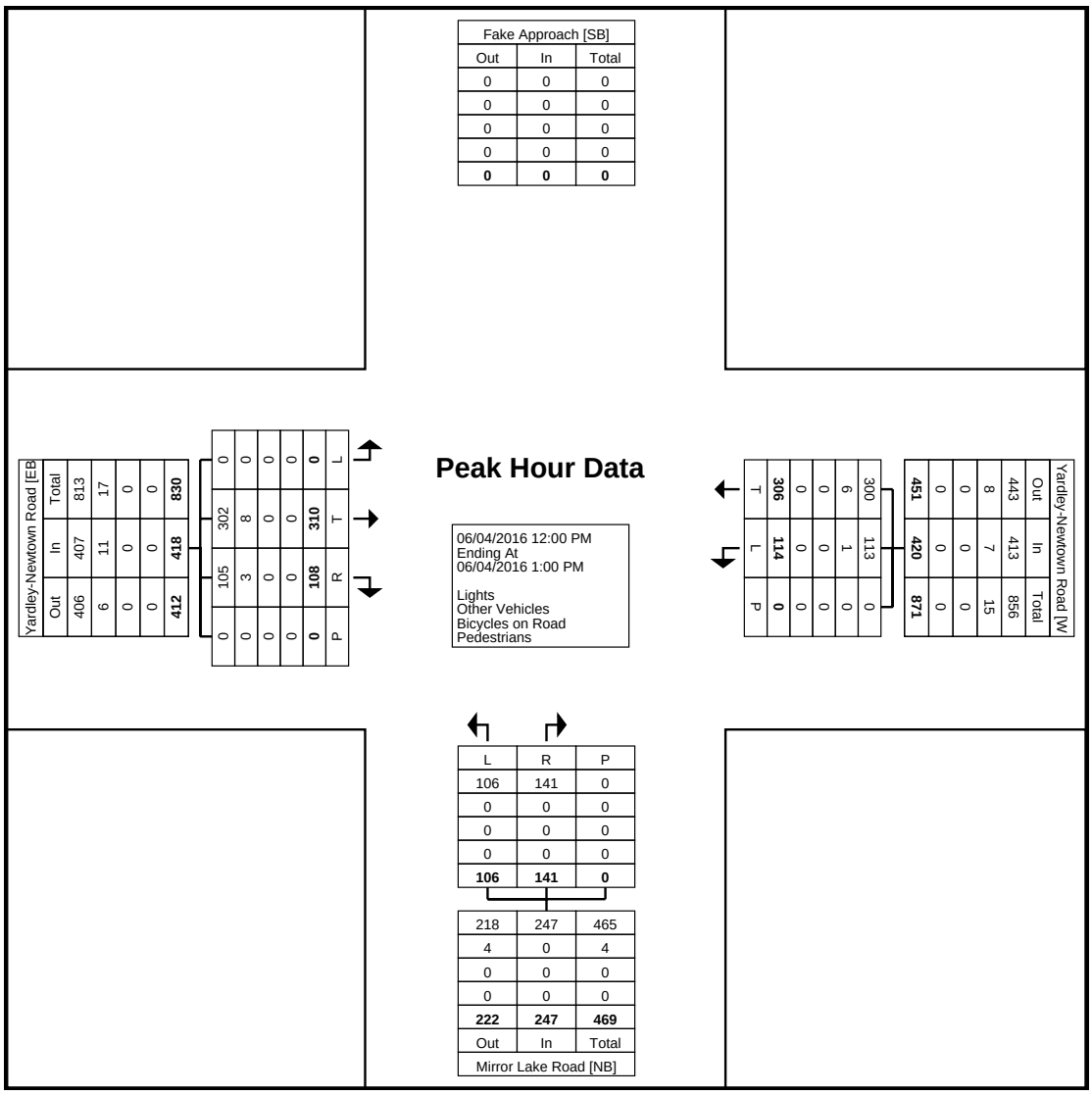
| Start Time | Yardley-Newtown Road Eastbound | | | | | Yardley-Newtown Road Westbound | | | | Mirror Lake Road Northbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 12:00 PM | 0 | 70 | 27 | 0 | 97 | 37 | 72 | 0 | 109 | 21 | 17 | 13 | 0 | 51 | 257 |
| 12:15 PM | 0 | 80 | 29 | 0 | 109 | 25 | 74 | 0 | 99 | 32 | 23 | 15 | 0 | 70 | 278 |
| 12:30 PM | 0 | 60 | 19 | 0 | 79 | 30 | 85 | 0 | 115 | 27 | 23 | 11 | 0 | 61 | 255 |
| 12:45 PM | 0 | 100 | 33 | 0 | 133 | 22 | 75 | 0 | 97 | 26 | 27 | 12 | 0 | 65 | 295 |
| Total | 0 | 310 | 108 | 0 | 418 | 114 | 306 | 0 | 420 | 106 | 90 | 51 | 0 | 247 | 1085 |
| Approach % | 0.0 | 74.2 | 25.8 | - | - | 27.1 | 72.9 | - | - | 42.9 | 36.4 | 20.6 | - | - | - |
| Total % | 0.0 | 28.6 | 10.0 | - | 38.5 | 10.5 | 28.2 | - | 38.7 | 9.8 | 8.3 | 4.7 | - | 22.8 | - |
| PHF | 0.000 | 0.775 | 0.818 | - | 0.786 | 0.770 | 0.900 | - | 0.913 | 0.828 | 0.833 | 0.850 | - | 0.882 | 0.919 |
| Lights | 0 | 302 | 105 | - | 407 | 113 | 300 | - | 413 | 106 | 90 | 51 | - | 247 | 1067 |
| % Lights | - | 97.4 | 97.2 | - | 97.4 | 99.1 | 98.0 | - | 98.3 | 100.0 | 100.0 | 100.0 | - | 100.0 | 98.3 |
| Other Vehicles | 0 | 8 | 3 | - | 11 | 1 | 6 | - | 7 | 0 | 0 | 0 | - | 0 | 18 |
| % Other Vehicles | - | 2.6 | 2.8 | - | 2.6 | 0.9 | 2.0 | - | 1.7 | 0.0 | 0.0 | 0.0 | - | 0.0 | 1.7 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Pedestrians | - | - | - | 0 | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By: BZ:

Location: 40.235799809628, -74.8724591732025

Count Name: 004- Mirror Lank Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (12:00 PM)

## *Yardley Newtown Road (S.R. 0332) & Creamery Road*

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Data

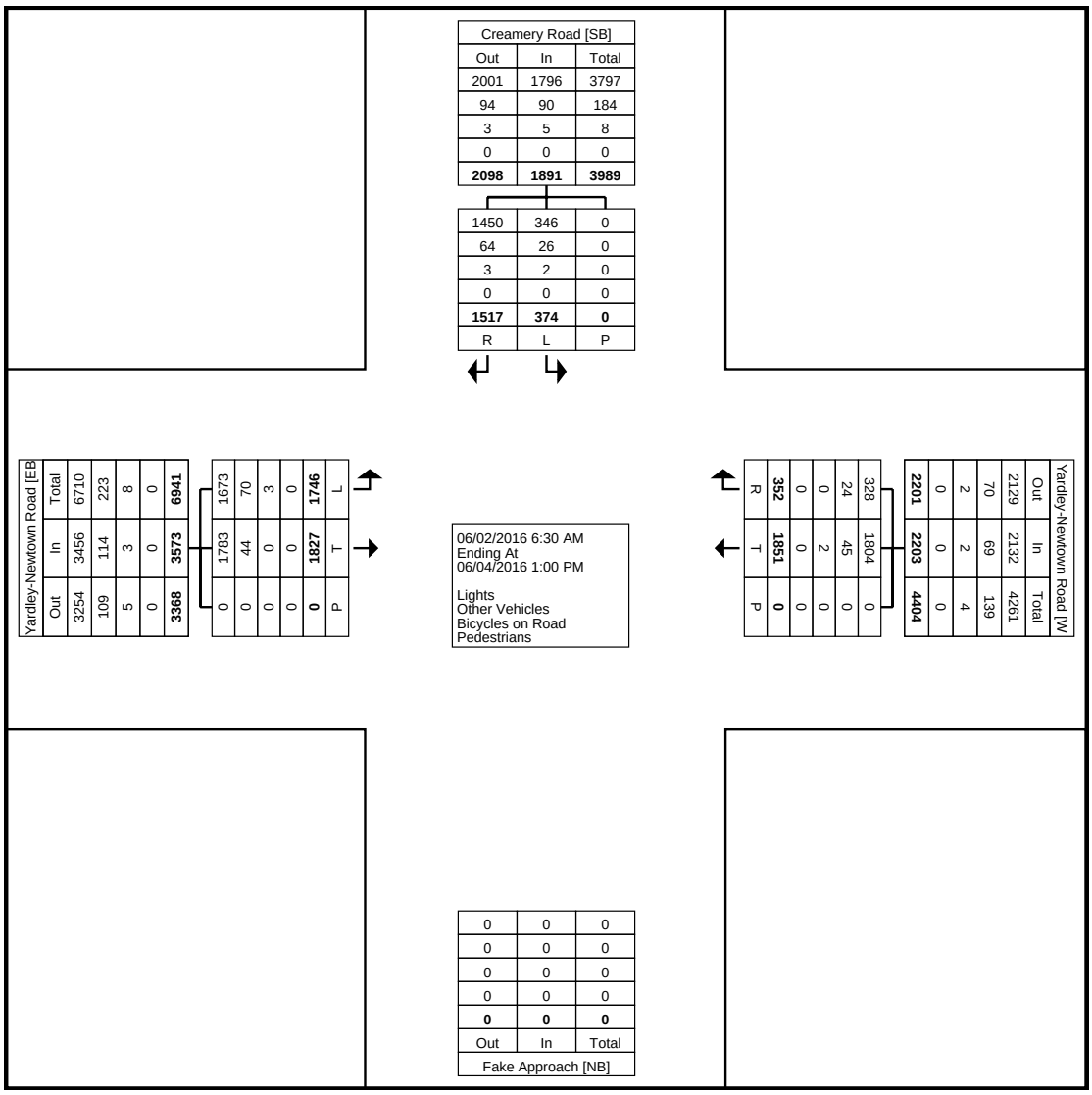
| Start Time | Yardley-Newtown Road Eastbound | | | | Yardley-Newtown Road Westbound | | | | | Creamery Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Thru | Right | Right on Red | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 6:30 AM | 12 | 16 | 0 | 28 | 38 | 0 | 0 | 0 | 38 | 3 | 12 | 15 | 0 | 30 | 96 |
| 6:45 AM | 14 | 22 | 0 | 36 | 55 | 1 | 1 | 0 | 57 | 2 | 14 | 31 | 0 | 47 | 140 |
| Hourly Total | 26 | 38 | 0 | 64 | 93 | 1 | 1 | 0 | 95 | 5 | 26 | 46 | 0 | 77 | 236 |
| 7:00 AM | 21 | 24 | 0 | 45 | 47 | 3 | 1 | 0 | 51 | 5 | 14 | 30 | 0 | 49 | 145 |
| 7:15 AM | 44 | 37 | 0 | 81 | 55 | 9 | 0 | 0 | 64 | 10 | 37 | 20 | 0 | 67 | 212 |
| 7:30 AM | 79 | 47 | 0 | 126 | 72 | 10 | 0 | 0 | 82 | 11 | 20 | 13 | 0 | 44 | 252 |
| 7:45 AM | 79 | 62 | 0 | 141 | 77 | 17 | 2 | 0 | 96 | 9 | 26 | 18 | 0 | 53 | 290 |
| Hourly Total | 223 | 170 | 0 | 393 | 251 | 39 | 3 | 0 | 293 | 35 | 97 | 81 | 0 | 213 | 899 |
| 8:00 AM | 68 | 63 | 0 | 131 | 71 | 10 | 1 | 0 | 82 | 16 | 35 | 14 | 0 | 65 | 278 |
| 8:15 AM | 49 | 51 | 0 | 100 | 59 | 12 | 2 | 0 | 73 | 14 | 35 | 21 | 0 | 70 | 243 |
| 8:30 AM | 60 | 63 | 0 | 123 | 71 | 20 | 0 | 0 | 91 | 5 | 24 | 19 | 0 | 48 | 262 |
| 8:45 AM | 58 | 46 | 0 | 104 | 57 | 24 | 0 | 0 | 81 | 18 | 52 | 37 | 0 | 107 | 292 |
| Hourly Total | 235 | 223 | 0 | 458 | 258 | 66 | 3 | 0 | 327 | 53 | 146 | 91 | 0 | 290 | 1075 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2:30 PM | 55 | 50 | 0 | 105 | 54 | 5 | 0 | 0 | 59 | 2 | 20 | 8 | 0 | 30 | 194 |
| 2:45 PM | 56 | 68 | 0 | 124 | 51 | 8 | 0 | 0 | 59 | 6 | 25 | 16 | 0 | 47 | 230 |
| Hourly Total | 111 | 118 | 0 | 229 | 105 | 13 | 0 | 0 | 118 | 8 | 45 | 24 | 0 | 77 | 424 |
| 3:00 PM | 63 | 57 | 0 | 120 | 46 | 6 | 2 | 0 | 54 | 15 | 20 | 9 | 0 | 44 | 218 |
| 3:15 PM | 59 | 72 | 0 | 131 | 53 | 20 | 2 | 0 | 75 | 11 | 23 | 19 | 0 | 53 | 259 |
| 3:30 PM | 48 | 49 | 0 | 97 | 61 | 11 | 4 | 0 | 76 | 21 | 55 | 8 | 0 | 84 | 257 |
| 3:45 PM | 53 | 73 | 0 | 126 | 71 | 9 | 1 | 0 | 81 | 15 | 59 | 14 | 0 | 88 | 295 |
| Hourly Total | 223 | 251 | 0 | 474 | 231 | 46 | 9 | 0 | 286 | 62 | 157 | 50 | 0 | 269 | 1029 |
| 4:00 PM | 60 | 45 | 0 | 105 | 54 | 4 | 1 | 0 | 59 | 13 | 43 | 8 | 0 | 64 | 228 |
| 4:15 PM | 52 | 72 | 0 | 124 | 53 | 8 | 0 | 0 | 61 | 14 | 45 | 1 | 0 | 60 | 245 |
| 4:30 PM | 55 | 72 | 0 | 127 | 62 | 7 | 2 | 0 | 71 | 8 | 21 | 36 | 0 | 65 | 263 |
| 4:45 PM | 71 | 56 | 0 | 127 | 43 | 8 | 0 | 0 | 51 | 20 | 18 | 23 | 0 | 61 | 239 |
| Hourly Total | 238 | 245 | 0 | 483 | 212 | 27 | 3 | 0 | 242 | 55 | 127 | 68 | 0 | 250 | 975 |
| 5:00 PM | 72 | 77 | 0 | 149 | 70 | 13 | 0 | 0 | 83 | 15 | 24 | 30 | 0 | 69 | 301 |
| 5:15 PM | 87 | 69 | 0 | 156 | 43 | 12 | 0 | 0 | 55 | 25 | 40 | 12 | 0 | 77 | 288 |
| 5:30 PM | 77 | 72 | 0 | 149 | 50 | 7 | 2 | 0 | 59 | 23 | 34 | 32 | 0 | 89 | 297 |
| 5:45 PM | 89 | 84 | 0 | 173 | 59 | 15 | 0 | 0 | 74 | 13 | 36 | 32 | 0 | 81 | 328 |
| Hourly Total | 325 | 302 | 0 | 627 | 222 | 47 | 2 | 0 | 271 | 76 | 134 | 106 | 0 | 316 | 1214 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11:00 AM | 38 | 53 | 0 | 91 | 47 | 14 | 0 | 0 | 61 | 13 | 27 | 14 | 0 | 54 | 206 |
| 11:15 AM | 42 | 59 | 0 | 101 | 62 | 8 | 2 | 0 | 72 | 9 | 23 | 19 | 0 | 51 | 224 |
| 11:30 AM | 50 | 61 | 0 | 111 | 53 | 16 | 0 | 0 | 69 | 6 | 16 | 17 | 0 | 39 | 219 |
| 11:45 AM | 42 | 49 | 0 | 91 | 62 | 9 | 0 | 0 | 71 | 11 | 25 | 14 | 0 | 50 | 212 |
| Hourly Total | 172 | 222 | 0 | 394 | 224 | 47 | 2 | 0 | 273 | 39 | 91 | 64 | 0 | 194 | 861 |
| 12:00 PM | 43 | 51 | 0 | 94 | 61 | 8 | 0 | 0 | 69 | 14 | 31 | 18 | 0 | 63 | 226 |
| 12:15 PM | 52 | 75 | 0 | 127 | 66 | 11 | 0 | 0 | 77 | 8 | 14 | 18 | 0 | 40 | 244 |
| 12:30 PM | 39 | 57 | 0 | 96 | 66 | 14 | 1 | 0 | 81 | 8 | 30 | 17 | 0 | 55 | 232 |
| 12:45 PM | 59 | 75 | 0 | 134 | 62 | 9 | 0 | 0 | 71 | 11 | 22 | 14 | 0 | 47 | 252 |
| Hourly Total | 193 | 258 | 0 | 451 | 255 | 42 | 1 | 0 | 298 | 41 | 97 | 67 | 0 | 205 | 954 |
| Grand Total | 1746 | 1827 | 0 | 3573 | 1851 | 328 | 24 | 0 | 2203 | 374 | 920 | 597 | 0 | 1891 | 7667 |
| Approach % | 48.9 | 51.1 | - | - | 84.0 | 14.9 | 1.1 | - | - | 19.8 | 48.7 | 31.6 | - | - | - |
| Total % | 22.8 | 23.8 | - | 46.6 | 24.1 | 4.3 | 0.3 | - | 28.7 | 4.9 | 12.0 | 7.8 | - | 24.7 | - |
| Lights | 1673 | 1783 | - | 3456 | 1804 | 305 | 23 | - | 2132 | 346 | 880 | 570 | - | 1796 | 7384 |
| % Lights | 95.8 | 97.6 | - | 96.7 | 97.5 | 93.0 | 95.8 | - | 96.8 | 92.5 | 95.7 | 95.5 | - | 95.0 | 96.3 |
| Other Vehicles | 70 | 44 | - | 114 | 45 | 23 | 1 | - | 69 | 26 | 39 | 25 | - | 90 | 273 |
| % Other Vehicles | 4.0 | 2.4 | - | 3.2 | 2.4 | 7.0 | 4.2 | - | 3.1 | 7.0 | 4.2 | 4.2 | - | 4.8 | 3.6 |
| Bicycles on Road | 3 | 0 | - | 3 | 2 | 0 | 0 | - | 2 | 2 | 1 | 2 | - | 5 | 10 |
| % Bicycles on Road | 0.2 | 0.0 | - | 0.1 | 0.1 | 0.0 | 0.0 | - | 0.1 | 0.5 | 0.1 | 0.3 | - | 0.3 | 0.1 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Data Plot

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (8:00 AM)

| Start Time | Yardley-Newtown Road Eastbound | | | | Yardley-Newtown Road Westbound | | | | | Creamery Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Thru | Right | Right on Red | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 8:00 AM | 68 | 63 | 0 | 131 | 71 | 10 | 1 | 0 | 82 | 16 | 35 | 14 | 0 | 65 | 278 |
| 8:15 AM | 49 | 51 | 0 | 100 | 59 | 12 | 2 | 0 | 73 | 14 | 35 | 21 | 0 | 70 | 243 |
| 8:30 AM | 60 | 63 | 0 | 123 | 71 | 20 | 0 | 0 | 91 | 5 | 24 | 19 | 0 | 48 | 262 |
| 8:45 AM | 58 | 46 | 0 | 104 | 57 | 24 | 0 | 0 | 81 | 18 | 52 | 37 | 0 | 107 | 292 |
| Total | 235 | 223 | 0 | 458 | 258 | 66 | 3 | 0 | 327 | 53 | 146 | 91 | 0 | 290 | 1075 |
| Approach % | 51.3 | 48.7 | - | - | 78.9 | 20.2 | 0.9 | - | - | 18.3 | 50.3 | 31.4 | - | - | - |
| Total % | 21.9 | 20.7 | - | 42.6 | 24.0 | 6.1 | 0.3 | - | 30.4 | 4.9 | 13.6 | 8.5 | - | 27.0 | - |
| PHF | 0.864 | 0.885 | - | 0.874 | 0.908 | 0.688 | 0.375 | - | 0.898 | 0.736 | 0.702 | 0.615 | - | 0.678 | 0.920 |
| Lights | 214 | 211 | - | 425 | 250 | 62 | 3 | - | 315 | 46 | 136 | 81 | - | 263 | 1003 |
| % Lights | 91.1 | 94.6 | - | 92.8 | 96.9 | 93.9 | 100.0 | - | 96.3 | 86.8 | 93.2 | 89.0 | - | 90.7 | 93.3 |
| Other Vehicles | 20 | 12 | - | 32 | 8 | 4 | 0 | - | 12 | 7 | 10 | 10 | - | 27 | 71 |
| % Other Vehicles | 8.5 | 5.4 | - | 7.0 | 3.1 | 6.1 | 0.0 | - | 3.7 | 13.2 | 6.8 | 11.0 | - | 9.3 | 6.6 |
| Bicycles on Road | 1 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 0.4 | 0.0 | - | 0.2 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.1 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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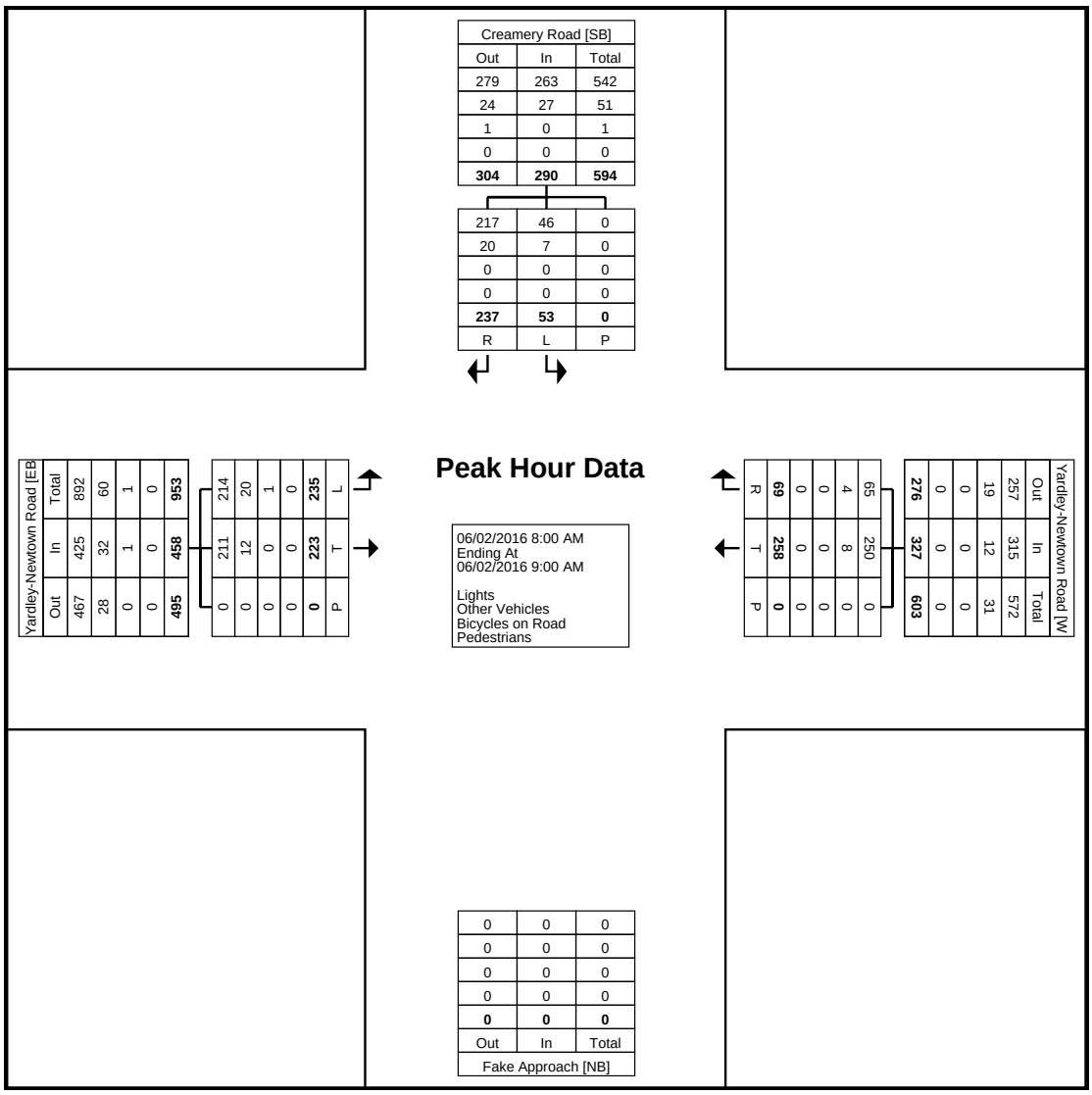
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (8:00 AM)

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (5:00 PM)

| Start Time | Yardley-Newtown Road Eastbound | | | | Yardley-Newtown Road Westbound | | | | | Creamery Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Thru | Right | Right on Red | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 5:00 PM | 72 | 77 | 0 | 149 | 70 | 13 | 0 | 0 | 83 | 15 | 24 | 30 | 0 | 69 | 301 |
| 5:15 PM | 87 | 69 | 0 | 156 | 43 | 12 | 0 | 0 | 55 | 25 | 40 | 12 | 0 | 77 | 288 |
| 5:30 PM | 77 | 72 | 0 | 149 | 50 | 7 | 2 | 0 | 59 | 23 | 34 | 32 | 0 | 89 | 297 |
| 5:45 PM | 89 | 84 | 0 | 173 | 59 | 15 | 0 | 0 | 74 | 13 | 36 | 32 | 0 | 81 | 328 |
| Total | 325 | 302 | 0 | 627 | 222 | 47 | 2 | 0 | 271 | 76 | 134 | 106 | 0 | 316 | 1214 |
| Approach % | 51.8 | 48.2 | - | - | 81.9 | 17.3 | 0.7 | - | - | 24.1 | 42.4 | 33.5 | - | - | - |
| Total % | 26.8 | 24.9 | - | 51.6 | 18.3 | 3.9 | 0.2 | - | 22.3 | 6.3 | 11.0 | 8.7 | - | 26.0 | - |
| PHF | 0.913 | 0.899 | - | 0.906 | 0.793 | 0.783 | 0.250 | - | 0.816 | 0.760 | 0.838 | 0.828 | - | 0.888 | 0.925 |
| Lights | 323 | 298 | - | 621 | 217 | 47 | 2 | - | 266 | 75 | 133 | 103 | - | 311 | 1198 |
| % Lights | 99.4 | 98.7 | - | 99.0 | 97.7 | 100.0 | 100.0 | - | 98.2 | 98.7 | 99.3 | 97.2 | - | 98.4 | 98.7 |
| Other Vehicles | 1 | 4 | - | 5 | 5 | 0 | 0 | - | 5 | 1 | 1 | 2 | - | 4 | 14 |
| % Other Vehicles | 0.3 | 1.3 | - | 0.8 | 2.3 | 0.0 | 0.0 | - | 1.8 | 1.3 | 0.7 | 1.9 | - | 1.3 | 1.2 |
| Bicycles on Road | 1 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | - | 1 | 2 |
| % Bicycles on Road | 0.3 | 0.0 | - | 0.2 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.9 | - | 0.3 | 0.2 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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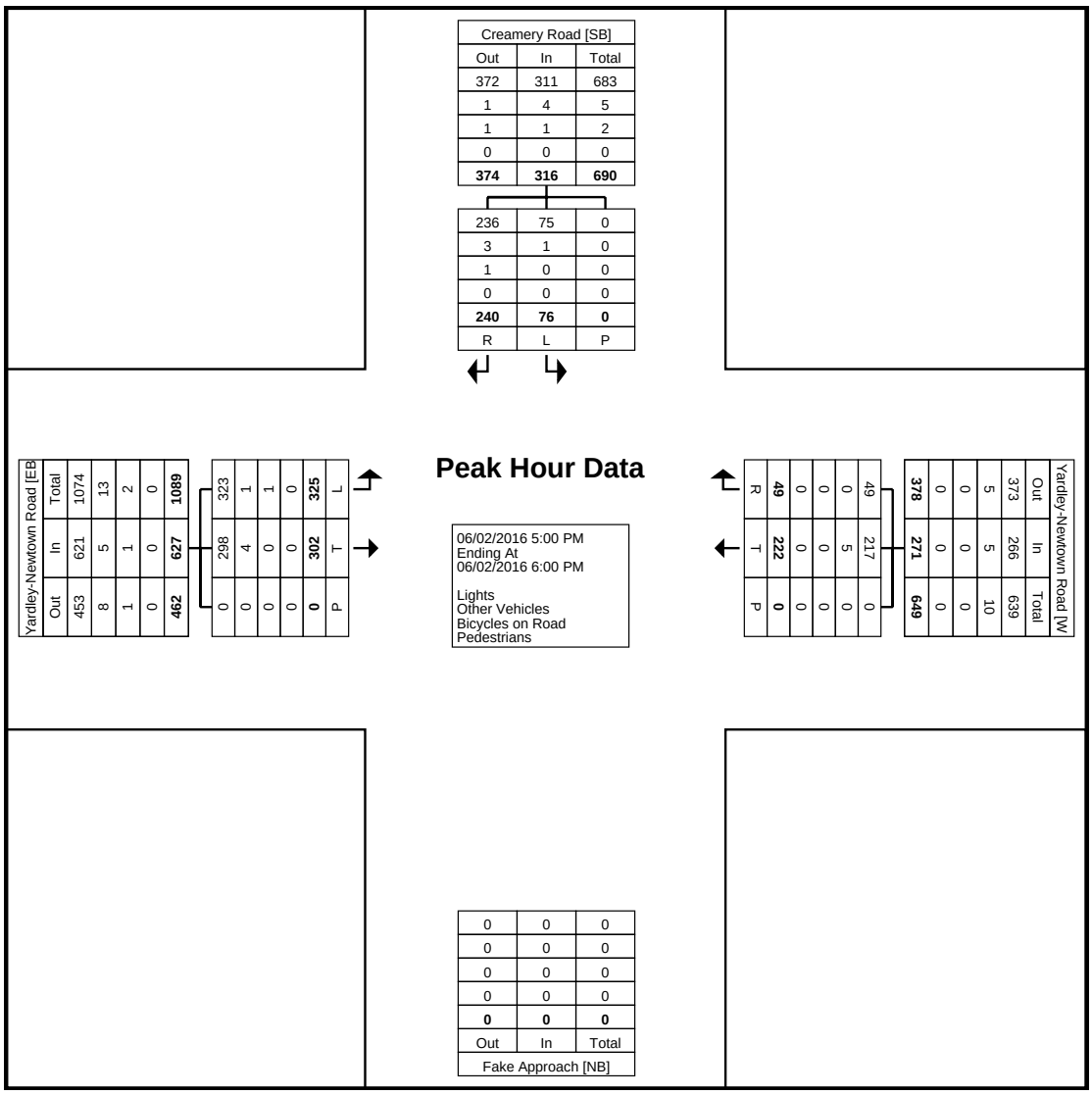
610.326.3100

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (5:00 PM)

Traffic Planning and Design, Inc
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Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (12:00 PM)

| Start Time | Yardley-Newtown Road Eastbound | | | | Yardley-Newtown Road Westbound | | | | | Creamery Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Thru | Right | Right on Red | Peds | App. Total | Left | Right | Right on Red | Peds | App. Total | Int. Total |
| 12:00 PM | 43 | 51 | 0 | 94 | 61 | 8 | 0 | 0 | 69 | 14 | 31 | 18 | 0 | 63 | 226 |
| 12:15 PM | 52 | 75 | 0 | 127 | 66 | 11 | 0 | 0 | 77 | 8 | 14 | 18 | 0 | 40 | 244 |
| 12:30 PM | 39 | 57 | 0 | 96 | 66 | 14 | 1 | 0 | 81 | 8 | 30 | 17 | 0 | 55 | 232 |
| 12:45 PM | 59 | 75 | 0 | 134 | 62 | 9 | 0 | 0 | 71 | 11 | 22 | 14 | 0 | 47 | 252 |
| Total | 193 | 258 | 0 | 451 | 255 | 42 | 1 | 0 | 298 | 41 | 97 | 67 | 0 | 205 | 954 |
| Approach % | 42.8 | 57.2 | - | - | 85.6 | 14.1 | 0.3 | - | - | 20.0 | 47.3 | 32.7 | - | - | - |
| Total % | 20.2 | 27.0 | - | 47.3 | 26.7 | 4.4 | 0.1 | - | 31.2 | 4.3 | 10.2 | 7.0 | - | 21.5 | - |
| PHF | 0.818 | 0.860 | - | 0.841 | 0.966 | 0.750 | 0.250 | - | 0.920 | 0.732 | 0.782 | 0.931 | - | 0.813 | 0.946 |
| Lights | 188 | 254 | - | 442 | 252 | 42 | 1 | - | 295 | 39 | 94 | 65 | - | 198 | 935 |
| % Lights | 97.4 | 98.4 | - | 98.0 | 98.8 | 100.0 | 100.0 | - | 99.0 | 95.1 | 96.9 | 97.0 | - | 96.6 | 98.0 |
| Other Vehicles | 5 | 4 | - | 9 | 3 | 0 | 0 | - | 3 | 1 | 3 | 2 | - | 6 | 18 |
| % Other Vehicles | 2.6 | 1.6 | - | 2.0 | 1.2 | 0.0 | 0.0 | - | 1.0 | 2.4 | 3.1 | 3.0 | - | 2.9 | 1.9 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 | 0 | 0 | - | 1 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 2.4 | 0.0 | 0.0 | - | 0.5 | 0.1 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
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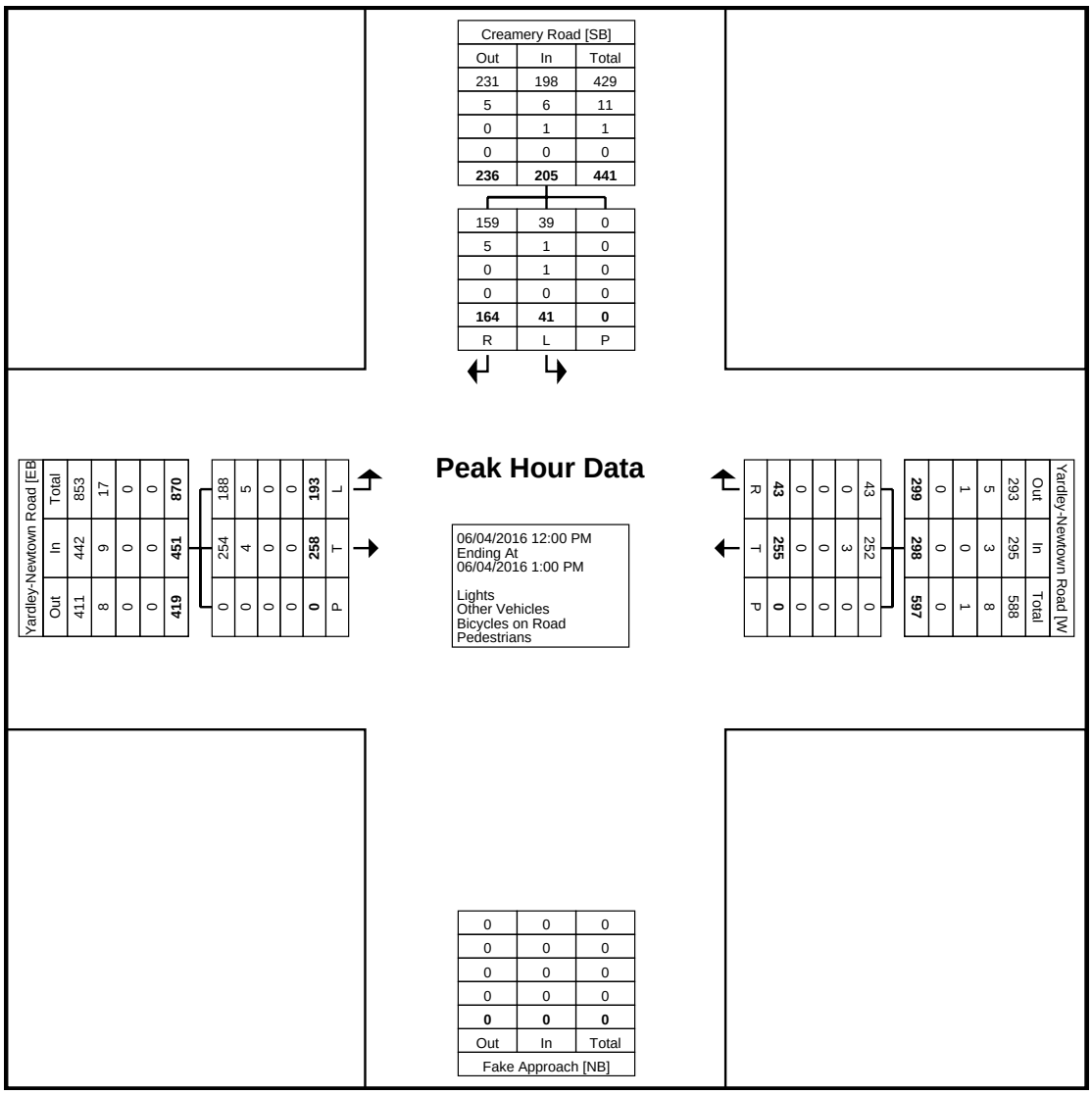
Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (12:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Counted By:BZ:

Location: 40.2360180043566, -74.8705816268921

Count Name: 003-Creamery Road & Yardley-Newtown Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016

## *Quarry Road & Creamery Road*

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Data

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Creamery Road Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 6:30 AM | 10 | 6 | 0 | 16 | 17 | 0 | 0 | 17 | 6 | 12 | 0 | 18 | 51 |
| 6:45 AM | 14 | 13 | 0 | 27 | 34 | 7 | 0 | 41 | 3 | 13 | 1 | 16 | 84 |
| Hourly Total | 24 | 19 | 0 | 43 | 51 | 7 | 0 | 58 | 9 | 25 | 1 | 34 | 135 |
| 7:00 AM | 19 | 16 | 0 | 35 | 24 | 10 | 0 | 34 | 9 | 16 | 1 | 25 | 94 |
| 7:15 AM | 30 | 19 | 0 | 49 | 27 | 12 | 0 | 39 | 26 | 25 | 0 | 51 | 139 |
| 7:30 AM | 45 | 17 | 0 | 62 | 22 | 19 | 0 | 41 | 26 | 59 | 2 | 85 | 188 |
| 7:45 AM | 34 | 13 | 0 | 47 | 30 | 14 | 0 | 44 | 41 | 56 | 0 | 97 | 188 |
| Hourly Total | 128 | 65 | 0 | 193 | 103 | 55 | 0 | 158 | 102 | 156 | 3 | 258 | 609 |
| 8:00 AM | 49 | 21 | 0 | 70 | 33 | 23 | 0 | 56 | 32 | 49 | 1 | 81 | 207 |
| 8:15 AM | 40 | 23 | 0 | 63 | 33 | 16 | 0 | 49 | 27 | 37 | 2 | 64 | 176 |
| 8:30 AM | 28 | 14 | 0 | 42 | 21 | 34 | 0 | 55 | 40 | 38 | 0 | 78 | 175 |
| 8:45 AM | 63 | 73 | 0 | 136 | 38 | 65 | 0 | 103 | 52 | 31 | 0 | 83 | 322 |
| Hourly Total | 180 | 131 | 0 | 311 | 125 | 138 | 0 | 263 | 151 | 155 | 3 | 306 | 880 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2:30 PM | 10 | 11 | 0 | 21 | 20 | 13 | 0 | 33 | 12 | 34 | 0 | 46 | 100 |
| 2:45 PM | 12 | 14 | 0 | 26 | 25 | 14 | 0 | 39 | 17 | 36 | 0 | 53 | 118 |
| Hourly Total | 22 | 25 | 0 | 47 | 45 | 27 | 0 | 72 | 29 | 70 | 0 | 99 | 218 |
| 3:00 PM | 7 | 8 | 0 | 15 | 26 | 22 | 0 | 48 | 17 | 36 | 0 | 53 | 116 |
| 3:15 PM | 12 | 24 | 0 | 36 | 36 | 37 | 0 | 73 | 36 | 43 | 0 | 79 | 188 |
| 3:30 PM | 41 | 61 | 0 | 102 | 26 | 30 | 0 | 56 | 27 | 38 | 0 | 65 | 223 |
| 3:45 PM | 25 | 40 | 0 | 65 | 23 | 16 | 0 | 39 | 13 | 44 | 0 | 57 | 161 |
| Hourly Total | 85 | 133 | 0 | 218 | 111 | 105 | 0 | 216 | 93 | 161 | 0 | 254 | 688 |
| 4:00 PM | 16 | 17 | 0 | 33 | 45 | 14 | 0 | 59 | 11 | 44 | 0 | 55 | 147 |
| 4:15 PM | 11 | 18 | 0 | 29 | 20 | 18 | 0 | 38 | 13 | 35 | 0 | 48 | 115 |
| 4:30 PM | 18 | 19 | 0 | 37 | 40 | 18 | 0 | 58 | 22 | 39 | 0 | 61 | 156 |
| 4:45 PM | 25 | 19 | 0 | 44 | 37 | 19 | 0 | 56 | 21 | 39 | 0 | 60 | 160 |
| Hourly Total | 70 | 73 | 0 | 143 | 142 | 69 | 0 | 211 | 67 | 157 | 0 | 224 | 578 |
| 5:00 PM | 12 | 16 | 0 | 28 | 49 | 28 | 0 | 77 | 19 | 54 | 0 | 73 | 178 |
| 5:15 PM | 26 | 20 | 0 | 46 | 57 | 27 | 0 | 84 | 22 | 64 | 0 | 86 | 216 |
| 5:30 PM | 15 | 27 | 0 | 42 | 44 | 34 | 0 | 78 | 24 | 53 | 0 | 77 | 197 |
| 5:45 PM | 17 | 26 | 0 | 43 | 48 | 25 | 0 | 73 | 31 | 44 | 0 | 75 | 191 |
| Hourly Total | 70 | 89 | 0 | 159 | 198 | 114 | 0 | 312 | 96 | 215 | 0 | 311 | 782 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11:00 AM | 17 | 5 | 0 | 22 | 33 | 12 | 0 | 45 | 11 | 32 | 0 | 43 | 110 |
| 11:15 AM | 9 | 9 | 0 | 18 | 28 | 14 | 0 | 42 | 10 | 34 | 0 | 44 | 104 |
| 11:30 AM | 14 | 7 | 0 | 21 | 30 | 14 | 0 | 44 | 13 | 47 | 0 | 60 | 125 |
| 11:45 AM | 14 | 13 | 0 | 27 | 26 | 12 | 0 | 38 | 8 | 33 | 0 | 41 | 106 |
| Hourly Total | 54 | 34 | 0 | 88 | 117 | 52 | 0 | 169 | 42 | 146 | 0 | 188 | 445 |
| 12:00 PM | 14 | 6 | 0 | 20 | 39 | 14 | 0 | 53 | 8 | 35 | 0 | 43 | 116 |
| 12:15 PM | 15 | 12 | 0 | 27 | 29 | 15 | 0 | 44 | 17 | 41 | 0 | 58 | 129 |
| 12:30 PM | 10 | 7 | 0 | 17 | 32 | 20 | 0 | 52 | 14 | 32 | 0 | 46 | 115 |
| 12:45 PM | 13 | 8 | 0 | 21 | 29 | 13 | 0 | 42 | 19 | 37 | 0 | 56 | 119 |
| Hourly Total | 52 | 33 | 0 | 85 | 129 | 62 | 0 | 191 | 58 | 145 | 0 | 203 | 479 |
| Grand Total | 685 | 602 | 0 | 1287 | 1021 | 629 | 0 | 1650 | 647 | 1230 | 7 | 1877 | 4814 |
| Approach % | 53.2 | 46.8 | - | - | 61.9 | 38.1 | - | - | 34.5 | 65.5 | - | - | - |
| Total % | 14.2 | 12.5 | - | 26.7 | 21.2 | 13.1 | - | 34.3 | 13.4 | 25.6 | - | 39.0 | - |
| Lights | 655 | 556 | - | 1211 | 978 | 590 | - | 1568 | 602 | 1179 | - | 1781 | 4560 |
| % Lights | 95.6 | 92.4 | - | 94.1 | 95.8 | 93.8 | - | 95.0 | 93.0 | 95.9 | - | 94.9 | 94.7 |
| Other Vehicles | 26 | 45 | - | 71 | 36 | 33 | - | 69 | 41 | 49 | - | 90 | 230 |
| % Other Vehicles | 3.8 | 7.5 | - | 5.5 | 3.5 | 5.2 | - | 4.2 | 6.3 | 4.0 | - | 4.8 | 4.8 |
| Bicycles on Road | 4 | 1 | - | 5 | 7 | 6 | - | 13 | 4 | 2 | - | 6 | 24 |
| % Bicycles on Road | 0.6 | 0.2 | - | 0.4 | 0.7 | 1.0 | - | 0.8 | 0.6 | 0.2 | - | 0.3 | 0.5 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 7 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

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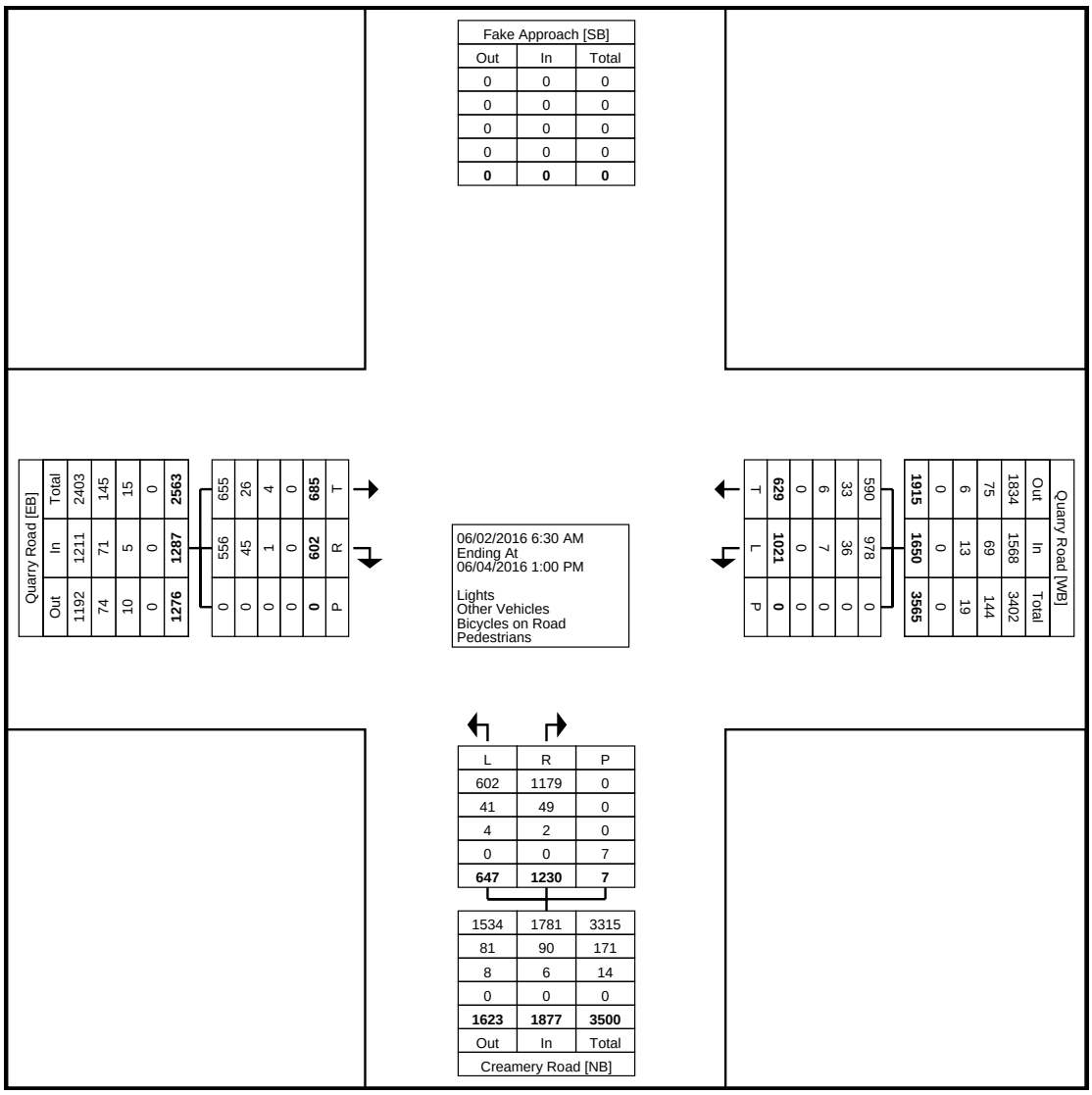
Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (8:00 AM)

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Creamery Road Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 8:00 AM | 49 | 21 | 0 | 70 | 33 | 23 | 0 | 56 | 32 | 49 | 1 | 81 | 207 |
| 8:15 AM | 40 | 23 | 0 | 63 | 33 | 16 | 0 | 49 | 27 | 37 | 2 | 64 | 176 |
| 8:30 AM | 28 | 14 | 0 | 42 | 21 | 34 | 0 | 55 | 40 | 38 | 0 | 78 | 175 |
| 8:45 AM | 63 | 73 | 0 | 136 | 38 | 65 | 0 | 103 | 52 | 31 | 0 | 83 | 322 |
| Total | 180 | 131 | 0 | 311 | 125 | 138 | 0 | 263 | 151 | 155 | 3 | 306 | 880 |
| Approach % | 57.9 | 42.1 | - | - | 47.5 | 52.5 | - | - | 49.3 | 50.7 | - | - | - |
| Total % | 20.5 | 14.9 | - | 35.3 | 14.2 | 15.7 | - | 29.9 | 17.2 | 17.6 | - | 34.8 | - |
| PHF | 0.714 | 0.449 | - | 0.572 | 0.822 | 0.531 | - | 0.638 | 0.726 | 0.791 | - | 0.922 | 0.683 |
| Lights | 175 | 111 | - | 286 | 120 | 128 | - | 248 | 139 | 141 | - | 280 | 814 |
| % Lights | 97.2 | 84.7 | - | 92.0 | 96.0 | 92.8 | - | 94.3 | 92.1 | 91.0 | - | 91.5 | 92.5 |
| Other Vehicles | 5 | 20 | - | 25 | 5 | 9 | - | 14 | 12 | 13 | - | 25 | 64 |
| % Other Vehicles | 2.8 | 15.3 | - | 8.0 | 4.0 | 6.5 | - | 5.3 | 7.9 | 8.4 | - | 8.2 | 7.3 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 1 | - | 1 | 0 | 1 | - | 1 | 2 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.7 | - | 0.4 | 0.0 | 0.6 | - | 0.3 | 0.2 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

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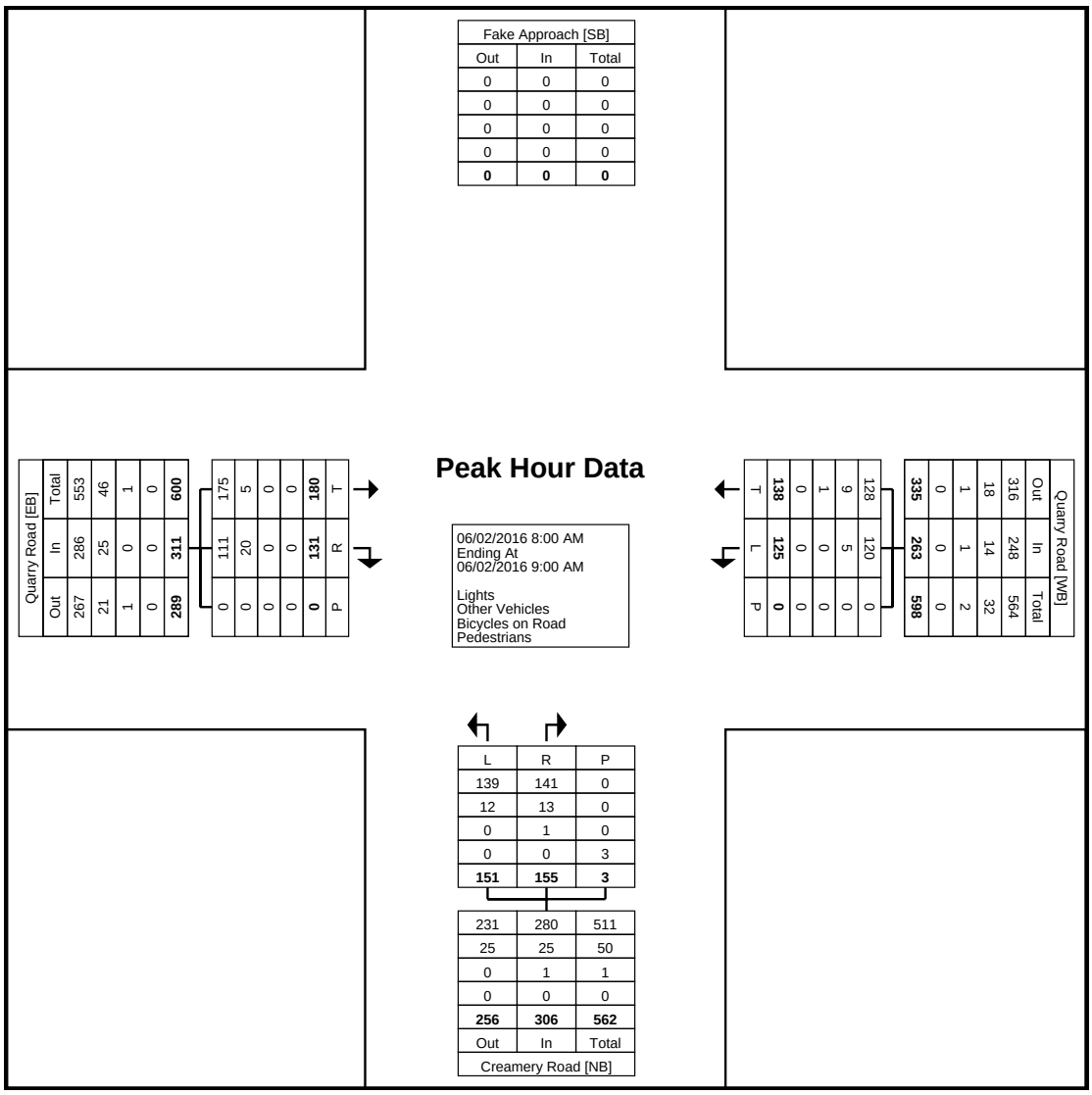
Location: 40.2462788891506, -74.8702383041382

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (5:00 PM)

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Creamery Road Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 5:00 PM | 12 | 16 | 0 | 28 | 49 | 28 | 0 | 77 | 19 | 54 | 0 | 73 | 178 |
| 5:15 PM | 26 | 20 | 0 | 46 | 57 | 27 | 0 | 84 | 22 | 64 | 0 | 86 | 216 |
| 5:30 PM | 15 | 27 | 0 | 42 | 44 | 34 | 0 | 78 | 24 | 53 | 0 | 77 | 197 |
| 5:45 PM | 17 | 26 | 0 | 43 | 48 | 25 | 0 | 73 | 31 | 44 | 0 | 75 | 191 |
| Total | 70 | 89 | 0 | 159 | 198 | 114 | 0 | 312 | 96 | 215 | 0 | 311 | 782 |
| Approach % | 44.0 | 56.0 | - | - | 63.5 | 36.5 | - | - | 30.9 | 69.1 | - | - | - |
| Total % | 9.0 | 11.4 | - | 20.3 | 25.3 | 14.6 | - | 39.9 | 12.3 | 27.5 | - | 39.8 | - |
| PHF | 0.673 | 0.824 | - | 0.864 | 0.868 | 0.838 | - | 0.929 | 0.774 | 0.840 | - | 0.904 | 0.905 |
| Lights | 66 | 89 | - | 155 | 196 | 111 | - | 307 | 95 | 214 | - | 309 | 771 |
| % Lights | 94.3 | 100.0 | - | 97.5 | 99.0 | 97.4 | - | 98.4 | 99.0 | 99.5 | - | 99.4 | 98.6 |
| Other Vehicles | 4 | 0 | - | 4 | 2 | 2 | - | 4 | 0 | 1 | - | 1 | 9 |
| % Other Vehicles | 5.7 | 0.0 | - | 2.5 | 1.0 | 1.8 | - | 1.3 | 0.0 | 0.5 | - | 0.3 | 1.2 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 1 | - | 1 | 1 | 0 | - | 1 | 2 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.9 | - | 0.3 | 1.0 | 0.0 | - | 0.3 | 0.3 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - |

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610.326.3100

Couter: MIO:
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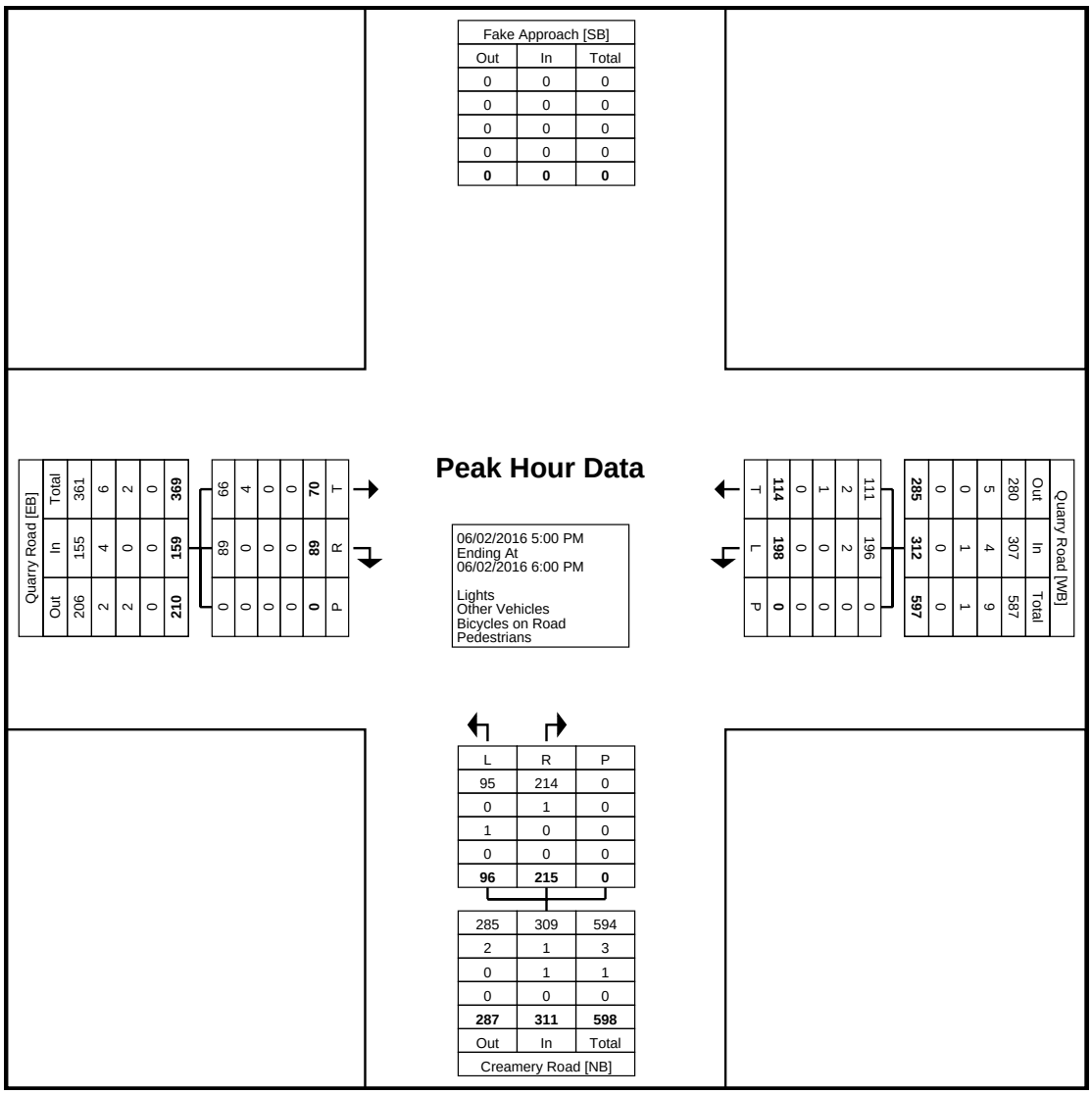
Location: 40.2462788891506, -74.8702383041382

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016
Page No: 6




Turning Movement Peak Hour Data Plot (5:00 PM)

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (12:00 PM)

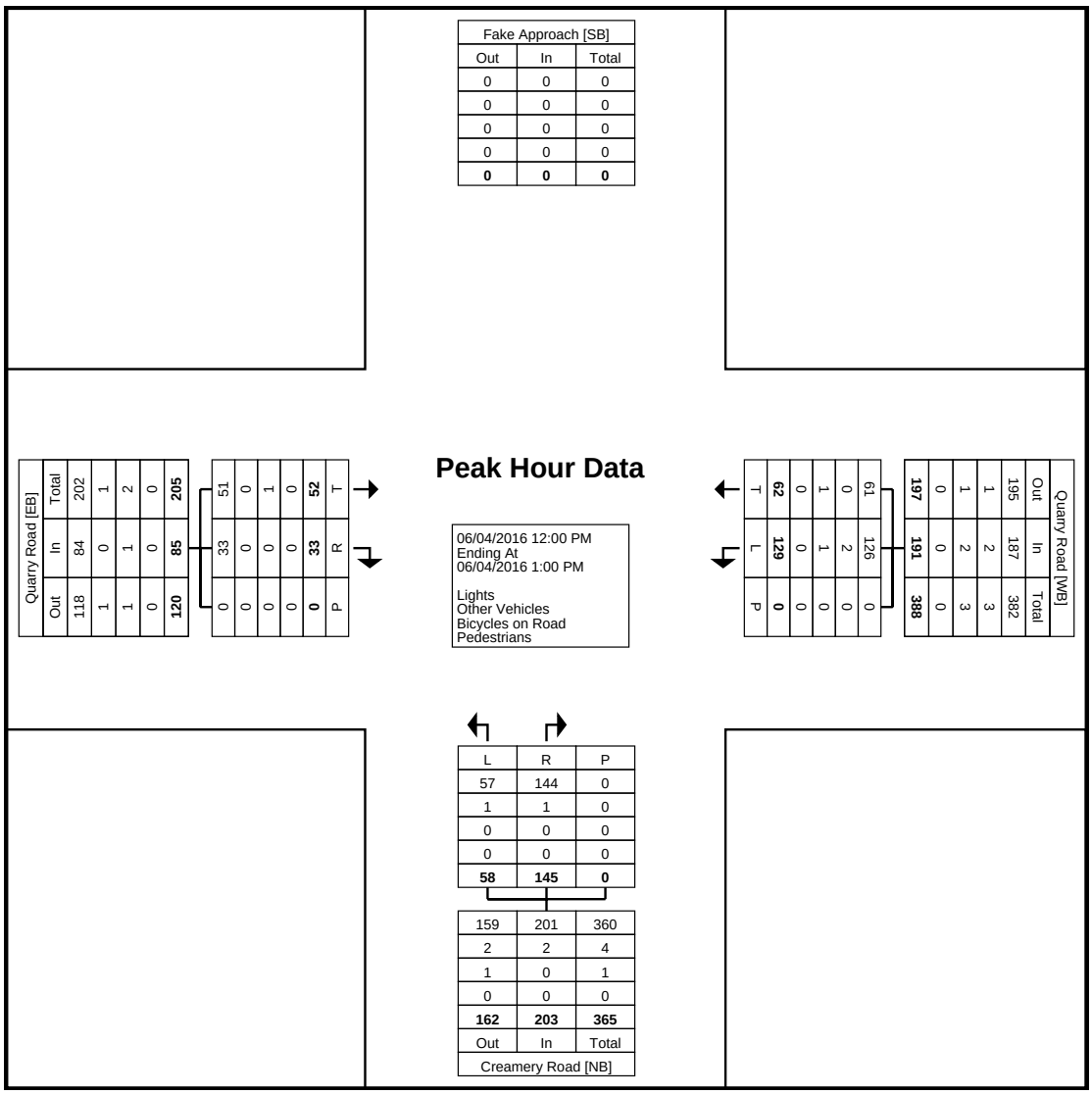
| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Creamery Road Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 12:00 PM | 14 | 6 | 0 | 20 | 39 | 14 | 0 | 53 | 8 | 35 | 0 | 43 | 116 |
| 12:15 PM | 15 | 12 | 0 | 27 | 29 | 15 | 0 | 44 | 17 | 41 | 0 | 58 | 129 |
| 12:30 PM | 10 | 7 | 0 | 17 | 32 | 20 | 0 | 52 | 14 | 32 | 0 | 46 | 115 |
| 12:45 PM | 13 | 8 | 0 | 21 | 29 | 13 | 0 | 42 | 19 | 37 | 0 | 56 | 119 |
| Total | 52 | 33 | 0 | 85 | 129 | 62 | 0 | 191 | 58 | 145 | 0 | 203 | 479 |
| Approach % | 61.2 | 38.8 | - | - | 67.5 | 32.5 | - | - | 28.6 | 71.4 | - | - | - |
| Total % | 10.9 | 6.9 | - | 17.7 | 26.9 | 12.9 | - | 39.9 | 12.1 | 30.3 | - | 42.4 | - |
| PHF | 0.867 | 0.688 | - | 0.787 | 0.827 | 0.775 | - | 0.901 | 0.763 | 0.884 | - | 0.875 | 0.928 |
| Lights | 51 | 33 | - | 84 | 126 | 61 | - | 187 | 57 | 144 | - | 201 | 472 |
| % Lights | 98.1 | 100.0 | - | 98.8 | 97.7 | 98.4 | - | 97.9 | 98.3 | 99.3 | - | 99.0 | 98.5 |
| Other Vehicles | 0 | 0 | - | 0 | 2 | 0 | - | 2 | 1 | 1 | - | 2 | 4 |
| % Other Vehicles | 0.0 | 0.0 | - | 0.0 | 1.6 | 0.0 | - | 1.0 | 1.7 | 0.7 | - | 1.0 | 0.8 |
| Bicycles on Road | 1 | 0 | - | 1 | 1 | 1 | - | 2 | 0 | 0 | - | 0 | 3 |
| % Bicycles on Road | 1.9 | 0.0 | - | 1.2 | 0.8 | 1.6 | - | 1.0 | 0.0 | 0.0 | - | 0.0 | 0.6 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2462788891506, -74.8702383041382

Count Name: 002- Quarry Road & Creamy Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


| Fake Approach [SB] | | |
|---|---|---|
| Out | In | Total |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **0** | **0** | **0** |

| Quarry Road [EB] | | | | | | |
|---|---|---|---|---|---|---|
| | Out | In | Total | | | |
| | 118 | 84 | 202 | 1 | 2 | 0 | **205** |
| | 1 | 0 | 1 | | | | |
| | 1 | 1 | 2 | | | | |
| | 0 | 0 | 0 | | | | |
| | **120** | **85** | **205** | | | | |

| | | | | |
|---|---|---|---|---|
| 51 | 0 | 1 | 0 | **52** | T |
| 33 | 0 | 0 | 0 | **33** | R |
| 0 | 0 | 0 | 0 | **0** | P |

| | | | | |
|---|---|---|---|---|
| T | **62** | 0 | 1 | 0 | 61 |
| L | **129** | 0 | 1 | 2 | 126 |
| P | **0** | 0 | 0 | 0 | 0 |

| Quarry Road [WB] | | | | | | |
|---|---|---|---|---|---|---|
| | Out | In | Total | | | |
| | 195 | 187 | 382 | 1 | 1 | 0 | **197** |
| | 0 | 0 | 0 | | | | |
| | 1 | 2 | 3 | | | | |
| | 1 | 2 | 3 | | | | |
| | **197** | **191** | **388** | | | | |

| L | R | P |
|---|---|---|
| 57 | 144 | 0 |
| 1 | 1 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **58** | **145** | **0** |

| | | |
|---|---|---|
| 159 | 201 | 360 |
| 2 | 2 | 4 |
| 1 | 0 | 1 |
| 0 | 0 | 0 |
| **162** | **203** | **365** |
| Out | In | Total |
| Creamery Road [NB] | | |

Turning Movement Peak Hour Data Plot (12:00 PM)

## *Quarry Road & Dolington Road (S.R. 2075)*

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Data

| Start Time | Quarry Road Eastbound | | | | Dolington Road Westbound | | | | | Dolington Road Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 6:30 AM | 5 | 14 | 0 | 19 | 0 | 9 | 3 | 0 | 12 | 1 | 8 | 0 | 9 | 40 |
| 6:45 AM | 7 | 22 | 0 | 29 | 0 | 22 | 6 | 0 | 28 | 10 | 18 | 0 | 28 | 85 |
| Hourly Total | 12 | 36 | 0 | 48 | 0 | 31 | 9 | 0 | 40 | 11 | 26 | 0 | 37 | 125 |
| 7:00 AM | 6 | 27 | 0 | 33 | 0 | 19 | 3 | 1 | 22 | 10 | 15 | 0 | 25 | 80 |
| 7:15 AM | 7 | 50 | 0 | 57 | 0 | 22 | 4 | 0 | 26 | 14 | 15 | 0 | 29 | 112 |
| 7:30 AM | 14 | 86 | 2 | 100 | 0 | 23 | 5 | 0 | 28 | 22 | 17 | 0 | 39 | 167 |
| 7:45 AM | 15 | 79 | 0 | 94 | 0 | 19 | 7 | 0 | 26 | 18 | 25 | 0 | 43 | 163 |
| Hourly Total | 42 | 242 | 2 | 284 | 0 | 83 | 19 | 1 | 102 | 64 | 72 | 0 | 136 | 522 |
| 8:00 AM | 9 | 91 | 0 | 100 | 0 | 34 | 5 | 1 | 39 | 18 | 23 | 0 | 41 | 180 |
| 8:15 AM | 9 | 68 | 0 | 77 | 0 | 29 | 7 | 1 | 36 | 12 | 16 | 0 | 28 | 141 |
| 8:30 AM | 24 | 43 | 0 | 67 | 0 | 40 | 2 | 0 | 42 | 7 | 18 | 0 | 25 | 134 |
| 8:45 AM | 27 | 70 | 0 | 97 | 0 | 76 | 6 | 0 | 82 | 6 | 22 | 0 | 28 | 207 |
| Hourly Total | 69 | 272 | 0 | 341 | 0 | 179 | 20 | 2 | 199 | 43 | 79 | 0 | 122 | 662 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2:30 PM | 18 | 27 | 0 | 45 | 0 | 22 | 1 | 0 | 23 | 3 | 11 | 0 | 14 | 82 |
| 2:45 PM | 21 | 27 | 0 | 48 | 0 | 25 | 9 | 0 | 34 | 5 | 13 | 0 | 18 | 100 |
| Hourly Total | 39 | 54 | 0 | 93 | 0 | 47 | 10 | 0 | 57 | 8 | 24 | 0 | 32 | 182 |
| 3:00 PM | 19 | 24 | 0 | 43 | 0 | 34 | 3 | 0 | 37 | 4 | 14 | 0 | 18 | 98 |
| 3:15 PM | 26 | 29 | 0 | 55 | 1 | 51 | 5 | 0 | 57 | 6 | 21 | 0 | 27 | 139 |
| 3:30 PM | 38 | 42 | 0 | 80 | 0 | 38 | 5 | 0 | 43 | 4 | 18 | 2 | 22 | 145 |
| 3:45 PM | 31 | 39 | 0 | 70 | 0 | 29 | 7 | 0 | 36 | 8 | 11 | 0 | 19 | 125 |
| Hourly Total | 114 | 134 | 0 | 248 | 1 | 152 | 20 | 0 | 173 | 22 | 64 | 2 | 86 | 507 |
| 4:00 PM | 20 | 38 | 0 | 58 | 0 | 36 | 5 | 0 | 41 | 7 | 23 | 0 | 30 | 129 |
| 4:15 PM | 18 | 28 | 0 | 46 | 0 | 27 | 6 | 0 | 33 | 5 | 11 | 0 | 16 | 95 |
| 4:30 PM | 25 | 29 | 0 | 54 | 0 | 40 | 10 | 0 | 50 | 7 | 16 | 0 | 23 | 127 |
| 4:45 PM | 24 | 40 | 0 | 64 | 0 | 36 | 10 | 0 | 46 | 9 | 21 | 0 | 30 | 140 |
| Hourly Total | 87 | 135 | 0 | 222 | 0 | 139 | 31 | 0 | 170 | 28 | 71 | 0 | 99 | 491 |
| 5:00 PM | 31 | 35 | 0 | 66 | 0 | 55 | 6 | 0 | 61 | 6 | 23 | 0 | 29 | 156 |
| 5:15 PM | 35 | 55 | 0 | 90 | 0 | 49 | 15 | 0 | 64 | 3 | 32 | 0 | 35 | 189 |
| 5:30 PM | 37 | 30 | 0 | 67 | 0 | 54 | 8 | 0 | 62 | 10 | 26 | 0 | 36 | 165 |
| 5:45 PM | 24 | 39 | 0 | 63 | 0 | 44 | 6 | 0 | 50 | 5 | 27 | 0 | 32 | 145 |
| Hourly Total | 127 | 159 | 0 | 286 | 0 | 202 | 35 | 0 | 237 | 24 | 108 | 0 | 132 | 655 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11:00 AM | 22 | 25 | 0 | 47 | 0 | 23 | 14 | 0 | 37 | 10 | 22 | 0 | 32 | 116 |
| 11:15 AM | 20 | 21 | 0 | 41 | 0 | 21 | 9 | 0 | 30 | 7 | 20 | 0 | 27 | 98 |
| 11:30 AM | 28 | 33 | 0 | 61 | 0 | 28 | 7 | 0 | 35 | 12 | 14 | 0 | 26 | 122 |
| 11:45 AM | 14 | 34 | 0 | 48 | 0 | 22 | 2 | 0 | 24 | 11 | 16 | 0 | 27 | 99 |
| Hourly Total | 84 | 113 | 0 | 197 | 0 | 94 | 32 | 0 | 126 | 40 | 72 | 0 | 112 | 435 |
| 12:00 PM | 14 | 34 | 0 | 48 | 0 | 34 | 7 | 0 | 41 | 12 | 19 | 0 | 31 | 120 |
| 12:15 PM | 23 | 35 | 0 | 58 | 0 | 34 | 8 | 0 | 42 | 5 | 10 | 0 | 15 | 115 |
| 12:30 PM | 18 | 25 | 0 | 43 | 0 | 34 | 12 | 0 | 46 | 11 | 19 | 0 | 30 | 119 |
| 12:45 PM | 26 | 23 | 0 | 49 | 0 | 27 | 8 | 0 | 35 | 9 | 17 | 0 | 26 | 110 |
| Hourly Total | 81 | 117 | 0 | 198 | 0 | 129 | 35 | 0 | 164 | 37 | 65 | 0 | 102 | 464 |
| Grand Total | 655 | 1262 | 2 | 1917 | 1 | 1056 | 211 | 3 | 1268 | 277 | 581 | 2 | 858 | 4043 |
| Approach % | 34.2 | 65.8 | - | - | 0.1 | 83.3 | 16.6 | - | - | 32.3 | 67.7 | - | - | - |
| Total % | 16.2 | 31.2 | - | 47.4 | 0.0 | 26.1 | 5.2 | - | 31.4 | 6.9 | 14.4 | - | 21.2 | - |
| Lights | 625 | 1221 | - | 1846 | 1 | 1013 | 190 | - | 1204 | 256 | 541 | - | 797 | 3847 |
| % Lights | 95.4 | 96.8 | - | 96.3 | 100.0 | 95.9 | 90.0 | - | 95.0 | 92.4 | 93.1 | - | 92.9 | 95.2 |
| Other Vehicles | 28 | 40 | - | 68 | 0 | 39 | 17 | - | 56 | 17 | 30 | - | 47 | 171 |
| % Other Vehicles | 4.3 | 3.2 | - | 3.5 | 0.0 | 3.7 | 8.1 | - | 4.4 | 6.1 | 5.2 | - | 5.5 | 4.2 |
| Bicycles on Road | 2 | 1 | - | 3 | 0 | 4 | 4 | - | 8 | 4 | 10 | - | 14 | 25 |
| % Bicycles on Road | 0.3 | 0.1 | - | 0.2 | 0.0 | 0.4 | 1.9 | - | 0.6 | 1.4 | 1.7 | - | 1.6 | 0.6 |
| Pedestrians | - | - | 2 | - | - | - | - | 3 | - | - | - | 2 | - | - |
| % Pedestrians | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | 100.0 | - | - |

Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

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Pottstown, Pennsylvania, United States 19464
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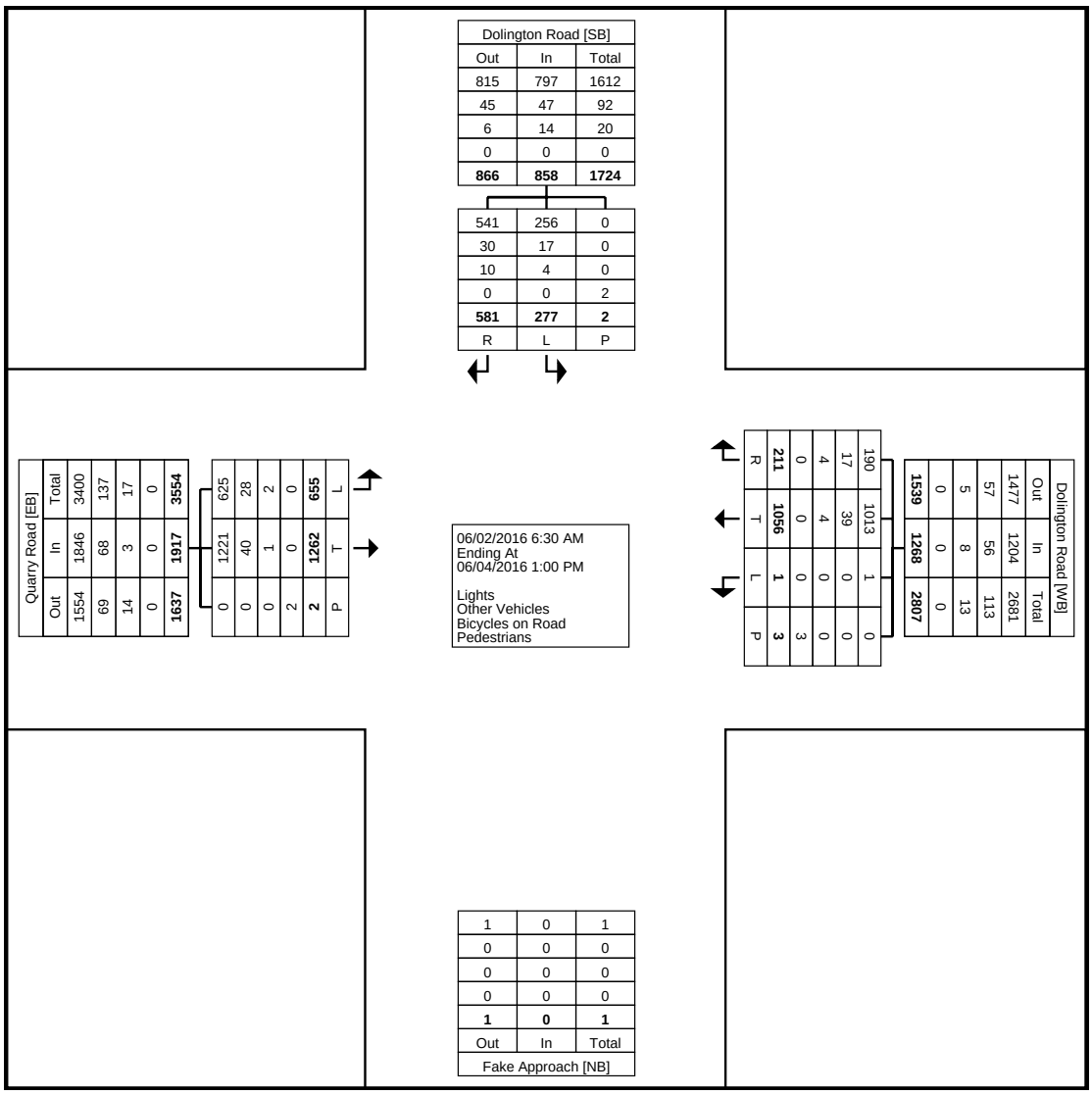
Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Data Plot

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Location: 40.2464873256472, -74.8690581321716

Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (8:00 AM)

| Start Time | Quarry Road Eastbound | | | | Dolington Road Westbound | | | | | Dolington Road Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 8:00 AM | 9 | 91 | 0 | 100 | 0 | 34 | 5 | 1 | 39 | 18 | 23 | 0 | 41 | 180 |
| 8:15 AM | 9 | 68 | 0 | 77 | 0 | 29 | 7 | 1 | 36 | 12 | 16 | 0 | 28 | 141 |
| 8:30 AM | 24 | 43 | 0 | 67 | 0 | 40 | 2 | 0 | 42 | 7 | 18 | 0 | 25 | 134 |
| 8:45 AM | 27 | 70 | 0 | 97 | 0 | 76 | 6 | 0 | 82 | 6 | 22 | 0 | 28 | 207 |
| Total | 69 | 272 | 0 | 341 | 0 | 179 | 20 | 2 | 199 | 43 | 79 | 0 | 122 | 662 |
| Approach % | 20.2 | 79.8 | - | - | 0.0 | 89.9 | 10.1 | - | - | 35.2 | 64.8 | - | - | - |
| Total % | 10.4 | 41.1 | - | 51.5 | 0.0 | 27.0 | 3.0 | - | 30.1 | 6.5 | 11.9 | - | 18.4 | - |
| PHF | 0.639 | 0.747 | - | 0.853 | 0.000 | 0.589 | 0.714 | - | 0.607 | 0.597 | 0.859 | - | 0.744 | 0.800 |
| Lights | 64 | 262 | - | 326 | 0 | 170 | 17 | - | 187 | 43 | 72 | - | 115 | 628 |
| % Lights | 92.8 | 96.3 | - | 95.6 | - | 95.0 | 85.0 | - | 94.0 | 100.0 | 91.1 | - | 94.3 | 94.9 |
| Other Vehicles | 5 | 10 | - | 15 | 0 | 8 | 3 | - | 11 | 0 | 6 | - | 6 | 32 |
| % Other Vehicles | 7.2 | 3.7 | - | 4.4 | - | 4.5 | 15.0 | - | 5.5 | 0.0 | 7.6 | - | 4.9 | 4.8 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 1 | 0 | - | 1 | 0 | 1 | - | 1 | 2 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | - | 0.6 | 0.0 | - | 0.5 | 0.0 | 1.3 | - | 0.8 | 0.3 |
| Pedestrians | - | - | 0 | - | - | - | - | 2 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - |

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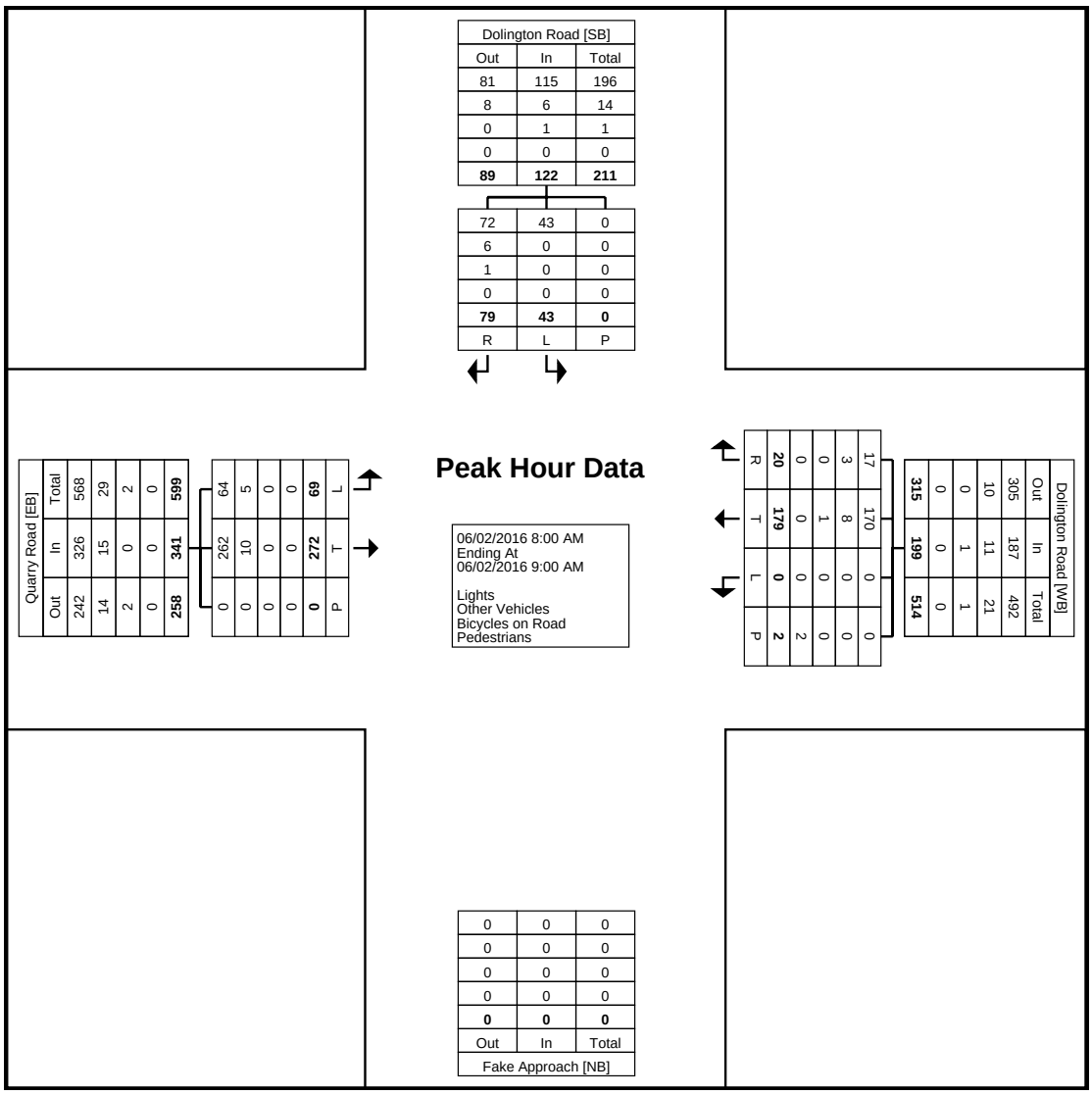


Turning Movement Peak Hour Data Plot (8:00 AM)

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Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


# Turning Movement Peak Hour Data (5:00 PM)

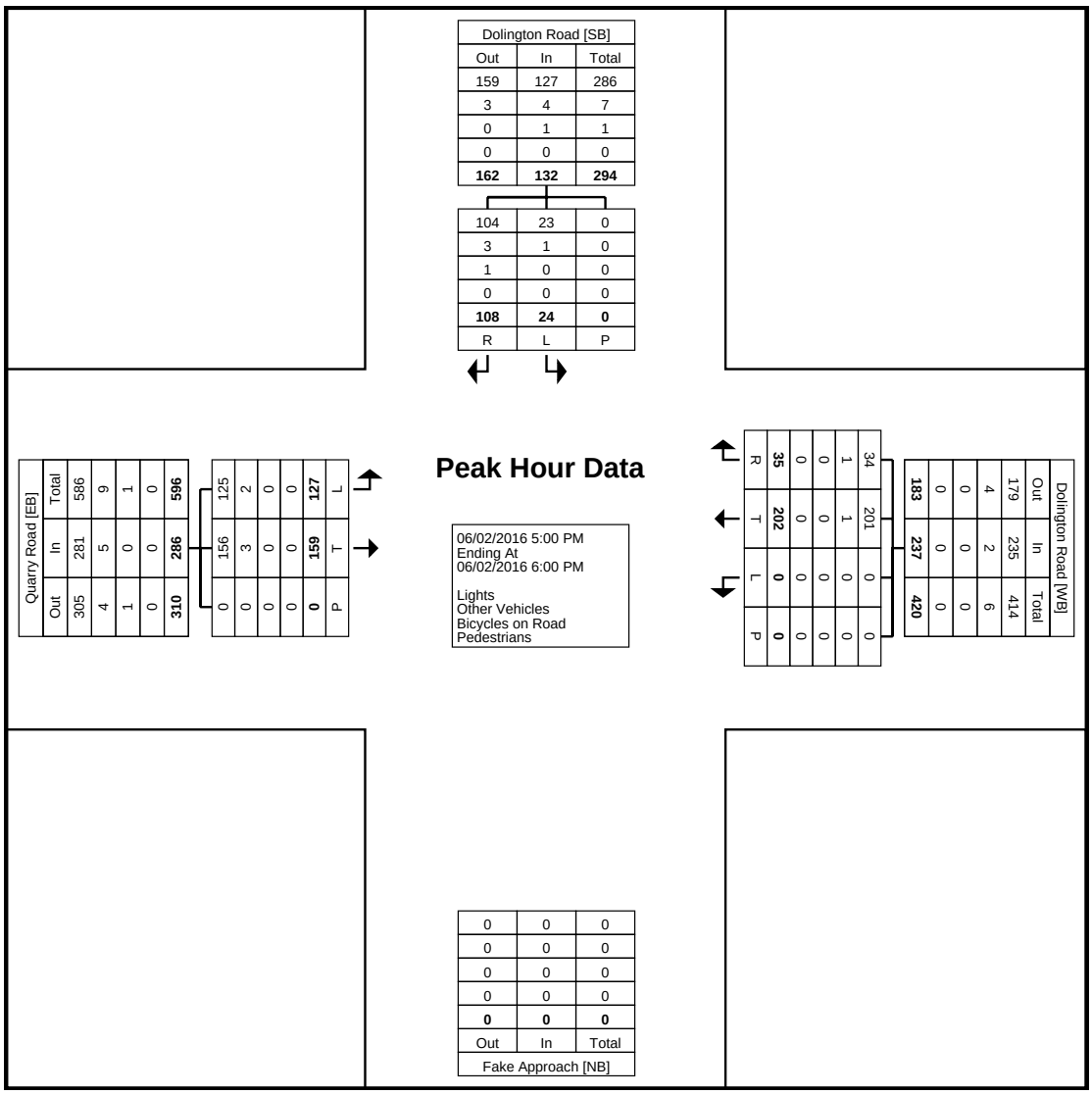
| Start Time | Quarry Road Eastbound | | | | Dolington Road Westbound | | | | | Dolington Road Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 5:00 PM | 31 | 35 | 0 | 66 | 0 | 55 | 6 | 0 | 61 | 6 | 23 | 0 | 29 | 156 |
| 5:15 PM | 35 | 55 | 0 | 90 | 0 | 49 | 15 | 0 | 64 | 3 | 32 | 0 | 35 | 189 |
| 5:30 PM | 37 | 30 | 0 | 67 | 0 | 54 | 8 | 0 | 62 | 10 | 26 | 0 | 36 | 165 |
| 5:45 PM | 24 | 39 | 0 | 63 | 0 | 44 | 6 | 0 | 50 | 5 | 27 | 0 | 32 | 145 |
| Total | 127 | 159 | 0 | 286 | 0 | 202 | 35 | 0 | 237 | 24 | 108 | 0 | 132 | 655 |
| Approach % | 44.4 | 55.6 | - | - | 0.0 | 85.2 | 14.8 | - | - | 18.2 | 81.8 | - | - | - |
| Total % | 19.4 | 24.3 | - | 43.7 | 0.0 | 30.8 | 5.3 | - | 36.2 | 3.7 | 16.5 | - | 20.2 | - |
| PHF | 0.858 | 0.723 | - | 0.794 | 0.000 | 0.918 | 0.583 | - | 0.926 | 0.600 | 0.844 | - | 0.917 | 0.866 |
| Lights | 125 | 156 | - | 281 | 0 | 201 | 34 | - | 235 | 23 | 104 | - | 127 | 643 |
| % Lights | 98.4 | 98.1 | - | 98.3 | - | 99.5 | 97.1 | - | 99.2 | 95.8 | 96.3 | - | 96.2 | 98.2 |
| Other Vehicles | 2 | 3 | - | 5 | 0 | 1 | 1 | - | 2 | 1 | 3 | - | 4 | 11 |
| % Other Vehicles | 1.6 | 1.9 | - | 1.7 | - | 0.5 | 2.9 | - | 0.8 | 4.2 | 2.8 | - | 3.0 | 1.7 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | - | 1 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.9 | - | 0.8 | 0.2 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (5:00 PM)

Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100



# Turning Movement Peak Hour Data (12:00 PM)

| Start Time | Quarry Road Eastbound | | | | Dolington Road Westbound | | | | | Dolington Road Southbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 12:00 PM | 14 | 34 | 0 | 48 | 0 | 34 | 7 | 0 | 41 | 12 | 19 | 0 | 31 | 120 |
| 12:15 PM | 23 | 35 | 0 | 58 | 0 | 34 | 8 | 0 | 42 | 5 | 10 | 0 | 15 | 115 |
| 12:30 PM | 18 | 25 | 0 | 43 | 0 | 34 | 12 | 0 | 46 | 11 | 19 | 0 | 30 | 119 |
| 12:45 PM | 26 | 23 | 0 | 49 | 0 | 27 | 8 | 0 | 35 | 9 | 17 | 0 | 26 | 110 |
| Total | 81 | 117 | 0 | 198 | 0 | 129 | 35 | 0 | 164 | 37 | 65 | 0 | 102 | 464 |
| Approach % | 40.9 | 59.1 | - | - | 0.0 | 78.7 | 21.3 | - | - | 36.3 | 63.7 | - | - | - |
| Total % | 17.5 | 25.2 | - | 42.7 | 0.0 | 27.8 | 7.5 | - | 35.3 | 8.0 | 14.0 | - | 22.0 | - |
| PHF | 0.779 | 0.836 | - | 0.853 | 0.000 | 0.949 | 0.729 | - | 0.891 | 0.771 | 0.855 | - | 0.823 | 0.967 |
| Lights | 79 | 116 | - | 195 | 0 | 126 | 34 | - | 160 | 36 | 62 | - | 98 | 453 |
| % Lights | 97.5 | 99.1 | - | 98.5 | - | 97.7 | 97.1 | - | 97.6 | 97.3 | 95.4 | - | 96.1 | 97.6 |
| Other Vehicles | 1 | 1 | - | 2 | 0 | 2 | 1 | - | 3 | 0 | 1 | - | 1 | 6 |
| % Other Vehicles | 1.2 | 0.9 | - | 1.0 | - | 1.6 | 2.9 | - | 1.8 | 0.0 | 1.5 | - | 1.0 | 1.3 |
| Bicycles on Road | 1 | 0 | - | 1 | 0 | 1 | 0 | - | 1 | 1 | 2 | - | 3 | 5 |
| % Bicycles on Road | 1.2 | 0.0 | - | 0.5 | - | 0.8 | 0.0 | - | 0.6 | 2.7 | 3.1 | - | 2.9 | 1.1 |
| Pedestrians | - | - | 0 | - | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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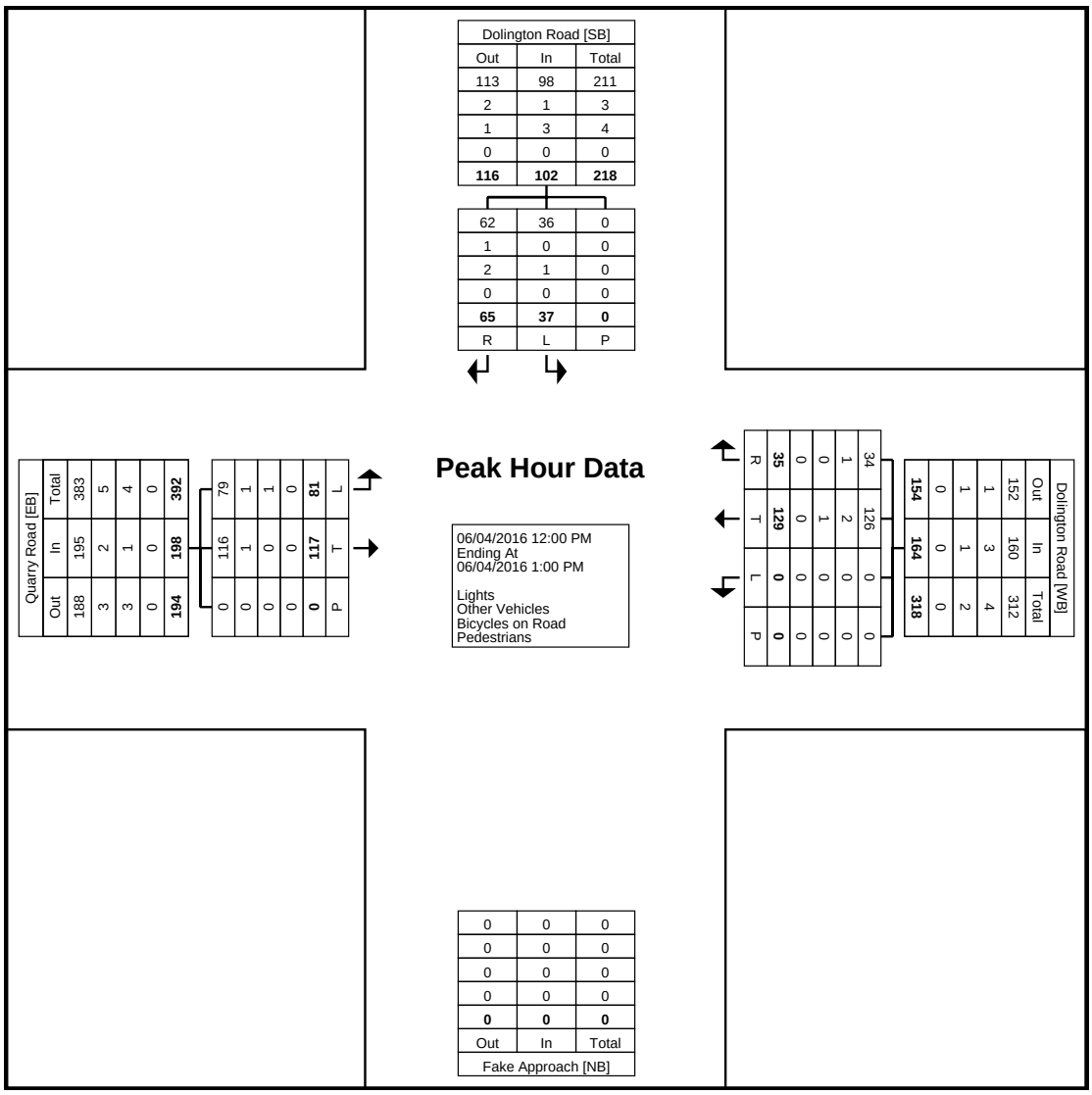
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.2464873256472, -74.8690581321716

Count Name: 001- Dolington Road & Quarry Road
Site Code: AM/PM/SAT
Start Date: 06/02/2016


Turning Movement Peak Hour Data Plot (12:00 PM)

## *Quarry Road & Quarry Hill Court*

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2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


# Turning Movement Data

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Quarry Hill Court Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 12:00 PM | 24 | 0 | 0 | 24 | 2 | 14 | 0 | 16 | 1 | 2 | 0 | 3 | 43 |
| 12:15 PM | 20 | 0 | 0 | 20 | 0 | 18 | 0 | 18 | 0 | 2 | 0 | 2 | 40 |
| 12:30 PM | 21 | 0 | 0 | 21 | 1 | 18 | 0 | 19 | 1 | 1 | 0 | 2 | 42 |
| 12:45 PM | 16 | 0 | 0 | 16 | 0 | 17 | 0 | 17 | 0 | 0 | 1 | 0 | 33 |
| Hourly Total | 81 | 0 | 0 | 81 | 3 | 67 | 0 | 70 | 2 | 5 | 1 | 7 | 158 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8:00 AM | 42 | 7 | 0 | 49 | 23 | 27 | 0 | 50 | 0 | 2 | 0 | 2 | 101 |
| 8:15 AM | 47 | 0 | 0 | 47 | 7 | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 78 |
| 8:30 AM | 61 | 5 | 0 | 66 | 24 | 31 | 0 | 55 | 0 | 6 | 0 | 6 | 127 |
| 8:45 AM | 117 | 5 | 0 | 122 | 75 | 54 | 0 | 129 | 2 | 12 | 0 | 14 | 265 |
| Hourly Total | 267 | 17 | 0 | 284 | 129 | 136 | 0 | 265 | 2 | 20 | 0 | 22 | 571 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5:00 PM | 99 | 1 | 0 | 100 | 17 | 49 | 0 | 66 | 2 | 16 | 0 | 18 | 184 |
| 5:15 PM | 45 | 0 | 0 | 45 | 4 | 44 | 0 | 48 | 0 | 2 | 0 | 2 | 95 |
| 5:30 PM | 39 | 2 | 0 | 41 | 9 | 50 | 0 | 59 | 1 | 1 | 0 | 2 | 102 |
| 5:45 PM | 29 | 0 | 0 | 29 | 6 | 38 | 0 | 44 | 0 | 1 | 0 | 1 | 74 |
| Hourly Total | 212 | 3 | 0 | 215 | 36 | 181 | 0 | 217 | 3 | 20 | 0 | 23 | 455 |
| Grand Total | 560 | 20 | 0 | 580 | 168 | 384 | 0 | 552 | 7 | 45 | 1 | 52 | 1184 |
| Approach % | 96.6 | 3.4 | - | - | 30.4 | 69.6 | - | - | 13.5 | 86.5 | - | - | - |
| Total % | 47.3 | 1.7 | - | 49.0 | 14.2 | 32.4 | - | 46.6 | 0.6 | 3.8 | - | 4.4 | - |
| Lights | 543 | 17 | - | 560 | 156 | 368 | - | 524 | 4 | 33 | - | 37 | 1121 |
| % Lights | 97.0 | 85.0 | - | 96.6 | 92.9 | 95.8 | - | 94.9 | 57.1 | 73.3 | - | 71.2 | 94.7 |
| Other Vehicles | 14 | 3 | - | 17 | 12 | 15 | - | 27 | 3 | 12 | - | 15 | 59 |
| % Other Vehicles | 2.5 | 15.0 | - | 2.9 | 7.1 | 3.9 | - | 4.9 | 42.9 | 26.7 | - | 28.8 | 5.0 |
| Bicycles on Road | 3 | 0 | - | 3 | 0 | 1 | - | 1 | 0 | 0 | - | 0 | 4 |
| % Bicycles on Road | 0.5 | 0.0 | - | 0.5 | 0.0 | 0.3 | - | 0.2 | 0.0 | 0.0 | - | 0.0 | 0.3 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 1 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

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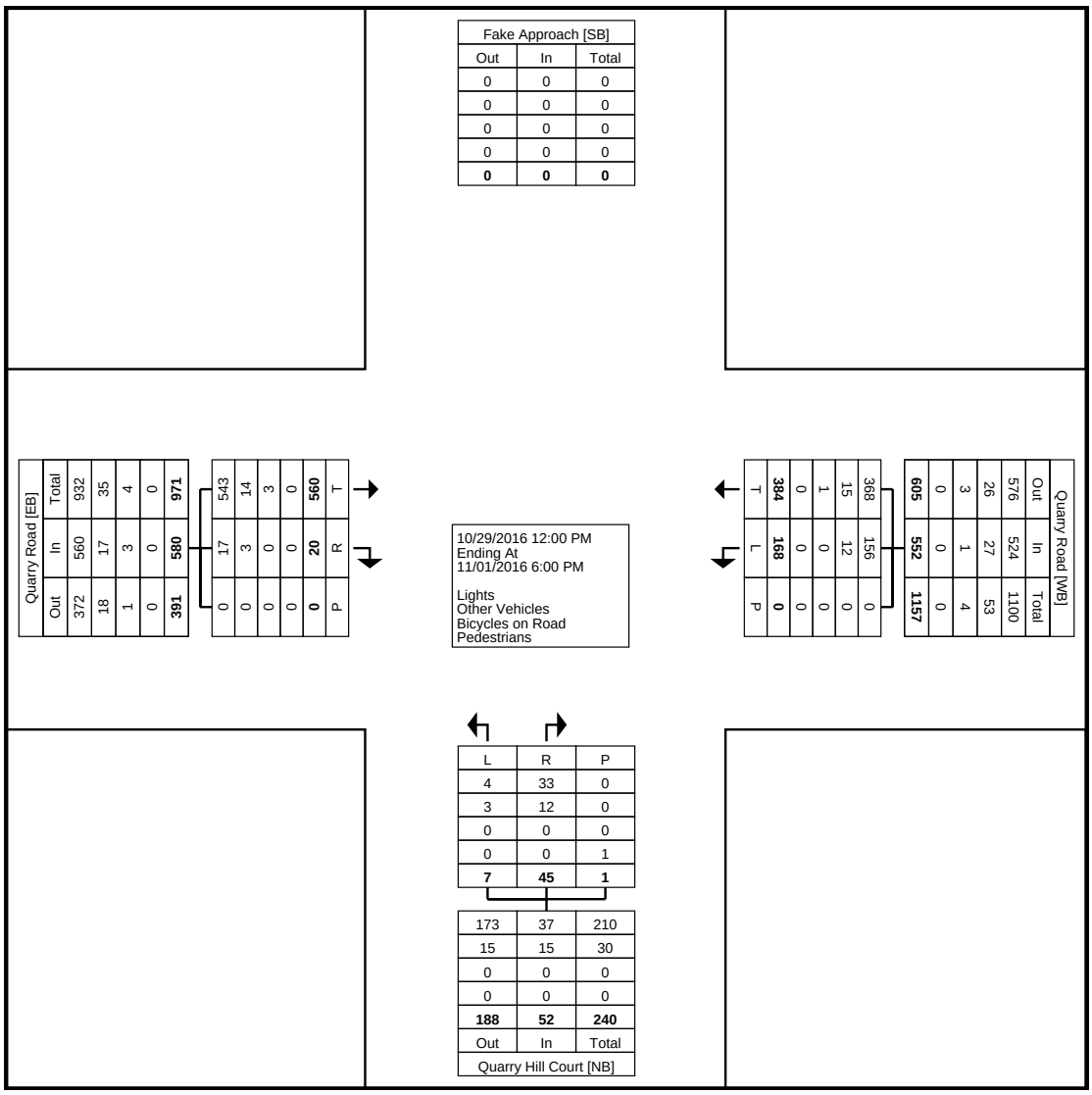
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


Turning Movement Data Plot

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2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


# Turning Movement Peak Hour Data (12:00 PM)

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Quarry Hill Court Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 12:00 PM | 24 | 0 | 0 | 24 | 2 | 14 | 0 | 16 | 1 | 2 | 0 | 3 | 43 |
| 12:15 PM | 20 | 0 | 0 | 20 | 0 | 18 | 0 | 18 | 0 | 2 | 0 | 2 | 40 |
| 12:30 PM | 21 | 0 | 0 | 21 | 1 | 18 | 0 | 19 | 1 | 1 | 0 | 2 | 42 |
| 12:45 PM | 16 | 0 | 0 | 16 | 0 | 17 | 0 | 17 | 0 | 0 | 1 | 0 | 33 |
| Total | 81 | 0 | 0 | 81 | 3 | 67 | 0 | 70 | 2 | 5 | 1 | 7 | 158 |
| Approach % | 100.0 | 0.0 | - | - | 4.3 | 95.7 | - | - | 28.6 | 71.4 | - | - | - |
| Total % | 51.3 | 0.0 | - | 51.3 | 1.9 | 42.4 | - | 44.3 | 1.3 | 3.2 | - | 4.4 | - |
| PHF | 0.844 | 0.000 | - | 0.844 | 0.375 | 0.931 | - | 0.921 | 0.500 | 0.625 | - | 0.583 | 0.919 |
| Lights | 77 | 0 | - | 77 | 2 | 65 | - | 67 | 2 | 3 | - | 5 | 149 |
| % Lights | 95.1 | - | - | 95.1 | 66.7 | 97.0 | - | 95.7 | 100.0 | 60.0 | - | 71.4 | 94.3 |
| Other Vehicles | 1 | 0 | - | 1 | 1 | 1 | - | 2 | 0 | 2 | - | 2 | 5 |
| % Other Vehicles | 1.2 | - | - | 1.2 | 33.3 | 1.5 | - | 2.9 | 0.0 | 40.0 | - | 28.6 | 3.2 |
| Bicycles on Road | 3 | 0 | - | 3 | 0 | 1 | - | 1 | 0 | 0 | - | 0 | 4 |
| % Bicycles on Road | 3.7 | - | - | 3.7 | 0.0 | 1.5 | - | 1.4 | 0.0 | 0.0 | - | 0.0 | 2.5 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 1 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

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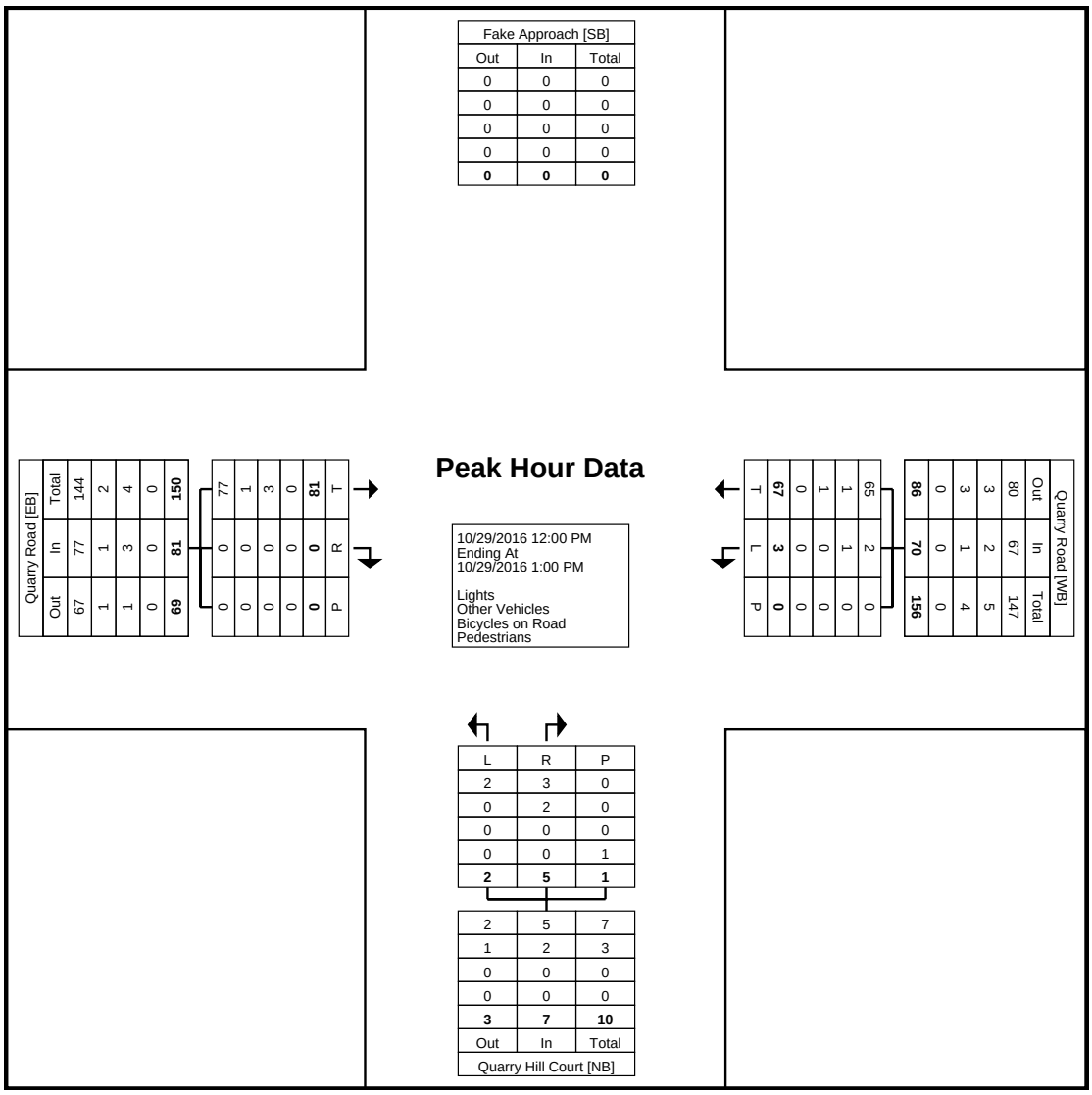
Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


Turning Movement Peak Hour Data Plot (12:00 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


# Turning Movement Peak Hour Data (8:00 AM)

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Quarry Hill Court Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 8:00 AM | 42 | 7 | 0 | 49 | 23 | 27 | 0 | 50 | 0 | 2 | 0 | 2 | 101 |
| 8:15 AM | 47 | 0 | 0 | 47 | 7 | 24 | 0 | 31 | 0 | 0 | 0 | 0 | 78 |
| 8:30 AM | 61 | 5 | 0 | 66 | 24 | 31 | 0 | 55 | 0 | 6 | 0 | 6 | 127 |
| 8:45 AM | 117 | 5 | 0 | 122 | 75 | 54 | 0 | 129 | 2 | 12 | 0 | 14 | 265 |
| Total | 267 | 17 | 0 | 284 | 129 | 136 | 0 | 265 | 2 | 20 | 0 | 22 | 571 |
| Approach % | 94.0 | 6.0 | - | - | 48.7 | 51.3 | - | - | 9.1 | 90.9 | - | - | - |
| Total % | 46.8 | 3.0 | - | 49.7 | 22.6 | 23.8 | - | 46.4 | 0.4 | 3.5 | - | 3.9 | - |
| PHF | 0.571 | 0.607 | - | 0.582 | 0.430 | 0.630 | - | 0.514 | 0.250 | 0.417 | - | 0.393 | 0.539 |
| Lights | 257 | 14 | - | 271 | 119 | 124 | - | 243 | 0 | 10 | - | 10 | 524 |
| % Lights | 96.3 | 82.4 | - | 95.4 | 92.2 | 91.2 | - | 91.7 | 0.0 | 50.0 | - | 45.5 | 91.8 |
| Other Vehicles | 10 | 3 | - | 13 | 10 | 12 | - | 22 | 2 | 10 | - | 12 | 47 |
| % Other Vehicles | 3.7 | 17.6 | - | 4.6 | 7.8 | 8.8 | - | 8.3 | 100.0 | 50.0 | - | 54.5 | 8.2 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - |

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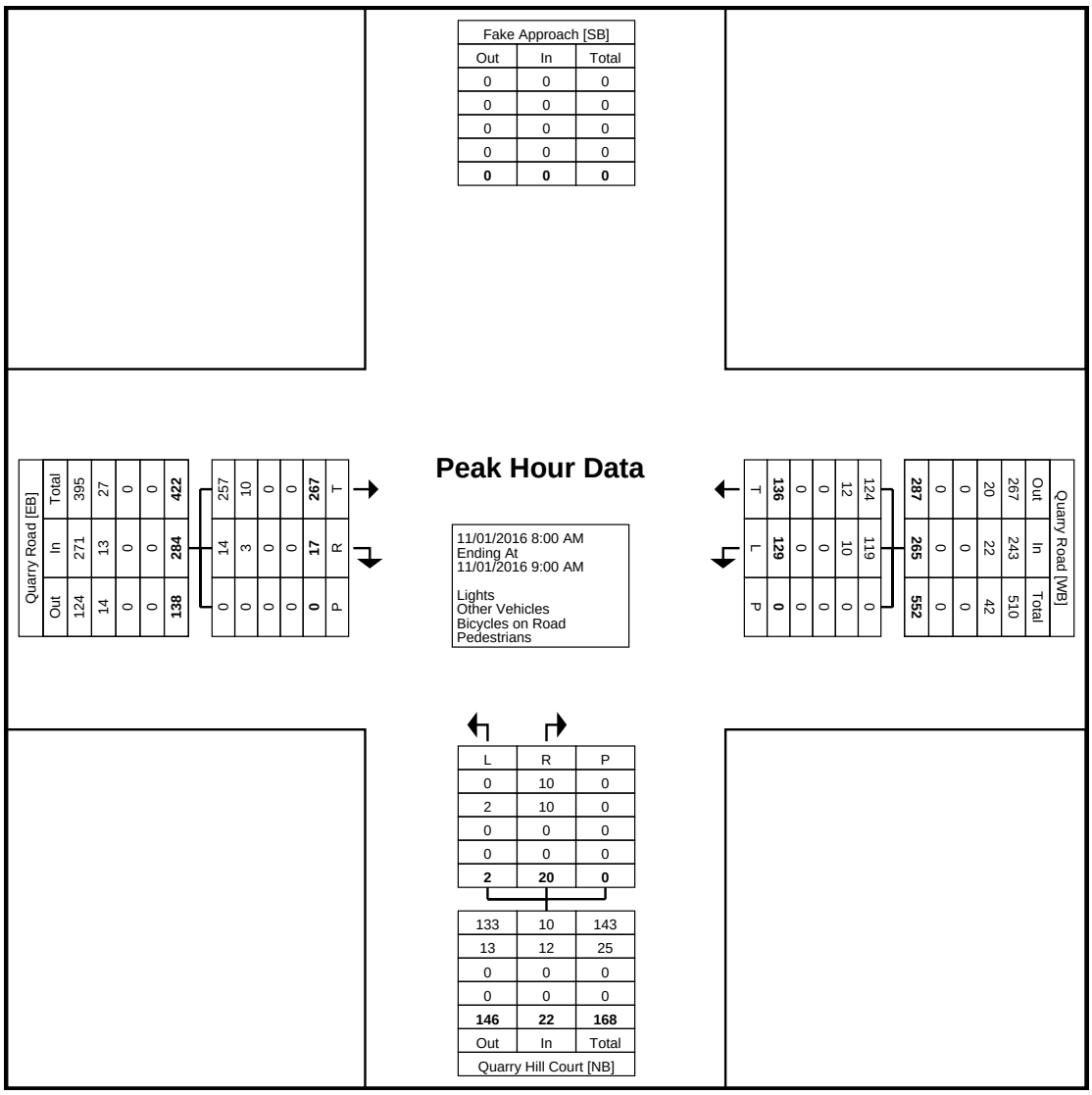
Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


| Fake Approach [SB] | | |
|---|---|---|
| Out | In | Total |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **0** | **0** | **0** |

| Quarry Road [EB] | | |
|---|---|---|
| Out | In | Total |
| 124 | 271 | 395 |
| 14 | 13 | 27 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **138** | **284** | **422** |

| | | | |
|---|---|---|---|
| 257 | 10 | 0 | **267** |
| 14 | 3 | 0 | **17** |
| 0 | 0 | 0 | **0** |
| T | R | P | |

| | | | |
|---|---|---|---|
| T | **136** | 0 | 0 | 12 | 124 |
| L | **129** | 0 | 0 | 10 | 119 |
| P | **0** | 0 | 0 | 0 | 0 |

| Quarry Road [WB] | | |
|---|---|---|
| Out | In | Total |
| 267 | 243 | 510 |
| 20 | 22 | 42 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **287** | **265** | **552** |

| L | R | P |
|---|---|---|
| 0 | 10 | 0 |
| 2 | 10 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **2** | **20** | **0** |

| | | |
|---|---|---|
| 133 | 10 | 143 |
| 13 | 12 | 25 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **146** | **22** | **168** |
| Out | In | Total |
| Quarry Hill Court [NB] | | |

Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Couter: MIO:
Set up By: BZ:

Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


# Turning Movement Peak Hour Data (5:00 PM)

| Start Time | Quarry Road Eastbound | | | | Quarry Road Westbound | | | | Quarry Hill Court Northbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Right | Peds | App. Total | Left | Thru | Peds | App. Total | Left | Right | Peds | App. Total | Int. Total |
| 5:00 PM | 99 | 1 | 0 | 100 | 17 | 49 | 0 | 66 | 2 | 16 | 0 | 18 | 184 |
| 5:15 PM | 45 | 0 | 0 | 45 | 4 | 44 | 0 | 48 | 0 | 2 | 0 | 2 | 95 |
| 5:30 PM | 39 | 2 | 0 | 41 | 9 | 50 | 0 | 59 | 1 | 1 | 0 | 2 | 102 |
| 5:45 PM | 29 | 0 | 0 | 29 | 6 | 38 | 0 | 44 | 0 | 1 | 0 | 1 | 74 |
| Total | 212 | 3 | 0 | 215 | 36 | 181 | 0 | 217 | 3 | 20 | 0 | 23 | 455 |
| Approach % | 98.6 | 1.4 | - | - | 16.6 | 83.4 | - | - | 13.0 | 87.0 | - | - | - |
| Total % | 46.6 | 0.7 | - | 47.3 | 7.9 | 39.8 | - | 47.7 | 0.7 | 4.4 | - | 5.1 | - |
| PHF | 0.535 | 0.375 | - | 0.538 | 0.529 | 0.905 | - | 0.822 | 0.375 | 0.313 | - | 0.319 | 0.618 |
| Lights | 209 | 3 | - | 212 | 35 | 179 | - | 214 | 2 | 20 | - | 22 | 448 |
| % Lights | 98.6 | 100.0 | - | 98.6 | 97.2 | 98.9 | - | 98.6 | 66.7 | 100.0 | - | 95.7 | 98.5 |
| Other Vehicles | 3 | 0 | - | 3 | 1 | 2 | - | 3 | 1 | 0 | - | 1 | 7 |
| % Other Vehicles | 1.4 | 0.0 | - | 1.4 | 2.8 | 1.1 | - | 1.4 | 33.3 | 0.0 | - | 4.3 | 1.5 |
| Bicycles on Road | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Pedestrians | - | - | 0 | - | - | - | 0 | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - |

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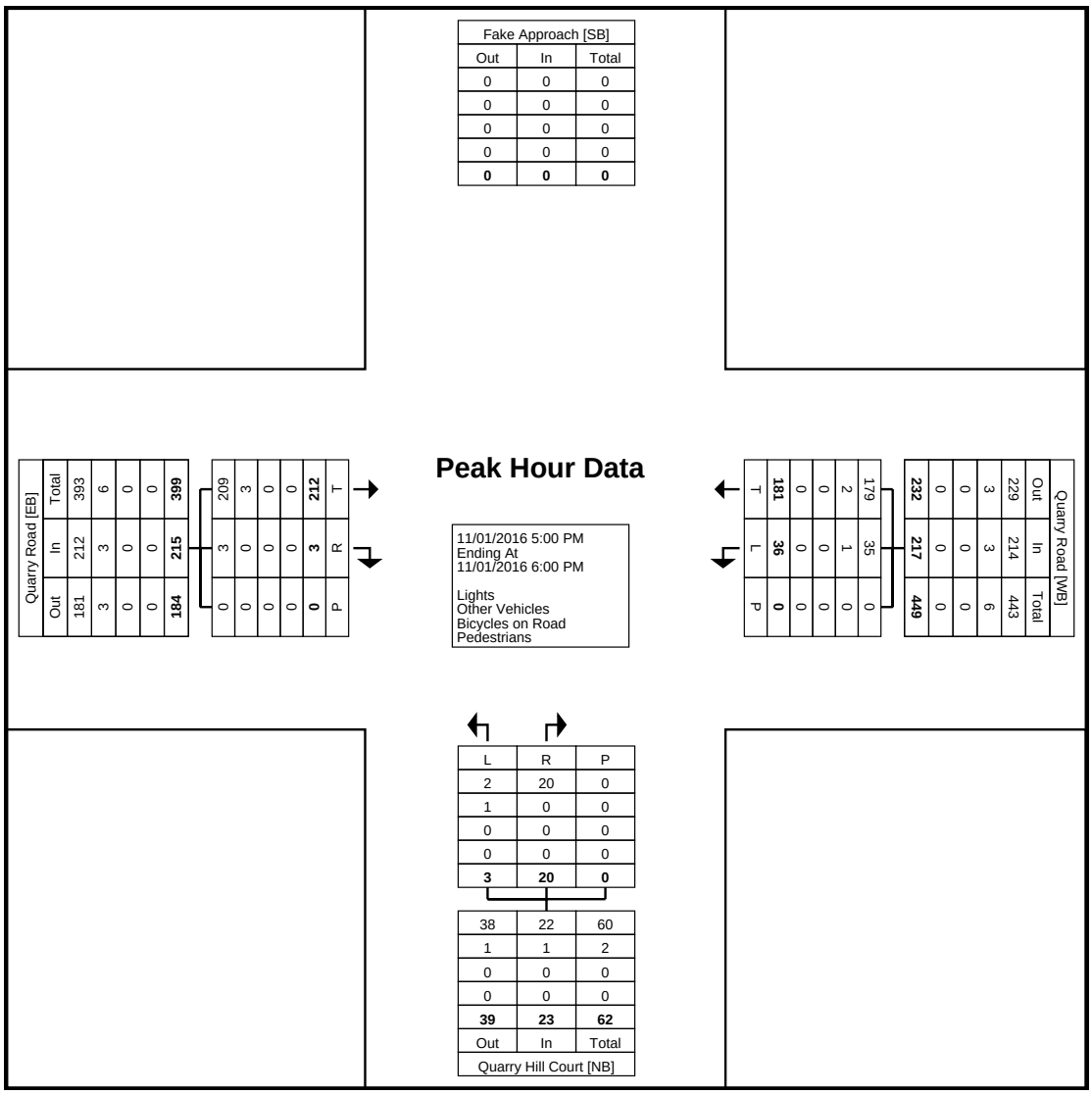
Location: 40.246174, -74.87219

Count Name: Quarry Road & Quarry Court
Site Code: AM/PM/SAT
Start Date: 10/29/2016


| Fake Approach [SB] | | |
|---|---|---|
| Out | In | Total |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **0** | **0** | **0** |

| Quarry Road [EB] | | | | | | |
|---|---|---|---|---|---|---|
| | Out | In | Total | | | |
| | 181 | 212 | 393 | | | |
| | 3 | 3 | 6 | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | **184** | **215** | **399** | | | |
| | 0 | 3 | 209 | | | |
| | 0 | 0 | 3 | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | **0** | **3** | **212** | | | |
| | P | R | T | | | |

| Quarry Road [WB] | | | | | | |
|---|---|---|---|---|---|---|
| | Out | In | Total | | | |
| | 229 | 214 | 443 | | | |
| | 3 | 3 | 6 | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | **232** | **217** | **449** | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | 2 | 1 | 0 | | | |
| | 179 | 35 | 0 | | | |
| | **181** | **36** | **0** | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | | | |
| | T | L | P | | | |

| L | R | P |
|---|---|---|
| 2 | 20 | 0 |
| 1 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **3** | **20** | **0** |

| | | |
|---|---|---|
| 38 | 22 | 60 |
| 1 | 1 | 2 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| **39** | **23** | **62** |
| Out | In | Total |
| Quarry Hill Court [NB] | | |

Turning Movement Peak Hour Data Plot (5:00 PM)

# *APPENDIX C:*

## *Capacity Analysis Worksheets*

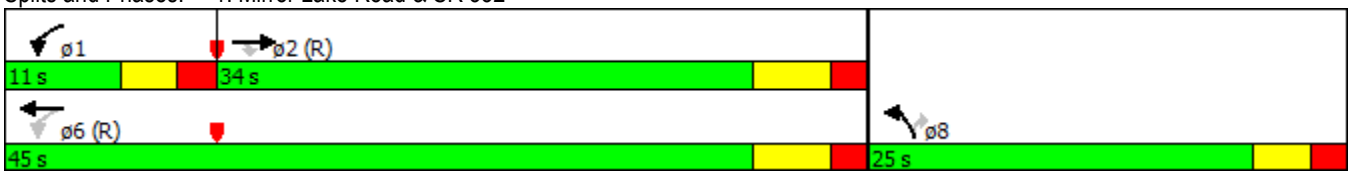
# *2016 Existing Conditions*

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 385 | 88 | 100 | 358 | 136 | 125 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1497 | 0 | 1731 | 1676 | 1496 |
| Flt Permitted | | | | 0.831 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1497 | 0 | 1455 | 1676 | 1496 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 96 | | | | 136 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 9% | 7% | 1% | 1% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 418 | 96 | 0 | 498 | 148 | 136 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Minimum Initial (s) | 12.0 | 12.0 | 3.0 | 12.0 | 3.0 | 3.0 |
| Minimum Split (s) | 22.0 | 22.0 | 10.0 | 22.0 | 21.0 | 21.0 |
| Total Split (s) | 34.0 | 34.0 | 11.0 | 45.0 | 25.0 | 25.0 |
| Total Split (%) | 48.6% | 48.6% | 15.7% | 64.3% | 35.7% | 35.7% |
| Maximum Green (s) | 28.0 | 28.0 | 6.0 | 39.0 | 20.0 | 20.0 |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Lead/Lag | Lag | Lag | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 5.0 | 5.0 | 3.0 | 5.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 2.0 | 2.0 | 0.2 | 2.0 | 0.2 | 0.2 |
| Time Before Reduce (s) | 28.0 | 28.0 | 0.0 | 28.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 18.0 | 18.0 | 0.0 | 18.0 | 0.0 | 0.0 |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 48.5 | 48.5 | | 48.5 | 12.5 | 12.5 |
| Actuated g/C Ratio | 0.69 | 0.69 | | 0.69 | 0.18 | 0.18 |
| v/c Ratio | 0.35 | 0.09 | | 0.49 | 0.49 | 0.36 |
| Control Delay | 5.9 | 1.4 | | 8.2 | 30.8 | 7.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 5.9 | 1.4 | | 8.2 | 30.8 | 7.5 |
| LOS | A | A | | A | C | A |
| Approach Delay | 5.1 | | | 8.2 | 19.6 | |
| Approach LOS | A | | | A | B | |
| Queue Length 50th (ft) | 59 | 0 | | 75 | 58 | 0 |
| Queue Length 95th (ft) | 125 | 14 | | 213 | 102 | 39 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1210 | 1065 | | 1007 | 502 | 544 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.35 | 0.09 | | 0.49 | 0.29 | 0.25 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 54 (77%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 9.5 | | Intersection LOS: A | |
| Intersection Capacity Utilization 66.7% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Mirror Lake Road & SR 332

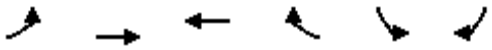


| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 385 | 88 | 100 | 358 | 136 | 125 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1717 | 1791 | 1751 | 1764 | 1716 |
| Adj Flow Rate, veh/h | 418 | 96 | 109 | 389 | 148 | 136 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 9 | 1 | 1 | 1 | 8 |
| Cap, veh/h | 1265 | 1056 | 63 | 179 | 248 | 215 |
| Arrive On Green | 0.72 | 0.72 | 1.00 | 1.00 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1748 | 1460 | 1 | 247 | 1680 | 1459 |
| Grp Volume(v), veh/h | 418 | 96 | 498 | 0 | 148 | 136 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1460 | 248 | 0 | 1680 | 1459 |
| Q Serve(g_s), s | 6.1 | 1.4 | 10.6 | 0.0 | 5.8 | 6.1 |
| Cycle Q Clear(g_c), s | 6.1 | 1.4 | 10.6 | 0.0 | 5.8 | 6.1 |
| Prop In Lane | | 1.00 | 0.22 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1265 | 1056 | 0 | 0 | 248 | 215 |
| V/C Ratio(X) | 0.33 | 0.09 | 0.00 | 0.00 | 0.60 | 0.63 |
| Avail Cap(c_a), veh/h | 1265 | 1056 | 0 | 0 | 504 | 438 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.90 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.5 | 2.9 | 0.0 | 0.0 | 27.9 | 28.0 |
| Incr Delay (d2), s/veh | 0.7 | 0.2 | 0.0 | 0.0 | 2.3 | 3.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.1 | 0.6 | 0.0 | 0.0 | 2.8 | 2.7 |
| LnGrp Delay(d),s/veh | 4.2 | 3.0 | 0.0 | 0.0 | 30.2 | 31.1 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 514 | | | 498 | 284 | |
| Approach Delay, s/veh | 4.0 | | | 0.0 | 30.6 | |
| Approach LOS | A | | | A | C | |

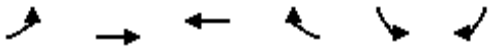
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 55.7 | | | | 55.7 | | 14.3 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 28.0 | | | | 39.0 | | 20.0 |
| Max Q Clear Time (g_c+I1), s | | 8.6 | | | | 12.6 | | 8.6 |
| Green Ext Time (p_c), s | | 13.0 | | | | 16.3 | | 0.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 8.3 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.



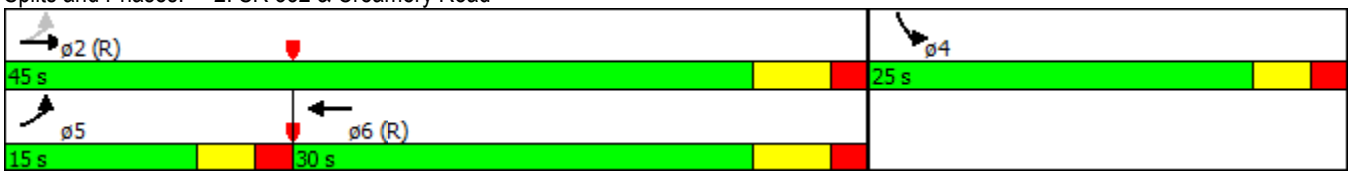
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 235 | 223 | 258 | 69 | 53 | 237 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1493 | 1731 | 1622 | 0 | 1409 | 0 |
| Flt Permitted | 0.445 | | | | 0.991 | |
| Satd. Flow (perm) | 699 | 1731 | 1622 | 0 | 1409 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 258 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 8% | 5% | 3% | 6% | 13% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 255 | 242 | 355 | 0 | 316 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Minimum Initial (s) | 4.0 | 15.0 | 15.0 | | 4.0 | |
| Minimum Split (s) | 9.0 | 22.0 | 22.0 | | 21.0 | |
| Total Split (s) | 15.0 | 45.0 | 30.0 | | 25.0 | |
| Total Split (%) | 21.4% | 64.3% | 42.9% | | 35.7% | |
| Maximum Green (s) | 10.0 | 39.0 | 24.0 | | 20.0 | |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Lead/Lag | Lead | | Lag | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 5.0 | 5.0 | | 3.0 | |
| Minimum Gap (s) | 0.2 | 2.7 | 2.7 | | 0.2 | |
| Time Before Reduce (s) | 0.0 | 35.0 | 35.0 | | 0.0 | |
| Time To Reduce (s) | 0.0 | 10.0 | 10.0 | | 0.0 | |
| Recall Mode | None | C-Max | C-Max | | None | |
| Act Effct Green (s) | 50.7 | 49.7 | 35.4 | | 11.3 | |
| Actuated g/C Ratio | 0.72 | 0.71 | 0.51 | | 0.16 | |
| v/c Ratio | 0.41 | 0.20 | 0.43 | | 0.71 | |
| Control Delay | 3.8 | 2.5 | 15.3 | | 15.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 3.8 | 2.5 | 15.3 | | 15.5 | |
| LOS | A | A | B | | B | |
| Approach Delay | | 3.2 | 15.3 | | 15.5 | |
| Approach LOS | | A | B | | B | |
| Queue Length 50th (ft) | 7 | 8 | 86 | | 23 | |
| Queue Length 95th (ft) | 32 | 33 | 207 | | 84 | |

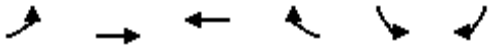


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 637 | 1228 | 821 | | 603 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.40 | 0.20 | 0.43 | | 0.52 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 64 (91%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 10.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 61.9% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: SR 332 & Creamery Road





| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 235 | 223 | 258 | 69 | 53 | 237 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1683 | 1731 | 1728 | 1791 | 1653 | 1800 |
| Adj Flow Rate, veh/h | 255 | 242 | 280 | 75 | 58 | 258 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 8 | 5 | 3 | 3 | 0 | 0 |
| Cap, veh/h | 575 | 1051 | 551 | 148 | 69 | 308 |
| Arrive On Green | 0.17 | 0.81 | 0.42 | 0.40 | 0.26 | 0.25 |
| Sat Flow, veh/h | 1603 | 1731 | 1314 | 352 | 262 | 1167 |
| Grp Volume(v), veh/h | 255 | 242 | 0 | 355 | 317 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1603 | 1731 | 0 | 1666 | 1434 | 0 |
| Q Serve(g_s), s | 5.6 | 2.3 | 0.0 | 11.0 | 14.7 | 0.0 |
| Cycle Q Clear(g_c), s | 5.6 | 2.3 | 0.0 | 11.0 | 14.7 | 0.0 |
| Prop In Lane | 1.00 | | | 0.21 | 0.18 | 0.81 |
| Lane Grp Cap(c), veh/h | 575 | 1051 | 0 | 698 | 379 | 0 |
| V/C Ratio(X) | 0.44 | 0.23 | 0.00 | 0.51 | 0.84 | 0.00 |
| Avail Cap(c_a), veh/h | 617 | 1051 | 0 | 698 | 430 | 0 |
| HCM Platoon Ratio | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.95 | 0.95 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.3 | 2.9 | 0.0 | 15.1 | 24.7 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 0.5 | 0.0 | 2.6 | 12.3 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.5 | 1.2 | 0.0 | 5.6 | 7.1 | 0.0 |
| LnGrp Delay(d),s/veh | 8.8 | 3.4 | 0.0 | 17.7 | 37.0 | 0.0 |
| LnGrp LOS | A | A | | B | D | |
| Approach Vol, veh/h | | 497 | 355 | | 317 | |
| Approach Delay, s/veh | | 6.2 | 17.7 | | 37.0 | |
| Approach LOS | | A | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 47.5 | | 22.5 | 13.2 | 34.3 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 39.0 | | 20.0 | 10.0 | 24.0 | | |
| Max Q Clear Time (g_c+I1), s | | 4.8 | | 17.2 | 8.1 | 13.0 | | |
| Green Ext Time (p_c), s | | 4.3 | | 0.4 | 0.2 | 2.9 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.0 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 180 | 131 | 125 | 138 | 151 | 155 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Flt Permitted | | | | 0.977 | 0.950 | |
| Satd. Flow (perm) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 558 | | | 335 | 3967 | |
| Travel Time (s) | 15.2 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 |
| Heavy Vehicles (%) | 3% | 15% | 4% | 6% | 8% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 458 | 0 | 0 | 387 | 222 | 228 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 50.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

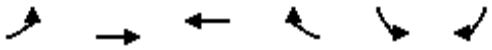
| Intersection | |
|---|---|
| Int Delay, s/veh | 18.5 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 180 | 131 | 125 | 138 | 151 | 155 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 68 | 68 | 68 | 68 | 68 | 68 |
| Heavy Vehicles, % | 3 | 15 | 4 | 6 | 8 | 8 |
| Mvmt Flow | 265 | 193 | 184 | 203 | 222 | 228 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 457 | 0 | 932 | 361 |
| Stage 1 | - | - | - | - | 361 | - |
| Stage 2 | - | - | - | - | 571 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.48 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.48 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.48 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 836 | - | 316 | 701 |
| Stage 1 | - | - | - | - | 780 | - |
| Stage 2 | - | - | - | - | 616 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 836 | - | 238 | 701 |
| Mov Cap-2 Maneuver | - | - | - | - | 238 | - |
| Stage 1 | - | - | - | - | 780 | - |
| Stage 2 | - | - | - | - | 463 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5 | 48.9 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 238 | 701 | - | - | 836 | - |
| HCM Lane V/C Ratio | 0.933 | 0.325 | - | - | 0.22 | - |
| HCM Control Delay (s) | 86.2 | 12.6 | - | - | 10.5 | 0 |
| HCM Lane LOS | F | B | - | - | B | A |
| HCM 95th %tile Q(veh) | 8.2 | 1.4 | - | - | 0.8 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 69 | 272 | 179 | 20 | 43 | 79 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1798 | 1782 | 0 | 1621 | 0 |
| Flt Permitted | | 0.990 | | | 0.983 | |
| Satd. Flow (perm) | 0 | 1798 | 1782 | 0 | 1621 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 905 | |
| Travel Time (s) | | 9.1 | 8.9 | | 15.4 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 7% | 4% | 4% | 15% | 0% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 426 | 249 | 0 | 153 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 46.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 69 | 272 | 179 | 20 | 43 | 79 |
| 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 | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 7 | 4 | 4 | 15 | 0 | 8 |
| Mvmt Flow | 86 | 340 | 224 | 25 | 54 | 99 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 249 | 0 | - | 0 | 749 | 236 |
| Stage 1 | - | - | - | - | 236 | - |
| Stage 2 | - | - | - | - | 513 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 952 | - | - | - | 426 | 826 |
| Stage 1 | - | - | - | - | 928 | - |
| Stage 2 | - | - | - | - | 683 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 952 | - | - | - | 379 | 826 |
| Mov Cap-2 Maneuver | - | - | - | - | 379 | - |
| Stage 1 | - | - | - | - | 928 | - |
| Stage 2 | - | - | - | - | 607 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.9 | 0 | 13.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 952 | - | - | - | 583 |
| HCM Lane V/C Ratio | 0.091 | - | - | - | 0.262 |
| HCM Control Delay (s) | 9.2 | 0 | - | - | 13.3 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 1 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 267 | 17 | 129 | 136 | 2 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | 1% | | | -2% | 0% | |
| Satd. Flow (prot) | 1695 | 0 | 0 | 1635 | 1542 | 0 |
| Flt Permitted | | | | 0.976 | 0.995 | |
| Satd. Flow (perm) | 1695 | 0 | 0 | 1635 | 1542 | 0 |
| Link Speed (mph) | 25 | | | 30 | 30 | |
| Link Distance (ft) | 669 | | | 558 | 344 | |
| Travel Time (s) | 18.2 | | | 12.7 | 7.8 | |
| Peak Hour Factor | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Heavy Vehicles (%) | 4% | 18% | 8% | 9% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 525 | 0 | 0 | 491 | 41 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 44.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 267 | 17 | 129 | 136 | 2 | 20 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 54 | 54 | 54 | 54 | 54 | 54 |
| Heavy Vehicles, % | 4 | 18 | 8 | 9 | 2 | 2 |
| Mvmt Flow | 494 | 31 | 239 | 252 | 4 | 37 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 526 | 0 | 1240 | 510 |
| Stage 1 | - | - | - | - | 510 | - |
| Stage 2 | - | - | - | - | 730 | - |
| Critical Hdwy | - | - | 4.4 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 3.1 | - | 3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 759 | - | 211 | 594 |
| Stage 1 | - | - | - | - | 684 | - |
| Stage 2 | - | - | - | - | 534 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 759 | - | 134 | 594 |
| Mov Cap-2 Maneuver | - | - | - | - | 134 | - |
| Stage 1 | - | - | - | - | 684 | - |
| Stage 2 | - | - | - | - | 339 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.8 | 13.7 |
| HCM LOS | | | B |

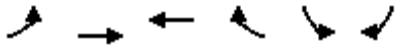
| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 453 | - | - | 759 | - |
| HCM Lane V/C Ratio | 0.09 | - | - | 0.315 | - |
| HCM Control Delay (s) | 13.7 | - | - | 11.9 | 0 |
| HCM Lane LOS | B | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 1.4 | - |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 409 | 182 | 192 | 265 | 112 | 213 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1782 | 1853 | 1791 | 1763 | 1713 | 1835 |
| Adj Flow Rate, veh/h | 454 | 202 | 213 | 294 | 124 | 237 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 1 | 1 | 2 | 2 | 4 | 1 |
| Cap, veh/h | 1188 | 1050 | 74 | 68 | 334 | 319 |
| Arrive On Green | 0.67 | 0.67 | 1.00 | 1.00 | 0.20 | 0.20 |
| Sat Flow, veh/h | 1782 | 1575 | 2 | 102 | 1632 | 1560 |
| Grp Volume(v), veh/h | 454 | 202 | 507 | 0 | 124 | 237 |
| Grp Sat Flow(s),veh/h/ln | 1782 | 1575 | 104 | 0 | 1632 | 1560 |
| Q Serve(g_s), s | 8.0 | 3.4 | 16.6 | 0.0 | 4.6 | 10.0 |
| Cycle Q Clear(g_c), s | 8.0 | 3.4 | 16.6 | 0.0 | 4.6 | 10.0 |
| Prop In Lane | | 1.00 | 0.42 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1188 | 1050 | 0 | 0 | 334 | 319 |
| V/C Ratio(X) | 0.38 | 0.19 | 0.00 | 0.00 | 0.37 | 0.74 |
| Avail Cap(c_a), veh/h | 1188 | 1050 | 0 | 0 | 513 | 490 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.94 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 5.2 | 4.5 | 0.0 | 0.0 | 23.9 | 26.1 |
| Incr Delay (d2), s/veh | 0.9 | 0.4 | 0.0 | 0.0 | 0.7 | 3.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.2 | 1.6 | 0.0 | 0.0 | 2.1 | 4.6 |
| LnGrp Delay(d),s/veh | 6.2 | 4.9 | 0.0 | 0.0 | 24.6 | 29.5 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 656 | | | 507 | 361 | |
| Approach Delay, s/veh | 5.8 | | | 0.0 | 27.8 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 51.7 | | | | 51.7 | | 18.3 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 27.0 | | | | 38.0 | | 21.0 |
| Max Q Clear Time (g_c+I1), s | | 10.5 | | | | 18.6 | | 12.5 |
| Green Ext Time (p_c), s | | 12.5 | | | | 14.2 | | 0.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.1 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 325 | 302 | 222 | 49 | 76 | 240 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1818 | 1800 | 1762 | 1791 | 1782 | 1800 |
| Adj Flow Rate, veh/h | 349 | 325 | 239 | 53 | 82 | 258 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 0 | 1 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 688 | 1106 | 567 | 126 | 96 | 303 |
| Arrive On Green | 0.05 | 0.20 | 0.41 | 0.39 | 0.26 | 0.24 |
| Sat Flow, veh/h | 1731 | 1800 | 1398 | 310 | 374 | 1177 |
| Grp Volume(v), veh/h | 349 | 325 | 0 | 292 | 341 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1731 | 1800 | 0 | 1707 | 1556 | 0 |
| Q Serve(g_s), s | 6.9 | 10.7 | 0.0 | 8.6 | 14.6 | 0.0 |
| Cycle Q Clear(g_c), s | 6.9 | 10.7 | 0.0 | 8.6 | 14.6 | 0.0 |
| Prop In Lane | 1.00 | | | 0.18 | 0.24 | 0.76 |
| Lane Grp Cap(c), veh/h | 688 | 1106 | 0 | 693 | 400 | 0 |
| V/C Ratio(X) | 0.51 | 0.29 | 0.00 | 0.42 | 0.85 | 0.00 |
| Avail Cap(c_a), veh/h | 723 | 1106 | 0 | 693 | 400 | 0 |
| HCM Platoon Ratio | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.92 | 0.92 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 9.4 | 15.0 | 0.0 | 15.0 | 25.1 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 0.6 | 0.0 | 1.9 | 16.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.3 | 5.5 | 0.0 | 4.4 | 8.1 | 0.0 |
| LnGrp Delay(d),s/veh | 10.0 | 15.7 | 0.0 | 16.9 | 41.2 | 0.0 |
| LnGrp LOS | A | B | | B | D | |
| Approach Vol, veh/h | | 674 | 292 | | 341 | |
| Approach Delay, s/veh | | 12.7 | 16.9 | | 41.2 | |
| Approach LOS | | B | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 48.0 | | 22.0 | 14.6 | 33.4 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 42.0 | | 17.0 | 11.0 | 26.0 | | |
| Max Q Clear Time (g_c+I1), s | | 13.2 | | 17.1 | 9.4 | 10.6 | | |
| Green Ext Time (p_c), s | | 4.3 | | 0.0 | 0.2 | 3.6 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 21.1 |
| HCM 2010 LOS | C |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 70 | 89 | 198 | 114 | 96 | 215 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 6 | 0 | 2 | 2 | 0 | 1 |
| Mvmt Flow | 78 | 99 | 220 | 127 | 107 | 239 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 177 | 0 | 694 | 127 |
| Stage 1 | - | - | - | - | 127 | - |
| Stage 2 | - | - | - | - | 567 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.4 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1045 | - | 449 | 956 |
| Stage 1 | - | - | - | - | 1013 | - |
| Stage 2 | - | - | - | - | 627 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1045 | - | 348 | 956 |
| Mov Cap-2 Maneuver | - | - | - | - | 348 | - |
| Stage 1 | - | - | - | - | 1013 | - |
| Stage 2 | - | - | - | - | 485 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.9 | 13.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 348 | 956 | - | - | 1045 | - |
| HCM Lane V/C Ratio | 0.307 | 0.25 | - | - | 0.211 | - |
| HCM Control Delay (s) | 19.9 | 10 | - | - | 9.4 | 0 |
| HCM Lane LOS | C | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 1.3 | 1 | - | - | 0.8 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 127 | 159 | 202 | 35 | 24 | 108 |
| 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 | 87 | 87 | 87 | 87 | 87 | 87 |
| Heavy Vehicles, % | 2 | 2 | 1 | 3 | 4 | 3 |
| Mvmt Flow | 146 | 183 | 232 | 40 | 28 | 124 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 272 | 0 | - | 0 | 727 | 252 |
| Stage 1 | - | - | - | - | 252 | - |
| Stage 2 | - | - | - | - | 475 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.44 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.44 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.44 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 934 | - | - | - | 436 | 812 |
| Stage 1 | - | - | - | - | 909 | - |
| Stage 2 | - | - | - | - | 709 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 934 | - | - | - | 360 | 812 |
| Mov Cap-2 Maneuver | - | - | - | - | 360 | - |
| Stage 1 | - | - | - | - | 909 | - |
| Stage 2 | - | - | - | - | 586 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.2 | 0 | 12.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 934 | - | - | - | 661 |
| HCM Lane V/C Ratio | 0.156 | - | - | - | 0.23 |
| HCM Control Delay (s) | 9.6 | 0 | - | - | 12.1 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.6 | - | - | - | 0.9 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 212 | 3 | 36 | 181 | 3 | 20 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 62 | 62 | 62 | 62 | 62 | 62 |
| Heavy Vehicles, % | 1 | 0 | 3 | 1 | 33 | 0 |
| Mvmt Flow | 342 | 5 | 58 | 292 | 5 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 347 | 0 | 752 | 344 |
| Stage 1 | - | - | - | - | 344 | - |
| Stage 2 | - | - | - | - | 408 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.73 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.73 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.73 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 913 | - | 370 | 742 |
| Stage 1 | - | - | - | - | 736 | - |
| Stage 2 | - | - | - | - | 683 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 913 | - | 342 | 742 |
| Mov Cap-2 Maneuver | - | - | - | - | 342 | - |
| Stage 1 | - | - | - | - | 736 | - |
| Stage 2 | - | - | - | - | 631 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.5 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 644 | - | - | 913 | - |
| HCM Lane V/C Ratio | 0.058 | - | - | 0.064 | - |
| HCM Control Delay (s) | 10.9 | - | - | 9.2 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0.2 | - |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 310 | 108 | 114 | 306 | 106 | 141 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1584 | 0 | 1738 | 1693 | 1616 |
| Flt Permitted | | | | 0.817 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1584 | 0 | 1438 | 1693 | 1616 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 117 | | | | 153 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 1% | 2% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 337 | 117 | 0 | 457 | 115 | 153 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Total Split (s) | 47.0 | 47.0 | 15.0 | 62.0 | 40.0 | 40.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Act Effct Green (s) | 57.1 | 57.1 | | 57.1 | 11.6 | 11.6 |
| Actuated g/C Ratio | 0.73 | 0.73 | | 0.73 | 0.15 | 0.15 |
| v/c Ratio | 0.26 | 0.10 | | 0.43 | 0.45 | 0.41 |
| Control Delay | 4.4 | 1.0 | | 6.0 | 36.0 | 9.0 |
| Queue Delay | 0.0 | 0.0 | | 0.3 | 0.0 | 0.0 |
| Total Delay | 4.4 | 1.0 | | 6.2 | 36.0 | 9.0 |
| LOS | A | A | | A | D | A |
| Approach Delay | 3.5 | | | 6.2 | 20.6 | |
| Approach LOS | A | | | A | C | |
| Queue Length 50th (ft) | 43 | 0 | | 68 | 51 | 0 |
| Queue Length 95th (ft) | 87 | 13 | | 142 | 99 | 47 |
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1283 | 1194 | | 1056 | 785 | 831 |
| Starvation Cap Reductn | 0 | 0 | | 168 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.26 | 0.10 | | 0.51 | 0.15 | 0.18 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 102 | |
| Actuated Cycle Length: 77.7 | |
| Control Type: Semi Act-Uncoord | |

Maximum v/c Ratio: 0.45

| | |
|---|---|
| Intersection Signal Delay: 8.4 | Intersection LOS: A |
| Intersection Capacity Utilization 58.7% | ICU Level of Service B |
| Analysis Period (min) 15 | |

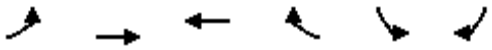
Splits and Phases: 1: Mirror Lake Road & SR 332

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 310 | 108 | 114 | 306 | 106 | 141 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1817 | 1791 | 1761 | 1782 | 1853 |
| Adj Flow Rate, veh/h | 337 | 117 | 124 | 333 | 115 | 153 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 1285 | 1136 | 60 | 124 | 252 | 234 |
| Arrive On Green | 0.74 | 0.74 | 0.72 | 0.74 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1748 | 1545 | 1 | 168 | 1697 | 1575 |
| Grp Volume(v), veh/h | 337 | 117 | 457 | 0 | 115 | 153 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1545 | 169 | 0 | 1697 | 1575 |
| Q Serve(g_s), s | 4.9 | 1.7 | 14.7 | 0.0 | 4.8 | 7.1 |
| Cycle Q Clear(g_c), s | 4.9 | 1.7 | 14.7 | 0.0 | 4.8 | 7.1 |
| Prop In Lane | | 1.00 | 0.27 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1285 | 1136 | 0 | 0 | 252 | 234 |
| V/C Ratio(X) | 0.26 | 0.10 | 0.00 | 0.00 | 0.46 | 0.66 |
| Avail Cap(c_a), veh/h | 1285 | 1136 | 0 | 0 | 788 | 732 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.4 | 2.9 | 0.0 | 0.0 | 30.1 | 31.1 |
| Incr Delay (d2), s/veh | 0.5 | 0.2 | 0.0 | 0.0 | 1.3 | 3.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.5 | 0.8 | 0.0 | 0.0 | 2.3 | 3.3 |
| LnGrp Delay(d),s/veh | 3.9 | 3.1 | 0.0 | 0.0 | 31.4 | 34.2 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 454 | | | 457 | 268 | |
| Approach Delay, s/veh | 3.7 | | | 0.0 | 33.0 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 62.0 | | | | 62.0 | | 15.5 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 41.0 | | | | 56.0 | | 35.0 |
| Max Q Clear Time (g_c+I1), s | | 7.4 | | | | 16.7 | | 9.6 |
| Green Ext Time (p_c), s | | 22.9 | | | | 25.6 | | 0.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 8.9 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.



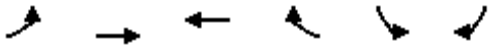
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 193 | 258 | 255 | 43 | 41 | 164 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1565 | 1782 | 1684 | 0 | 1495 | 0 |
| Flt Permitted | 0.459 | | | | 0.990 | |
| Satd. Flow (perm) | 756 | 1782 | 1684 | 0 | 1495 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 173 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 0% | 2% | 3% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 203 | 272 | 313 | 0 | 216 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Total Split (s) | 8.0 | 59.0 | 51.0 | | 22.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Act Effct Green (s) | 27.8 | 26.8 | 18.7 | | 8.7 | |
| Actuated g/C Ratio | 0.62 | 0.60 | 0.42 | | 0.19 | |
| v/c Ratio | 0.37 | 0.25 | 0.45 | | 0.50 | |
| Control Delay | 6.2 | 5.3 | 12.0 | | 10.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 6.2 | 5.3 | 12.0 | | 10.0 | |
| LOS | A | A | B | | A | |
| Approach Delay | | 5.7 | 12.0 | | 10.0 | |
| Approach LOS | | A | B | | A | |
| Queue Length 50th (ft) | 16 | 24 | 51 | | 8 | |
| Queue Length 95th (ft) | 49 | 67 | 118 | | 58 | |
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 544 | 1764 | 1616 | | 715 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.37 | 0.15 | 0.19 | | 0.30 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 81 | |
| Actuated Cycle Length: 44.7 | |
| Control Type: Semi Act-Uncoord | |

Maximum v/c Ratio: 0.50

| | |
|---|---|
| Intersection Signal Delay: 8.6 | Intersection LOS: A |
| Intersection Capacity Utilization 52.1% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: SR 332 & Creamery Road



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 193 | 258 | 255 | 43 | 41 | 164 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1765 | 1782 | 1776 | 1791 | 1751 | 1800 |
| Adj Flow Rate, veh/h | 203 | 272 | 268 | 45 | 43 | 173 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 2 | 1 | 1 | 0 | 0 |
| Cap, veh/h | 659 | 1123 | 711 | 119 | 60 | 243 |
| Arrive On Green | 0.08 | 0.63 | 0.48 | 0.46 | 0.20 | 0.18 |
| Sat Flow, veh/h | 1681 | 1782 | 1483 | 249 | 302 | 1213 |
| Grp Volume(v), veh/h | 203 | 272 | 0 | 313 | 217 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1681 | 1782 | 0 | 1732 | 1522 | 0 |
| Q Serve(g_s), s | 2.9 | 3.5 | 0.0 | 6.1 | 7.1 | 0.0 |
| Cycle Q Clear(g_c), s | 2.9 | 3.5 | 0.0 | 6.1 | 7.1 | 0.0 |
| Prop In Lane | 1.00 | | | 0.14 | 0.20 | 0.80 |
| Lane Grp Cap(c), veh/h | 659 | 1123 | 0 | 830 | 305 | 0 |
| V/C Ratio(X) | 0.31 | 0.24 | 0.00 | 0.38 | 0.71 | 0.00 |
| Avail Cap(c_a), veh/h | 659 | 1814 | 0 | 1501 | 516 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 5.6 | 4.3 | 0.0 | 8.8 | 20.2 | 0.0 |
| Incr Delay (d2), s/veh | 0.3 | 0.2 | 0.0 | 0.6 | 3.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.3 | 1.8 | 0.0 | 3.0 | 3.2 | 0.0 |
| LnGrp Delay(d),s/veh | 5.8 | 4.5 | 0.0 | 9.4 | 23.2 | 0.0 |
| LnGrp LOS | A | A | | A | C | |
| Approach Vol, veh/h | | 475 | 313 | | 217 | |
| Approach Delay, s/veh | | 5.1 | 9.4 | | 23.2 | |
| Approach LOS | | A | A | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 38.4 | | 14.6 | 8.0 | 30.4 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 53.0 | | 17.0 | 3.0 | 45.0 | | |
| Max Q Clear Time (g_c+I1), s | | 6.0 | | 9.6 | 5.4 | 8.1 | | |
| Green Ext Time (p_c), s | | 18.3 | | 0.4 | 0.0 | 16.3 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 10.4 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 52 | 33 | 129 | 62 | 58 | 145 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1801 | 0 | 0 | 1813 | 1770 | 1599 |
| Flt Permitted | | | | 0.967 | 0.950 | |
| Satd. Flow (perm) | 1801 | 0 | 0 | 1813 | 1770 | 1599 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 589 | | | 335 | 3967 | |
| Travel Time (s) | 16.1 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 0% | 2% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 91 | 0 | 0 | 206 | 62 | 156 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 27.1% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

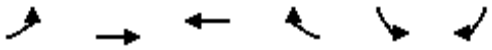
| Intersection | |
|---|---|
| Int Delay, s/veh | 6.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 52 | 33 | 129 | 62 | 58 | 145 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 1 |
| Mvmt Flow | 56 | 35 | 139 | 67 | 62 | 156 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 91 | 0 | 418 | 74 |
| Stage 1 | - | - | - | - | 74 | - |
| Stage 2 | - | - | - | - | 344 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.42 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1118 | - | 656 | 1023 |
| Stage 1 | - | - | - | - | 1072 | - |
| Stage 2 | - | - | - | - | 799 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1118 | - | 571 | 1023 |
| Mov Cap-2 Maneuver | - | - | - | - | 571 | - |
| Stage 1 | - | - | - | - | 1072 | - |
| Stage 2 | - | - | - | - | 696 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.9 | 10 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 571 | 1023 | - | - | 1118 | - |
| HCM Lane V/C Ratio | 0.109 | 0.152 | - | - | 0.124 | - |
| HCM Control Delay (s) | 12.1 | 9.2 | - | - | 8.7 | 0 |
| HCM Lane LOS | B | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.4 | 0.5 | - | - | 0.4 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 81 | 117 | 129 | 35 | 37 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1844 | 1805 | 0 | 1684 | 0 |
| Flt Permitted | | 0.980 | | | 0.982 | |
| Satd. Flow (perm) | 0 | 1844 | 1805 | 0 | 1684 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 905 | |
| Travel Time (s) | | 9.1 | 8.9 | | 15.4 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 3% | 0% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 205 | 169 | 0 | 105 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 35.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 81 | 117 | 129 | 35 | 37 | 65 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 1 | 1 | 2 | 3 | 0 | 2 |
| Mvmt Flow | 84 | 121 | 133 | 36 | 38 | 67 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 169 | 0 | - | 0 | 439 | 151 |
| Stage 1 | - | - | - | - | 151 | - |
| Stage 2 | - | - | - | - | 288 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 1015 | - | - | - | 657 | 926 |
| Stage 1 | - | - | - | - | 1018 | - |
| Stage 2 | - | - | - | - | 876 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1015 | - | - | - | 599 | 926 |
| Mov Cap-2 Maneuver | - | - | - | - | 599 | - |
| Stage 1 | - | - | - | - | 1018 | - |
| Stage 2 | - | - | - | - | 798 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.6 | 0 | 10.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1015 | - | - | - | 773 |
| HCM Lane V/C Ratio | 0.082 | - | - | - | 0.136 |
| HCM Control Delay (s) | 8.9 | 0 | - | - | 10.4 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 0.5 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 81 | 0 | 3 | 67 | 2 | 5 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | 1% | | | -2% | 0% | |
| Satd. Flow (prot) | 1773 | 0 | 0 | 1758 | 1582 | 0 |
| Flt Permitted | | | | 0.998 | 0.986 | |
| Satd. Flow (perm) | 1773 | 0 | 0 | 1758 | 1582 | 0 |
| Link Speed (mph) | 25 | | | 30 | 30 | |
| Link Distance (ft) | 638 | | | 589 | 417 | |
| Travel Time (s) | 17.4 | | | 13.4 | 9.5 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 33% | 2% | 0% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 88 | 0 | 0 | 76 | 7 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 16.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 81 | 0 | 3 | 67 | 2 | 5 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 0 | 33 | 2 | 0 | 2 |
| Mvmt Flow | 88 | 0 | 3 | 73 | 2 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 88 | 0 | 167 | 88 |
| Stage 1 | - | - | - | - | 88 | - |
| Stage 2 | - | - | - | - | 79 | - |
| Critical Hdwy | - | - | 4.6 | - | 6.4 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 3.3 | - | 3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 1015 | - | 955 | 1036 |
| Stage 1 | - | - | - | - | 1091 | - |
| Stage 2 | - | - | - | - | 1101 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1015 | - | 952 | 1036 |
| Mov Cap-2 Maneuver | - | - | - | - | 952 | - |
| Stage 1 | - | - | - | - | 1091 | - |
| Stage 2 | - | - | - | - | 1098 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.4 | 8.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1011 | - | - | 1015 | - |
| HCM Lane V/C Ratio | 0.008 | - | - | 0.003 | - |
| HCM Control Delay (s) | 8.6 | - | - | 8.6 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | - |

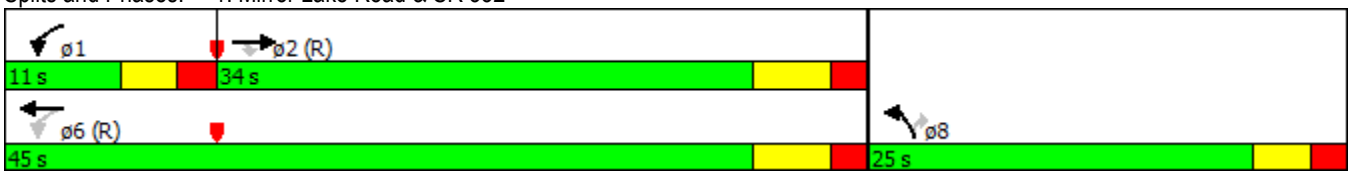
# *2019 Base (No-Build) Conditions*

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 400 | 91 | 104 | 372 | 141 | 130 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1497 | 0 | 1731 | 1676 | 1496 |
| Flt Permitted | | | | 0.826 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1497 | 0 | 1446 | 1676 | 1496 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 99 | | | | 141 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 9% | 7% | 1% | 1% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 435 | 99 | 0 | 517 | 153 | 141 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Minimum Initial (s) | 12.0 | 12.0 | 3.0 | 12.0 | 3.0 | 3.0 |
| Minimum Split (s) | 22.0 | 22.0 | 10.0 | 22.0 | 21.0 | 21.0 |
| Total Split (s) | 34.0 | 34.0 | 11.0 | 45.0 | 25.0 | 25.0 |
| Total Split (%) | 48.6% | 48.6% | 15.7% | 64.3% | 35.7% | 35.7% |
| Maximum Green (s) | 28.0 | 28.0 | 6.0 | 39.0 | 20.0 | 20.0 |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Lead/Lag | Lag | Lag | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 5.0 | 5.0 | 3.0 | 5.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 2.0 | 2.0 | 0.2 | 2.0 | 0.2 | 0.2 |
| Time Before Reduce (s) | 28.0 | 28.0 | 0.0 | 28.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 18.0 | 18.0 | 0.0 | 18.0 | 0.0 | 0.0 |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 48.3 | 48.3 | | 48.3 | 12.7 | 12.7 |
| Actuated g/C Ratio | 0.69 | 0.69 | | 0.69 | 0.18 | 0.18 |
| v/c Ratio | 0.36 | 0.09 | | 0.52 | 0.50 | 0.36 |
| Control Delay | 6.2 | 1.5 | | 8.6 | 30.8 | 7.4 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 6.2 | 1.5 | | 8.6 | 30.8 | 7.4 |
| LOS | A | A | | A | C | A |
| Approach Delay | 5.3 | | | 8.6 | 19.6 | |
| Approach LOS | A | | | A | B | |
| Queue Length 50th (ft) | 63 | 0 | | 80 | 60 | 0 |
| Queue Length 95th (ft) | 134 | 14 | | 224 | 104 | 39 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1205 | 1062 | | 996 | 502 | 547 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.09 | | 0.52 | 0.30 | 0.26 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 54 (77%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.52 | | | |
| Intersection Signal Delay: 9.7 | | Intersection LOS: A | |
| Intersection Capacity Utilization 68.9% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Mirror Lake Road & SR 332

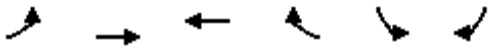


| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 400 | 91 | 104 | 372 | 141 | 130 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1717 | 1791 | 1751 | 1764 | 1716 |
| Adj Flow Rate, veh/h | 435 | 99 | 113 | 404 | 153 | 141 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 9 | 1 | 1 | 1 | 8 |
| Cap, veh/h | 1258 | 1051 | 63 | 179 | 254 | 221 |
| Arrive On Green | 0.72 | 0.72 | 1.00 | 1.00 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1748 | 1460 | 1 | 249 | 1680 | 1459 |
| Grp Volume(v), veh/h | 435 | 99 | 517 | 0 | 153 | 141 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1460 | 250 | 0 | 1680 | 1459 |
| Q Serve(g_s), s | 6.5 | 1.4 | 11.4 | 0.0 | 6.0 | 6.4 |
| Cycle Q Clear(g_c), s | 6.5 | 1.4 | 11.4 | 0.0 | 6.0 | 6.4 |
| Prop In Lane | | 1.00 | 0.22 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1258 | 1051 | 0 | 0 | 254 | 221 |
| V/C Ratio(X) | 0.35 | 0.09 | 0.00 | 0.00 | 0.60 | 0.64 |
| Avail Cap(c_a), veh/h | 1258 | 1051 | 0 | 0 | 504 | 438 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.89 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.7 | 2.9 | 0.0 | 0.0 | 27.7 | 27.9 |
| Incr Delay (d2), s/veh | 0.8 | 0.2 | 0.0 | 0.0 | 2.3 | 3.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 5.9 | 1.1 | 0.0 | 0.0 | 5.3 | 4.9 |
| LnGrp Delay(d),s/veh | 4.4 | 3.1 | 0.0 | 0.0 | 30.0 | 31.0 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 534 | | | 517 | 294 | |
| Approach Delay, s/veh | 4.2 | | | 0.0 | 30.5 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 55.4 | | | | 55.4 | | 14.6 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 28.0 | | | | 39.0 | | 20.0 |
| Max Q Clear Time (g_c+I1), s | | 9.0 | | | | 13.4 | | 8.9 |
| Green Ext Time (p_c), s | | 13.2 | | | | 16.5 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 8.3 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.

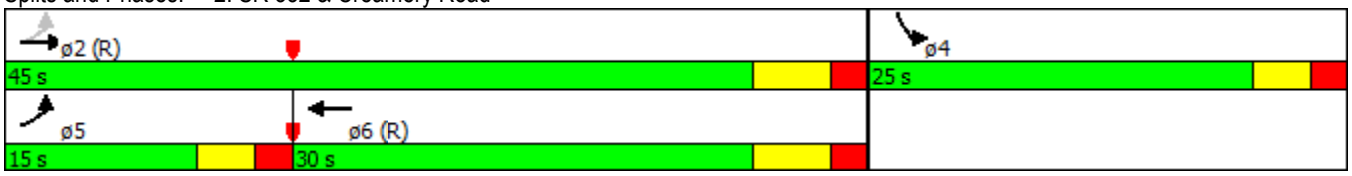


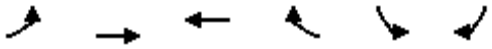
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 244 | 232 | 268 | 72 | 55 | 246 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1493 | 1731 | 1622 | 0 | 1409 | 0 |
| Flt Permitted | 0.432 | | | | 0.991 | |
| Satd. Flow (perm) | 679 | 1731 | 1622 | 0 | 1409 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 267 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 8% | 5% | 3% | 6% | 13% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 265 | 252 | 369 | 0 | 327 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Minimum Initial (s) | 4.0 | 15.0 | 15.0 | | 4.0 | |
| Minimum Split (s) | 9.0 | 22.0 | 22.0 | | 21.0 | |
| Total Split (s) | 15.0 | 45.0 | 30.0 | | 25.0 | |
| Total Split (%) | 21.4% | 64.3% | 42.9% | | 35.7% | |
| Maximum Green (s) | 10.0 | 39.0 | 24.0 | | 20.0 | |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Lead/Lag | Lead | | Lag | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 5.0 | 5.0 | | 3.0 | |
| Minimum Gap (s) | 0.2 | 2.7 | 2.7 | | 0.2 | |
| Time Before Reduce (s) | 0.0 | 35.0 | 35.0 | | 0.0 | |
| Time To Reduce (s) | 0.0 | 10.0 | 10.0 | | 0.0 | |
| Recall Mode | None | C-Max | C-Max | | None | |
| Act Effct Green (s) | 50.5 | 49.5 | 35.2 | | 11.5 | |
| Actuated g/C Ratio | 0.72 | 0.71 | 0.50 | | 0.16 | |
| v/c Ratio | 0.43 | 0.21 | 0.45 | | 0.72 | |
| Control Delay | 4.1 | 2.5 | 15.8 | | 15.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 4.1 | 2.5 | 15.8 | | 15.6 | |
| LOS | A | A | B | | B | |
| Approach Delay | | 3.3 | 15.8 | | 15.6 | |
| Approach LOS | | A | B | | B | |
| Queue Length 50th (ft) | 7 | 8 | 91 | | 23 | |
| Queue Length 95th (ft) | 33 | 34 | 217 | | 86 | |

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 624 | 1224 | 815 | | 609 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.42 | 0.21 | 0.45 | | 0.54 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 64 (91%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.72 | | | |
| Intersection Signal Delay: 10.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 63.8% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: SR 332 & Creamery Road





| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 244 | 232 | 268 | 72 | 55 | 246 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1683 | 1731 | 1728 | 1791 | 1653 | 1800 |
| Adj Flow Rate, veh/h | 265 | 252 | 291 | 78 | 60 | 267 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 8 | 5 | 3 | 3 | 0 | 0 |
| Cap, veh/h | 557 | 1040 | 535 | 143 | 71 | 316 |
| Arrive On Green | 0.18 | 0.80 | 0.41 | 0.39 | 0.27 | 0.26 |
| Sat Flow, veh/h | 1603 | 1731 | 1314 | 352 | 262 | 1167 |
| Grp Volume(v), veh/h | 265 | 252 | 0 | 369 | 328 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1603 | 1731 | 0 | 1666 | 1434 | 0 |
| Q Serve(g_s), s | 5.9 | 2.5 | 0.0 | 11.8 | 15.2 | 0.0 |
| Cycle Q Clear(g_c), s | 5.9 | 2.5 | 0.0 | 11.8 | 15.2 | 0.0 |
| Prop In Lane | 1.00 | | | 0.21 | 0.18 | 0.81 |
| Lane Grp Cap(c), veh/h | 557 | 1040 | 0 | 679 | 389 | 0 |
| V/C Ratio(X) | 0.48 | 0.24 | 0.00 | 0.54 | 0.84 | 0.00 |
| Avail Cap(c_a), veh/h | 591 | 1040 | 0 | 679 | 430 | 0 |
| HCM Platoon Ratio | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.94 | 0.94 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.8 | 3.1 | 0.0 | 15.9 | 24.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.5 | 0.0 | 3.1 | 13.3 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 4.7 | 2.4 | 0.0 | 10.1 | 11.9 | 0.0 |
| LnGrp Delay(d),s/veh | 9.4 | 3.6 | 0.0 | 19.0 | 37.8 | 0.0 |
| LnGrp LOS | A | A | | B | D | |
| Approach Vol, veh/h | | 517 | 369 | | 328 | |
| Approach Delay, s/veh | | 6.6 | 19.0 | | 37.8 | |
| Approach LOS | | A | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 47.0 | | 23.0 | 13.5 | 33.5 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 39.0 | | 20.0 | 10.0 | 24.0 | | |
| Max Q Clear Time (g_c+I1), s | | 5.0 | | 17.7 | 8.4 | 13.8 | | |
| Green Ext Time (p_c), s | | 16.7 | | 0.3 | 0.1 | 6.8 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.8 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 187 | 136 | 130 | 143 | 157 | 161 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Flt Permitted | | | | 0.977 | 0.950 | |
| Satd. Flow (perm) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 518 | | | 335 | 3967 | |
| Travel Time (s) | 14.1 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 |
| Heavy Vehicles (%) | 3% | 15% | 4% | 6% | 8% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 475 | 0 | 0 | 401 | 231 | 237 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 51.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 24.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 187 | 136 | 130 | 143 | 157 | 161 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 68 | 68 | 68 | 68 | 68 | 68 |
| Heavy Vehicles, % | 3 | 15 | 4 | 6 | 8 | 8 |
| Mvmt Flow | 275 | 200 | 191 | 210 | 231 | 237 |

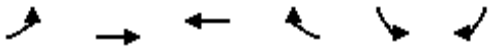
| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 475 | 0 | 968 | 375 |
| Stage 1 | - | - | - | - | 375 | - |
| Stage 2 | - | - | - | - | 593 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.48 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.48 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.48 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 824 | - | 300 | 688 |
| Stage 1 | - | - | - | - | 768 | - |
| Stage 2 | - | - | - | - | 601 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 824 | - | ~ 221 | 688 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 221 | - |
| Stage 1 | - | - | - | - | 768 | - |
| Stage 2 | - | - | - | - | 444 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.1 | 65.5 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 221 | 688 | - | - | 824 | - |
| HCM Lane V/C Ratio | 1.045 | 0.344 | - | - | 0.232 | - |
| HCM Control Delay (s) | 119.4 | 13 | - | - | 10.7 | 0 |
| HCM Lane LOS | F | B | - | - | B | A |
| HCM 95th %tile Q(veh) | 9.9 | 1.5 | - | - | 0.9 | - |

Notes

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



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 72 | 283 | 186 | 21 | 45 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1798 | 1782 | 0 | 1621 | 0 |
| Flt Permitted | | 0.990 | | | 0.983 | |
| Satd. Flow (perm) | 0 | 1798 | 1782 | 0 | 1621 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 905 | |
| Travel Time (s) | | 9.1 | 8.9 | | 15.4 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 7% | 4% | 4% | 15% | 0% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 444 | 258 | 0 | 158 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 72 | 283 | 186 | 21 | 45 | 82 |
| 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 | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 7 | 4 | 4 | 15 | 0 | 8 |
| Mvmt Flow | 90 | 354 | 232 | 26 | 56 | 102 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 259 | 0 | - | 0 | 780 | 246 |
| Stage 1 | - | - | - | - | 246 | - |
| Stage 2 | - | - | - | - | 534 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 944 | - | - | - | 408 | 815 |
| Stage 1 | - | - | - | - | 918 | - |
| Stage 2 | - | - | - | - | 667 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 944 | - | - | - | 359 | 815 |
| Mov Cap-2 Maneuver | - | - | - | - | 359 | - |
| Stage 1 | - | - | - | - | 918 | - |
| Stage 2 | - | - | - | - | 588 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.9 | 0 | 13.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 944 | - | - | - | 562 |
| HCM Lane V/C Ratio | 0.095 | - | - | - | 0.282 |
| HCM Control Delay (s) | 9.2 | 0 | - | - | 13.9 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 1.2 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 277 | 17 | 129 | 141 | 2 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | 1% | | | -2% | 0% | |
| Satd. Flow (prot) | 1695 | 0 | 0 | 1637 | 1542 | 0 |
| Flt Permitted | | | | 0.977 | 0.995 | |
| Satd. Flow (perm) | 1695 | 0 | 0 | 1637 | 1542 | 0 |
| Link Speed (mph) | 25 | | | 30 | 30 | |
| Link Distance (ft) | 709 | | | 518 | 329 | |
| Travel Time (s) | 19.3 | | | 11.8 | 7.5 | |
| Peak Hour Factor | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Heavy Vehicles (%) | 4% | 18% | 8% | 9% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 544 | 0 | 0 | 500 | 41 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 45.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 277 | 17 | 129 | 141 | 2 | 20 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 54 | 54 | 54 | 54 | 54 | 54 |
| Heavy Vehicles, % | 4 | 18 | 8 | 9 | 2 | 2 |
| Mvmt Flow | 513 | 31 | 239 | 261 | 4 | 37 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 544 | 0 | 1268 | 529 |
| Stage 1 | - | - | - | - | 529 | - |
| Stage 2 | - | - | - | - | 739 | - |
| Critical Hdwy | - | - | 4.4 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 3.1 | - | 3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 748 | - | 203 | 580 |
| Stage 1 | - | - | - | - | 669 | - |
| Stage 2 | - | - | - | - | 528 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 748 | - | 127 | 580 |
| Mov Cap-2 Maneuver | - | - | - | - | 127 | - |
| Stage 1 | - | - | - | - | 669 | - |
| Stage 2 | - | - | - | - | 331 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.8 | 14.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 438 | - | - | 748 | - |
| HCM Lane V/C Ratio | 0.093 | - | - | 0.319 | - |
| HCM Control Delay (s) | 14.1 | - | - | 12.1 | 0 |
| HCM Lane LOS | B | - | - | B | A |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 1.4 | - |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 425 | 189 | 200 | 275 | 116 | 221 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1782 | 1616 | 0 | 1726 | 1628 | 1600 |
| Flt Permitted | | | | 0.637 | 0.950 | |
| Satd. Flow (perm) | 1782 | 1616 | 0 | 1123 | 1628 | 1600 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 210 | | | | 246 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 2% | 4% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 472 | 210 | 0 | 528 | 129 | 246 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Total Split (s) | 33.0 | 33.0 | 11.0 | 44.0 | 26.0 | 26.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Act Effct Green (s) | 49.1 | 49.1 | | 49.1 | 11.9 | 11.9 |
| Actuated g/C Ratio | 0.70 | 0.70 | | 0.70 | 0.17 | 0.17 |
| v/c Ratio | 0.38 | 0.18 | | 0.67 | 0.47 | 0.52 |
| Control Delay | 5.9 | 1.2 | | 18.1 | 30.9 | 7.8 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 5.9 | 1.2 | | 18.1 | 30.9 | 7.8 |
| LOS | A | A | | B | C | A |
| Approach Delay | 4.4 | | | 18.1 | 15.7 | |
| Approach LOS | A | | | B | B | |
| Queue Length 50th (ft) | 67 | 0 | | 203 | 51 | 0 |
| Queue Length 95th (ft) | 139 | 19 | | #343 | 92 | 52 |
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1249 | 1195 | | 787 | 511 | 671 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.38 | 0.18 | | 0.67 | 0.25 | 0.37 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 70 | |
| Actuated Cycle Length: 70 | |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |

| | |
|---|---|
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.67 | |
| Intersection Signal Delay: 11.7 | Intersection LOS: B |
| Intersection Capacity Utilization 69.0% | ICU Level of Service C |
| Analysis Period (min) 15 | |

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

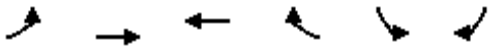
Splits and Phases: 1: Mirror Lake Road & SR 332

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 425 | 189 | 200 | 275 | 116 | 221 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1782 | 1853 | 1791 | 1763 | 1713 | 1835 |
| Adj Flow Rate, veh/h | 472 | 210 | 222 | 306 | 129 | 246 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 1 | 1 | 2 | 2 | 4 | 1 |
| Cap, veh/h | 1178 | 1041 | 74 | 62 | 344 | 328 |
| Arrive On Green | 0.66 | 0.66 | 1.00 | 1.00 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1782 | 1575 | 2 | 93 | 1632 | 1560 |
| Grp Volume(v), veh/h | 472 | 210 | 528 | 0 | 129 | 246 |
| Grp Sat Flow(s),veh/h/ln | 1782 | 1575 | 95 | 0 | 1632 | 1560 |
| Q Serve(g_s), s | 8.6 | 3.7 | 18.4 | 0.0 | 4.7 | 10.3 |
| Cycle Q Clear(g_c), s | 8.6 | 3.7 | 18.4 | 0.0 | 4.7 | 10.3 |
| Prop In Lane | | 1.00 | 0.42 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1178 | 1041 | 0 | 0 | 344 | 328 |
| V/C Ratio(X) | 0.40 | 0.20 | 0.00 | 0.00 | 0.38 | 0.75 |
| Avail Cap(c_a), veh/h | 1178 | 1041 | 0 | 0 | 513 | 490 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.93 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 5.5 | 4.6 | 0.0 | 0.0 | 23.7 | 25.9 |
| Incr Delay (d2), s/veh | 1.0 | 0.4 | 0.0 | 0.0 | 0.7 | 3.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 8.0 | 3.1 | 0.0 | 0.0 | 3.9 | 8.4 |
| LnGrp Delay(d),s/veh | 6.5 | 5.1 | 0.0 | 0.0 | 24.4 | 29.4 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 682 | | | 528 | 375 | |
| Approach Delay, s/veh | 6.1 | | | 0.0 | 27.7 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 51.3 | | | | 51.3 | | 18.7 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 27.0 | | | | 38.0 | | 21.0 |
| Max Q Clear Time (g_c+I1), s | | 11.1 | | | | 20.4 | | 12.8 |
| Green Ext Time (p_c), s | | 12.5 | | | | 13.5 | | 0.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.1 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.

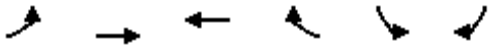


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 338 | 314 | 231 | 51 | 79 | 249 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1612 | 1800 | 1661 | 0 | 1528 | 0 |
| Flt Permitted | 0.473 | | | | 0.988 | |
| Satd. Flow (perm) | 803 | 1800 | 1661 | 0 | 1528 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 218 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 0% | 1% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 363 | 338 | 303 | 0 | 353 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Total Split (s) | 16.0 | 48.0 | 32.0 | | 22.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Act Effct Green (s) | 49.0 | 48.0 | 32.7 | | 13.0 | |
| Actuated g/C Ratio | 0.70 | 0.69 | 0.47 | | 0.19 | |
| v/c Ratio | 0.52 | 0.27 | 0.39 | | 0.77 | |
| Control Delay | 9.4 | 6.7 | 15.9 | | 21.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 9.4 | 6.7 | 15.9 | | 21.6 | |
| LOS | A | A | B | | C | |
| Approach Delay | | 8.1 | 15.9 | | 21.6 | |
| Approach LOS | | A | B | | C | |
| Queue Length 50th (ft) | 81 | 73 | 86 | | 52 | |
| Queue Length 95th (ft) | 143 | 129 | 162 | | 132 | |
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 704 | 1234 | 776 | | 554 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.52 | 0.27 | 0.39 | | 0.64 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 70 | |
| Actuated Cycle Length: 70 | |
| Offset: 22 (31%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |

| | |
|---|---|
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.77 | |
| Intersection Signal Delay: 13.4 | Intersection LOS: B |
| Intersection Capacity Utilization 67.5% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: SR 332 & Creamery Road



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 338 | 314 | 231 | 51 | 79 | 249 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1818 | 1800 | 1762 | 1791 | 1782 | 1800 |
| Adj Flow Rate, veh/h | 363 | 338 | 248 | 55 | 85 | 268 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 0 | 1 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 681 | 1106 | 561 | 124 | 96 | 303 |
| Arrive On Green | 0.05 | 0.20 | 0.40 | 0.39 | 0.26 | 0.24 |
| Sat Flow, veh/h | 1731 | 1800 | 1398 | 310 | 374 | 1178 |
| Grp Volume(v), veh/h | 363 | 338 | 0 | 303 | 354 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1731 | 1800 | 0 | 1707 | 1556 | 0 |
| Q Serve(g_s), s | 7.2 | 11.2 | 0.0 | 9.1 | 15.4 | 0.0 |
| Cycle Q Clear(g_c), s | 7.2 | 11.2 | 0.0 | 9.1 | 15.4 | 0.0 |
| Prop In Lane | 1.00 | | | 0.18 | 0.24 | 0.76 |
| Lane Grp Cap(c), veh/h | 681 | 1106 | 0 | 686 | 400 | 0 |
| V/C Ratio(X) | 0.53 | 0.31 | 0.00 | 0.44 | 0.88 | 0.00 |
| Avail Cap(c_a), veh/h | 708 | 1106 | 0 | 686 | 400 | 0 |
| HCM Platoon Ratio | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.91 | 0.91 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 9.7 | 15.2 | 0.0 | 15.3 | 25.4 | 0.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.6 | 0.0 | 2.1 | 20.4 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 6.4 | 9.5 | 0.0 | 8.1 | 13.7 | 0.0 |
| LnGrp Delay(d),s/veh | 10.4 | 15.9 | 0.0 | 17.4 | 45.7 | 0.0 |
| LnGrp LOS | B | B | | B | D | |
| Approach Vol, veh/h | | 701 | 303 | | 354 | |
| Approach Delay, s/veh | | 13.0 | 17.4 | | 45.7 | |
| Approach LOS | | B | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 48.0 | | 22.0 | 14.9 | 33.1 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 42.0 | | 17.0 | 11.0 | 26.0 | | |
| Max Q Clear Time (g_c+I1), s | | 13.7 | | 17.9 | 9.7 | 11.1 | | |
| Green Ext Time (p_c), s | | 4.5 | | 0.0 | 0.2 | 3.7 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 22.5 |
| HCM 2010 LOS | C |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 73 | 92 | 206 | 118 | 100 | 223 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1712 | 0 | 0 | 1805 | 1805 | 1599 |
| Flt Permitted | | | | 0.969 | 0.950 | |
| Satd. Flow (perm) | 1712 | 0 | 0 | 1805 | 1805 | 1599 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 701 | | | 335 | 3967 | |
| Travel Time (s) | 19.1 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 6% | 0% | 2% | 2% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 183 | 0 | 0 | 360 | 111 | 248 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 42.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

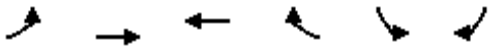
| Intersection | |
|---|---|
| Int Delay, s/veh | 7.8 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 73 | 92 | 206 | 118 | 100 | 223 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 6 | 0 | 2 | 2 | 0 | 1 |
| Mvmt Flow | 81 | 102 | 229 | 131 | 111 | 248 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 183 | 0 | 721 | 132 |
| Stage 1 | - | - | - | - | 132 | - |
| Stage 2 | - | - | - | - | 589 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.4 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1040 | - | 433 | 949 |
| Stage 1 | - | - | - | - | 1008 | - |
| Stage 2 | - | - | - | - | 612 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1040 | - | 330 | 949 |
| Mov Cap-2 Maneuver | - | - | - | - | 330 | - |
| Stage 1 | - | - | - | - | 1008 | - |
| Stage 2 | - | - | - | - | 467 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 6 | 13.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 330 | 949 | - | - | 1040 | - |
| HCM Lane V/C Ratio | 0.337 | 0.261 | - | - | 0.22 | - |
| HCM Control Delay (s) | 21.3 | 10.1 | - | - | 9.4 | 0 |
| HCM Lane LOS | C | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 1.4 | 1 | - | - | 0.8 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 132 | 165 | 210 | 36 | 25 | 112 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1822 | 1838 | 0 | 1624 | 0 |
| Flt Permitted | | 0.978 | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1822 | 1838 | 0 | 1624 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 905 | |
| Travel Time (s) | | 9.1 | 8.9 | | 15.4 | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Heavy Vehicles (%) | 2% | 2% | 1% | 3% | 4% | 3% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 342 | 282 | 0 | 158 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 132 | 165 | 210 | 36 | 25 | 112 |
| 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 | 87 | 87 | 87 | 87 | 87 | 87 |
| Heavy Vehicles, % | 2 | 2 | 1 | 3 | 4 | 3 |
| Mvmt Flow | 152 | 190 | 241 | 41 | 29 | 129 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 283 | 0 | - | 0 | 755 | 262 |
| Stage 1 | - | - | - | - | 262 | - |
| Stage 2 | - | - | - | - | 493 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.44 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.44 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.44 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 926 | - | - | - | 419 | 801 |
| Stage 1 | - | - | - | - | 899 | - |
| Stage 2 | - | - | - | - | 695 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 926 | - | - | - | 342 | 801 |
| Mov Cap-2 Maneuver | - | - | - | - | 342 | - |
| Stage 1 | - | - | - | - | 899 | - |
| Stage 2 | - | - | - | - | 568 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.3 | 0 | 12.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 926 | - | - | - | 643 |
| HCM Lane V/C Ratio | 0.164 | - | - | - | 0.245 |
| HCM Control Delay (s) | 9.6 | 0 | - | - | 12.4 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.6 | - | - | - | 1 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 220 | 3 | 36 | 188 | 3 | 20 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | 1% | | | -2% | 0% | |
| Satd. Flow (prot) | 1770 | 0 | 0 | 1780 | 1511 | 0 |
| Flt Permitted | | | | 0.992 | 0.993 | |
| Satd. Flow (perm) | 1770 | 0 | 0 | 1780 | 1511 | 0 |
| Link Speed (mph) | 25 | | | 30 | 30 | |
| Link Distance (ft) | 526 | | | 701 | 445 | |
| Travel Time (s) | 14.3 | | | 15.9 | 10.1 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 |
| Heavy Vehicles (%) | 1% | 0% | 3% | 1% | 33% | 0% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 360 | 0 | 0 | 361 | 37 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 38.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 220 | 3 | 36 | 188 | 3 | 20 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 62 | 62 | 62 | 62 | 62 | 62 |
| Heavy Vehicles, % | 1 | 0 | 3 | 1 | 33 | 0 |
| Mvmt Flow | 355 | 5 | 58 | 303 | 5 | 32 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 360 | 0 | 776 | 357 |
| Stage 1 | - | - | - | - | 357 | - |
| Stage 2 | - | - | - | - | 419 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.73 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.73 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.73 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 904 | - | 357 | 729 |
| Stage 1 | - | - | - | - | 725 | - |
| Stage 2 | - | - | - | - | 674 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 904 | - | 330 | 729 |
| Mov Cap-2 Maneuver | - | - | - | - | 330 | - |
| Stage 1 | - | - | - | - | 725 | - |
| Stage 2 | - | - | - | - | 622 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.5 | 11.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 630 | - | - | 904 | - |
| HCM Lane V/C Ratio | 0.059 | - | - | 0.064 | - |
| HCM Control Delay (s) | 11.1 | - | - | 9.3 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0.2 | - |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 322 | 112 | 118 | 318 | 110 | 147 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1584 | 0 | 1738 | 1693 | 1616 |
| Flt Permitted | | | | 0.813 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1584 | 0 | 1431 | 1693 | 1616 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 117 | | | | 160 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 1% | 2% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 350 | 122 | 0 | 474 | 120 | 160 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Total Split (s) | 47.0 | 47.0 | 15.0 | 62.0 | 40.0 | 40.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Act Effct Green (s) | 57.1 | 57.1 | | 57.1 | 11.9 | 11.9 |
| Actuated g/C Ratio | 0.73 | 0.73 | | 0.73 | 0.15 | 0.15 |
| v/c Ratio | 0.27 | 0.10 | | 0.45 | 0.47 | 0.42 |
| Control Delay | 4.5 | 1.1 | | 6.3 | 36.1 | 8.8 |
| Queue Delay | 0.0 | 0.0 | | 0.3 | 0.0 | 0.0 |
| Total Delay | 4.5 | 1.1 | | 6.6 | 36.1 | 8.8 |
| LOS | A | A | | A | D | A |
| Approach Delay | 3.6 | | | 6.6 | 20.5 | |
| Approach LOS | A | | | A | C | |
| Queue Length 50th (ft) | 45 | 1 | | 74 | 54 | 0 |
| Queue Length 95th (ft) | 92 | 14 | | 153 | 103 | 48 |
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1279 | 1190 | | 1047 | 782 | 833 |
| Starvation Cap Reductn | 0 | 0 | | 160 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.27 | 0.10 | | 0.53 | 0.15 | 0.19 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 102 | |
| Actuated Cycle Length: 78 | |
| Control Type: Semi Act-Uncoord | |

Maximum v/c Ratio: 0.47

| | |
|---|---|
| Intersection Signal Delay: 8.6 | Intersection LOS: A |
| Intersection Capacity Utilization 60.5% | ICU Level of Service B |
| Analysis Period (min) 15 | |

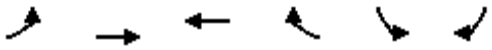
Splits and Phases: 1: Mirror Lake Road & SR 332

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 322 | 112 | 118 | 318 | 110 | 147 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1817 | 1791 | 1761 | 1782 | 1853 |
| Adj Flow Rate, veh/h | 350 | 122 | 128 | 346 | 120 | 160 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 1279 | 1130 | 59 | 124 | 259 | 241 |
| Arrive On Green | 0.73 | 0.73 | 0.72 | 0.73 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1748 | 1545 | 1 | 169 | 1697 | 1575 |
| Grp Volume(v), veh/h | 350 | 122 | 474 | 0 | 120 | 160 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1545 | 170 | 0 | 1697 | 1575 |
| Q Serve(g_s), s | 5.2 | 1.8 | 15.7 | 0.0 | 5.0 | 7.5 |
| Cycle Q Clear(g_c), s | 5.2 | 1.8 | 15.7 | 0.0 | 5.0 | 7.5 |
| Prop In Lane | | 1.00 | 0.27 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1279 | 1130 | 0 | 0 | 259 | 241 |
| V/C Ratio(X) | 0.27 | 0.11 | 0.00 | 0.00 | 0.46 | 0.66 |
| Avail Cap(c_a), veh/h | 1279 | 1130 | 0 | 0 | 784 | 728 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.5 | 3.0 | 0.0 | 0.0 | 30.1 | 31.1 |
| Incr Delay (d2), s/veh | 0.5 | 0.2 | 0.0 | 0.0 | 1.3 | 3.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 4.9 | 1.5 | 0.0 | 0.0 | 4.4 | 6.2 |
| LnGrp Delay(d),s/veh | 4.0 | 3.2 | 0.0 | 0.0 | 31.4 | 34.3 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 472 | | | 474 | 280 | |
| Approach Delay, s/veh | 3.8 | | | 0.0 | 33.0 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 62.0 | | | | 62.0 | | 15.9 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 41.0 | | | | 56.0 | | 35.0 |
| Max Q Clear Time (g_c+I1), s | | 7.7 | | | | 17.7 | | 10.0 |
| Green Ext Time (p_c), s | | 17.8 | | | | 19.3 | | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.0 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.



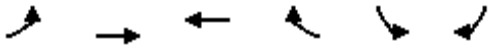
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 201 | 268 | 265 | 45 | 43 | 170 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1565 | 1782 | 1684 | 0 | 1495 | 0 |
| Flt Permitted | 0.443 | | | | 0.990 | |
| Satd. Flow (perm) | 730 | 1782 | 1684 | 0 | 1495 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 179 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 0% | 2% | 3% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 212 | 282 | 326 | 0 | 224 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Total Split (s) | 8.0 | 59.0 | 51.0 | | 22.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Act Effct Green (s) | 26.9 | 25.9 | 17.8 | | 8.7 | |
| Actuated g/C Ratio | 0.62 | 0.59 | 0.41 | | 0.20 | |
| v/c Ratio | 0.40 | 0.27 | 0.48 | | 0.51 | |
| Control Delay | 6.8 | 5.5 | 12.7 | | 9.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 6.8 | 5.5 | 12.7 | | 9.6 | |
| LOS | A | A | B | | A | |
| Approach Delay | | 6.1 | 12.7 | | 9.6 | |
| Approach LOS | | A | B | | A | |
| Queue Length 50th (ft) | 17 | 25 | 53 | | 9 | |
| Queue Length 95th (ft) | 51 | 70 | 125 | | 56 | |
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 527 | 1782 | 1637 | | 728 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.40 | 0.16 | 0.20 | | 0.31 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 81 | |
| Actuated Cycle Length: 43.7 | |
| Control Type: Semi Act-Uncoord | |

Maximum v/c Ratio: 0.51

| | |
|---|---|
| Intersection Signal Delay: 8.9 | Intersection LOS: A |
| Intersection Capacity Utilization 53.8% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: SR 332 & Creamery Road



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 201 | 268 | 265 | 45 | 43 | 170 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1765 | 1782 | 1776 | 1791 | 1751 | 1800 |
| Adj Flow Rate, veh/h | 212 | 282 | 279 | 47 | 45 | 179 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 2 | 1 | 1 | 0 | 0 |
| Cap, veh/h | 589 | 1014 | 562 | 95 | 66 | 263 |
| Arrive On Green | 0.09 | 0.57 | 0.38 | 0.36 | 0.22 | 0.19 |
| Sat Flow, veh/h | 1681 | 1782 | 1482 | 250 | 304 | 1211 |
| Grp Volume(v), veh/h | 212 | 282 | 0 | 326 | 225 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1681 | 1782 | 0 | 1732 | 1522 | 0 |
| Q Serve(g_s), s | 2.8 | 3.4 | 0.0 | 6.1 | 5.8 | 0.0 |
| Cycle Q Clear(g_c), s | 2.8 | 3.4 | 0.0 | 6.1 | 5.8 | 0.0 |
| Prop In Lane | 1.00 | | | 0.14 | 0.20 | 0.80 |
| Lane Grp Cap(c), veh/h | 589 | 1014 | 0 | 657 | 331 | 0 |
| V/C Ratio(X) | 0.36 | 0.28 | 0.00 | 0.50 | 0.68 | 0.00 |
| Avail Cap(c_a), veh/h | 589 | 2284 | 0 | 1890 | 650 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 6.2 | 4.6 | 0.0 | 10.1 | 15.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.4 | 0.3 | 0.0 | 1.2 | 2.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 2.3 | 3.1 | 0.0 | 5.6 | 4.7 | 0.0 |
| LnGrp Delay(d),s/veh | 6.6 | 5.0 | 0.0 | 11.3 | 18.0 | 0.0 |
| LnGrp LOS | A | A | | B | B | |
| Approach Vol, veh/h | | 494 | 326 | | 225 | |
| Approach Delay, s/veh | | 5.7 | 11.3 | | 18.0 | |
| Approach LOS | | A | B | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 29.0 | | 13.2 | 8.0 | 21.0 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 53.0 | | 17.0 | 3.0 | 45.0 | | |
| Max Q Clear Time (g_c+I1), s | | 5.9 | | 8.3 | 5.3 | 8.1 | | |
| Green Ext Time (p_c), s | | 4.5 | | 0.5 | 0.0 | 4.4 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 10.1 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 54 | 34 | 134 | 64 | 60 | 151 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1799 | 0 | 0 | 1813 | 1770 | 1599 |
| Flt Permitted | | | | 0.967 | 0.950 | |
| Satd. Flow (perm) | 1799 | 0 | 0 | 1813 | 1770 | 1599 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 558 | | | 335 | 3967 | |
| Travel Time (s) | 15.2 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 0% | 2% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 95 | 0 | 0 | 213 | 65 | 162 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 27.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

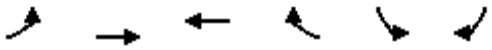
| Intersection | |
|---|---|
| Int Delay, s/veh | 6.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 54 | 34 | 134 | 64 | 60 | 151 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 1 |
| Mvmt Flow | 58 | 37 | 144 | 69 | 65 | 162 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 95 | 0 | 433 | 76 |
| Stage 1 | - | - | - | - | 76 | - |
| Stage 2 | - | - | - | - | 357 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.42 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1114 | - | 643 | 1020 |
| Stage 1 | - | - | - | - | 1070 | - |
| Stage 2 | - | - | - | - | 788 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1114 | - | 557 | 1020 |
| Mov Cap-2 Maneuver | - | - | - | - | 557 | - |
| Stage 1 | - | - | - | - | 1070 | - |
| Stage 2 | - | - | - | - | 682 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.9 | 10.1 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 557 | 1020 | - | - | 1114 | - |
| HCM Lane V/C Ratio | 0.116 | 0.159 | - | - | 0.129 | - |
| HCM Control Delay (s) | 12.3 | 9.2 | - | - | 8.7 | 0 |
| HCM Lane LOS | B | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.4 | 0.6 | - | - | 0.4 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 84 | 122 | 134 | 36 | 38 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1844 | 1805 | 0 | 1682 | 0 |
| Flt Permitted | | 0.980 | | | 0.982 | |
| Satd. Flow (perm) | 0 | 1844 | 1805 | 0 | 1682 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 905 | |
| Travel Time (s) | | 9.1 | 8.9 | | 15.4 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 3% | 0% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 213 | 175 | 0 | 109 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 84 | 122 | 134 | 36 | 38 | 68 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 1 | 1 | 2 | 3 | 0 | 2 |
| Mvmt Flow | 87 | 126 | 138 | 37 | 39 | 70 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 175 | 0 | - | 0 | 456 | 157 |
| Stage 1 | - | - | - | - | 157 | - |
| Stage 2 | - | - | - | - | 299 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 1010 | - | - | - | 641 | 919 |
| Stage 1 | - | - | - | - | 1012 | - |
| Stage 2 | - | - | - | - | 866 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1010 | - | - | - | 581 | 919 |
| Mov Cap-2 Maneuver | - | - | - | - | 581 | - |
| Stage 1 | - | - | - | - | 1012 | - |
| Stage 2 | - | - | - | - | 785 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.6 | 0 | 10.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1010 | - | - | - | 760 |
| HCM Lane V/C Ratio | 0.086 | - | - | - | 0.144 |
| HCM Control Delay (s) | 8.9 | 0 | - | - | 10.5 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 0.5 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 84 | 0 | 3 | 70 | 2 | 5 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | 1% | | | -2% | 0% | |
| Satd. Flow (prot) | 1773 | 0 | 0 | 1758 | 1582 | 0 |
| Flt Permitted | | | | 0.998 | 0.986 | |
| Satd. Flow (perm) | 1773 | 0 | 0 | 1758 | 1582 | 0 |
| Link Speed (mph) | 25 | | | 30 | 30 | |
| Link Distance (ft) | 669 | | | 558 | 353 | |
| Travel Time (s) | 18.2 | | | 12.7 | 8.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 33% | 2% | 0% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 91 | 0 | 0 | 79 | 7 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 16.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 84 | 0 | 3 | 70 | 2 | 5 |
| 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, % | 1 | - | - | -2 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 0 | 33 | 2 | 0 | 2 |
| Mvmt Flow | 91 | 0 | 3 | 76 | 2 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 91 | 0 | 174 | 91 |
| Stage 1 | - | - | - | - | 91 | - |
| Stage 2 | - | - | - | - | 83 | - |
| Critical Hdwy | - | - | 4.6 | - | 6.4 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 3.3 | - | 3 | 3.1 |
| Pot Cap-1 Maneuver | - | - | 1012 | - | 946 | 1032 |
| Stage 1 | - | - | - | - | 1087 | - |
| Stage 2 | - | - | - | - | 1097 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1012 | - | 943 | 1032 |
| Mov Cap-2 Maneuver | - | - | - | - | 943 | - |
| Stage 1 | - | - | - | - | 1087 | - |
| Stage 2 | - | - | - | - | 1094 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.4 | 8.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1005 | - | - | 1012 | - |
| HCM Lane V/C Ratio | 0.008 | - | - | 0.003 | - |
| HCM Control Delay (s) | 8.6 | - | - | 8.6 | 0 |
| HCM Lane LOS | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | - |

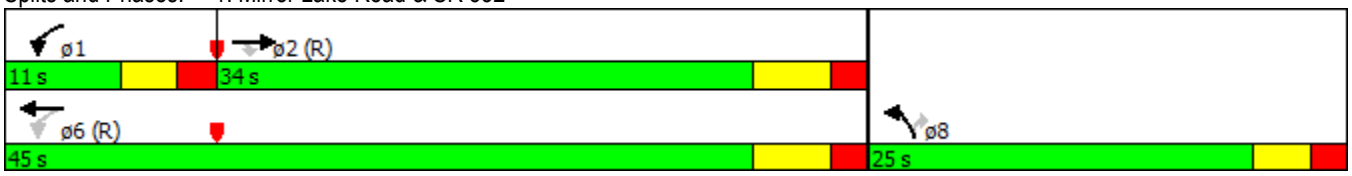
# *2019 Projected (Build) Conditions*

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 401 | 91 | 104 | 373 | 141 | 130 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1497 | 0 | 1731 | 1676 | 1496 |
| Flt Permitted | | | | 0.826 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1497 | 0 | 1446 | 1676 | 1496 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 99 | | | | 141 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 9% | 7% | 1% | 1% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 436 | 99 | 0 | 518 | 153 | 141 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Minimum Initial (s) | 12.0 | 12.0 | 3.0 | 12.0 | 3.0 | 3.0 |
| Minimum Split (s) | 22.0 | 22.0 | 10.0 | 22.0 | 21.0 | 21.0 |
| Total Split (s) | 34.0 | 34.0 | 11.0 | 45.0 | 25.0 | 25.0 |
| Total Split (%) | 48.6% | 48.6% | 15.7% | 64.3% | 35.7% | 35.7% |
| Maximum Green (s) | 28.0 | 28.0 | 6.0 | 39.0 | 20.0 | 20.0 |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Lead/Lag | Lag | Lag | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 5.0 | 5.0 | 3.0 | 5.0 | 3.0 | 3.0 |
| Minimum Gap (s) | 2.0 | 2.0 | 0.2 | 2.0 | 0.2 | 0.2 |
| Time Before Reduce (s) | 28.0 | 28.0 | 0.0 | 28.0 | 0.0 | 0.0 |
| Time To Reduce (s) | 18.0 | 18.0 | 0.0 | 18.0 | 0.0 | 0.0 |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None |
| Act Effct Green (s) | 48.3 | 48.3 | | 48.3 | 12.7 | 12.7 |
| Actuated g/C Ratio | 0.69 | 0.69 | | 0.69 | 0.18 | 0.18 |
| v/c Ratio | 0.36 | 0.09 | | 0.52 | 0.50 | 0.36 |
| Control Delay | 6.2 | 1.5 | | 8.6 | 30.8 | 7.4 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 6.2 | 1.5 | | 8.6 | 30.8 | 7.4 |
| LOS | A | A | | A | C | A |
| Approach Delay | 5.3 | | | 8.6 | 19.6 | |
| Approach LOS | A | | | A | B | |
| Queue Length 50th (ft) | 63 | 0 | | 80 | 60 | 0 |
| Queue Length 95th (ft) | 134 | 14 | | 224 | 104 | 39 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1205 | 1062 | | 996 | 502 | 547 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.36 | 0.09 | | 0.52 | 0.30 | 0.26 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 54 (77%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.52 | | | |
| Intersection Signal Delay: 9.7 | | Intersection LOS: A | |
| Intersection Capacity Utilization 69.0% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Mirror Lake Road & SR 332

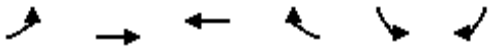


| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 401 | 91 | 104 | 373 | 141 | 130 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1717 | 1791 | 1751 | 1764 | 1716 |
| Adj Flow Rate, veh/h | 436 | 99 | 113 | 405 | 153 | 141 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 9 | 1 | 1 | 1 | 8 |
| Cap, veh/h | 1258 | 1051 | 63 | 180 | 254 | 221 |
| Arrive On Green | 0.72 | 0.72 | 1.00 | 1.00 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1748 | 1460 | 1 | 250 | 1680 | 1459 |
| Grp Volume(v), veh/h | 436 | 99 | 518 | 0 | 153 | 141 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1460 | 250 | 0 | 1680 | 1459 |
| Q Serve(g_s), s | 6.5 | 1.4 | 11.4 | 0.0 | 6.0 | 6.4 |
| Cycle Q Clear(g_c), s | 6.5 | 1.4 | 11.4 | 0.0 | 6.0 | 6.4 |
| Prop In Lane | | 1.00 | 0.22 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1258 | 1051 | 0 | 0 | 254 | 221 |
| V/C Ratio(X) | 0.35 | 0.09 | 0.00 | 0.00 | 0.60 | 0.64 |
| Avail Cap(c_a), veh/h | 1258 | 1051 | 0 | 0 | 504 | 438 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.89 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.7 | 2.9 | 0.0 | 0.0 | 27.7 | 27.9 |
| Incr Delay (d2), s/veh | 0.8 | 0.2 | 0.0 | 0.0 | 2.3 | 3.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 5.9 | 1.1 | 0.0 | 0.0 | 5.3 | 4.9 |
| LnGrp Delay(d),s/veh | 4.4 | 3.1 | 0.0 | 0.0 | 30.0 | 31.0 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 535 | | | 518 | 294 | |
| Approach Delay, s/veh | 4.2 | | | 0.0 | 30.5 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 55.4 | | | | 55.4 | | 14.6 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 28.0 | | | | 39.0 | | 20.0 |
| Max Q Clear Time (g_c+I1), s | | 9.0 | | | | 13.4 | | 8.9 |
| Green Ext Time (p_c), s | | 13.2 | | | | 16.6 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 8.3 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.

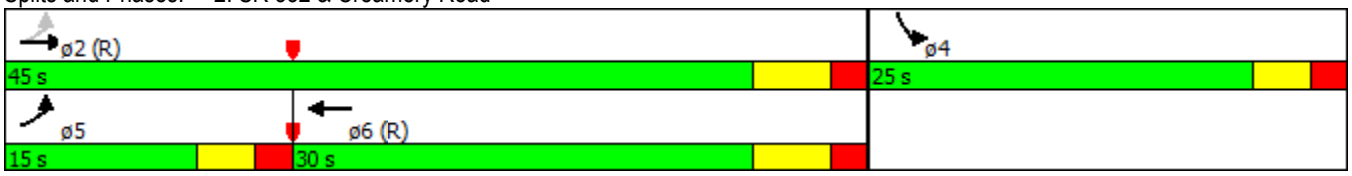


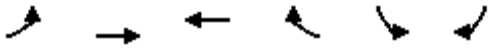
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 245 | 232 | 268 | 73 | 56 | 247 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1493 | 1731 | 1622 | 0 | 1409 | 0 |
| Flt Permitted | 0.431 | | | | 0.991 | |
| Satd. Flow (perm) | 677 | 1731 | 1622 | 0 | 1409 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 268 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 8% | 5% | 3% | 6% | 13% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 266 | 252 | 370 | 0 | 329 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Minimum Initial (s) | 4.0 | 15.0 | 15.0 | | 4.0 | |
| Minimum Split (s) | 9.0 | 22.0 | 22.0 | | 21.0 | |
| Total Split (s) | 15.0 | 45.0 | 30.0 | | 25.0 | |
| Total Split (%) | 21.4% | 64.3% | 42.9% | | 35.7% | |
| Maximum Green (s) | 10.0 | 39.0 | 24.0 | | 20.0 | |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 2.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Lead/Lag | Lead | | Lag | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 5.0 | 5.0 | | 3.0 | |
| Minimum Gap (s) | 0.2 | 2.7 | 2.7 | | 0.2 | |
| Time Before Reduce (s) | 0.0 | 35.0 | 35.0 | | 0.0 | |
| Time To Reduce (s) | 0.0 | 10.0 | 10.0 | | 0.0 | |
| Recall Mode | None | C-Max | C-Max | | None | |
| Act Effct Green (s) | 50.5 | 49.5 | 35.2 | | 11.5 | |
| Actuated g/C Ratio | 0.72 | 0.71 | 0.50 | | 0.16 | |
| v/c Ratio | 0.44 | 0.21 | 0.45 | | 0.72 | |
| Control Delay | 4.2 | 2.5 | 15.9 | | 15.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 4.2 | 2.5 | 15.9 | | 15.6 | |
| LOS | A | A | B | | B | |
| Approach Delay | | 3.4 | 15.9 | | 15.6 | |
| Approach LOS | | A | B | | B | |
| Queue Length 50th (ft) | 7 | 8 | 92 | | 24 | |
| Queue Length 95th (ft) | 33 | 34 | 217 | | 86 | |

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 623 | 1223 | 814 | | 610 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.43 | 0.21 | 0.45 | | 0.54 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 70 | | | |
| Actuated Cycle Length: 70 | | | |
| Offset: 64 (91%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.72 | | | |
| Intersection Signal Delay: 10.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 64.1% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: SR 332 & Creamery Road





| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 245 | 232 | 268 | 73 | 56 | 247 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1683 | 1731 | 1728 | 1791 | 1652 | 1800 |
| Adj Flow Rate, veh/h | 266 | 252 | 291 | 79 | 61 | 268 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 8 | 5 | 3 | 3 | 0 | 0 |
| Cap, veh/h | 555 | 1037 | 531 | 144 | 72 | 317 |
| Arrive On Green | 0.18 | 0.80 | 0.41 | 0.39 | 0.27 | 0.26 |
| Sat Flow, veh/h | 1603 | 1731 | 1310 | 356 | 265 | 1164 |
| Grp Volume(v), veh/h | 266 | 252 | 0 | 370 | 330 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1603 | 1731 | 0 | 1665 | 1434 | 0 |
| Q Serve(g_s), s | 6.0 | 2.6 | 0.0 | 11.9 | 15.3 | 0.0 |
| Cycle Q Clear(g_c), s | 6.0 | 2.6 | 0.0 | 11.9 | 15.3 | 0.0 |
| Prop In Lane | 1.00 | | | 0.21 | 0.18 | 0.81 |
| Lane Grp Cap(c), veh/h | 555 | 1037 | 0 | 675 | 390 | 0 |
| V/C Ratio(X) | 0.48 | 0.24 | 0.00 | 0.55 | 0.85 | 0.00 |
| Avail Cap(c_a), veh/h | 588 | 1037 | 0 | 675 | 430 | 0 |
| HCM Platoon Ratio | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.94 | 0.94 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 8.9 | 3.1 | 0.0 | 16.0 | 24.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.5 | 0.0 | 3.2 | 13.4 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 4.9 | 2.4 | 0.0 | 10.1 | 12.0 | 0.0 |
| LnGrp Delay(d),s/veh | 9.5 | 3.6 | 0.0 | 19.2 | 37.9 | 0.0 |
| LnGrp LOS | A | A | | B | D | |
| Approach Vol, veh/h | | 518 | 370 | | 330 | |
| Approach Delay, s/veh | | 6.6 | 19.2 | | 37.9 | |
| Approach LOS | | A | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 46.9 | | 23.1 | 13.6 | 33.4 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 39.0 | | 20.0 | 10.0 | 24.0 | | |
| Max Q Clear Time (g_c+I1), s | | 5.1 | | 17.8 | 8.5 | 13.9 | | |
| Green Ext Time (p_c), s | | 16.7 | | 0.3 | 0.1 | 6.8 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.9 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 187 | 138 | 130 | 143 | 159 | 161 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Flt Permitted | | | | 0.977 | 0.950 | |
| Satd. Flow (perm) | 1658 | 0 | 0 | 1767 | 1671 | 1495 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 555 | | | 335 | 3967 | |
| Travel Time (s) | 15.1 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 |
| Heavy Vehicles (%) | 3% | 15% | 4% | 6% | 8% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 478 | 0 | 0 | 401 | 234 | 237 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 51.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 25.5 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 187 | 138 | 130 | 143 | 159 | 161 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 68 | 68 | 68 | 68 | 68 | 68 |
| Heavy Vehicles, % | 3 | 15 | 4 | 6 | 8 | 8 |
| Mvmt Flow | 275 | 203 | 191 | 210 | 234 | 237 |

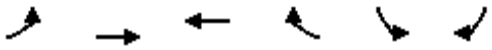
| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 478 | 0 | 969 | 376 |
| Stage 1 | - | - | - | - | 376 | - |
| Stage 2 | - | - | - | - | 593 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.48 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.48 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.48 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 822 | - | 299 | 687 |
| Stage 1 | - | - | - | - | 767 | - |
| Stage 2 | - | - | - | - | 601 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 822 | - | ~ 220 | 687 |
| Mov Cap-2 Maneuver | - | - | - | - | ~ 220 | - |
| Stage 1 | - | - | - | - | 767 | - |
| Stage 2 | - | - | - | - | 443 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 5.1 | 68.7 |
| HCM LOS | | | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 220 | 687 | - | - | 822 | - |
| HCM Lane V/C Ratio | 1.063 | 0.345 | - | - | 0.233 | - |
| HCM Control Delay (s) | 125.1 | 13 | - | - | 10.7 | 0 |
| HCM Lane LOS | F | B | - | - | B | A |
| HCM 95th %tile Q(veh) | 10.3 | 1.5 | - | - | 0.9 | - |

Notes

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



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 72 | 283 | 186 | 22 | 45 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1798 | 1779 | 0 | 1621 | 0 |
| Flt Permitted | | 0.990 | | | 0.983 | |
| Satd. Flow (perm) | 0 | 1798 | 1779 | 0 | 1621 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 623 | |
| Travel Time (s) | | 9.1 | 8.9 | | 10.6 | |
| Peak Hour Factor | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| Heavy Vehicles (%) | 7% | 4% | 4% | 15% | 0% | 8% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 444 | 260 | 0 | 158 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

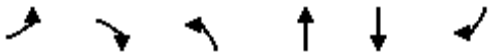
| Intersection | |
|---|---|
| Int Delay, s/veh | 3.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 72 | 283 | 186 | 22 | 45 | 82 |
| 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 | 80 | 80 | 80 | 80 | 80 | 80 |
| Heavy Vehicles, % | 7 | 4 | 4 | 15 | 0 | 8 |
| Mvmt Flow | 90 | 354 | 232 | 28 | 56 | 102 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 260 | 0 | - | 0 | 780 | 246 |
| Stage 1 | - | - | - | - | 246 | - |
| Stage 2 | - | - | - | - | 534 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.28 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 943 | - | - | - | 408 | 815 |
| Stage 1 | - | - | - | - | 918 | - |
| Stage 2 | - | - | - | - | 667 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 943 | - | - | - | 359 | 815 |
| Mov Cap-2 Maneuver | - | - | - | - | 359 | - |
| Stage 1 | - | - | - | - | 918 | - |
| Stage 2 | - | - | - | - | 588 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.9 | 0 | 13.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 943 | - | - | - | 562 |
| HCM Lane V/C Ratio | 0.095 | - | - | - | 0.282 |
| HCM Control Delay (s) | 9.2 | 0 | - | - | 13.9 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 1.2 |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 0 | 0 | 1 | 92 | 127 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 1863 | 1863 | 0 | 1863 | 1863 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1863 | 1863 | 0 | 1863 | 1863 | 0 |
| Link Speed (mph) | 30 | | | 40 | 40 | |
| Link Distance (ft) | 449 | | | 623 | 277 | |
| Travel Time (s) | 10.2 | | | 10.6 | 4.7 | |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 106 | 144 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 10.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

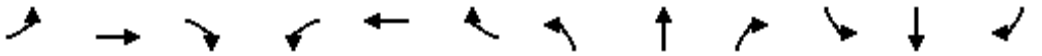
| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 0 | 1 | 92 | 127 | 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 | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 88 | 88 | 88 | 88 | 88 | 88 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 1 | 105 | 144 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 251 | 144 | 144 | 0 | - | 0 |
| Stage 1 | 144 | - | - | - | - | - |
| Stage 2 | 107 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.3 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3 | 3.1 | 3 | - | - | - |
| Pot Cap-1 Maneuver | 850 | 963 | 1072 | - | - | - |
| Stage 1 | 1025 | - | - | - | - | - |
| Stage 2 | 1068 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 849 | 963 | 1072 | - | - | - |
| Mov Cap-2 Maneuver | 849 | - | - | - | - | - |
| Stage 1 | 1025 | - | - | - | - | - |
| Stage 2 | 1067 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1072 | - | - | - | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | - | - | - |
| HCM Control Delay (s) | 8.4 | 0 | 0 | 0 | - | - |
| HCM Lane LOS | A | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - | - |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 277 | 17 | 129 | 141 | 2 | 2 | 0 | 20 | 2 | 0 | 0 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | | 1% | | | -2% | | | 0% | | | 0% | |
| Satd. Flow (prot) | 0 | 1695 | 0 | 0 | 1636 | 0 | 0 | 1542 | 0 | 0 | 1710 | 1800 |
| Flt Permitted | | | | | 0.977 | | | 0.995 | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1695 | 0 | 0 | 1636 | 0 | 0 | 1542 | 0 | 0 | 1710 | 1800 |
| Link Speed (mph) | | 25 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 598 | | | 555 | | | 323 | | | 453 | |
| Travel Time (s) | | 16.3 | | | 12.6 | | | 7.3 | | | 10.3 | |
| Peak Hour Factor | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 |
| Heavy Vehicles (%) | 0% | 4% | 18% | 8% | 9% | 0% | 2% | 0% | 2% | 0% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 544 | 0 | 0 | 504 | 0 | 0 | 41 | 0 | 0 | 4 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 45.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 277 | 17 | 129 | 141 | 2 | 2 | 0 | 20 | 2 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | -2 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| Heavy Vehicles, % | 0 | 4 | 18 | 8 | 9 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 513 | 31 | 239 | 261 | 4 | 4 | 0 | 37 | 4 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 265 | 0 | 0 | 544 | 0 | 0 | 1270 | 1272 | 529 | 1288 | 1285 | 263 |
| Stage 1 | - | - | - | - | - | - | 529 | 529 | - | 741 | 741 | - |
| Stage 2 | - | - | - | - | - | - | 741 | 743 | - | 547 | 544 | - |
| Critical Hdwy | 4.3 | - | - | 4.4 | - | - | 7.12 | 6.5 | 6.22 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 3 | - | - | 3.1 | - | - | 3 | 4 | 3.1 | 3 | 4 | 3.1 |
| Pot Cap-1 Maneuver | 975 | - | - | 748 | - | - | 158 | 169 | 580 | 154 | 166 | 825 |
| Stage 1 | - | - | - | - | - | - | 604 | 530 | - | 458 | 426 | - |
| Stage 2 | - | - | - | - | - | - | 456 | 425 | - | 591 | 522 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 975 | - | - | 748 | - | - | 112 | 106 | 580 | 102 | 104 | 825 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 112 | 106 | - | 102 | 104 | - |
| Stage 1 | - | - | - | - | - | - | 604 | 530 | - | 458 | 266 | - |
| Stage 2 | - | - | - | - | - | - | 285 | 266 | - | 553 | 522 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 5.7 | 14.5 | 41.6 |
| HCM LOS | | | B | E |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 420 | 975 | - | - | 748 | - | - | 102 | - |
| HCM Lane V/C Ratio | 0.097 | - | - | - | 0.319 | - | - | 0.036 | - |
| HCM Control Delay (s) | 14.5 | 0 | - | - | 12.1 | 0 | - | 41.6 | 0 |
| HCM Lane LOS | B | A | - | - | B | A | - | E | A |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 1.4 | - | - | 0.1 | - |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 439 | 189 | 204 | 282 | 116 | 228 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1731 | 1616 | 0 | 1726 | 1628 | 1600 |
| Flt Permitted | | | | 0.623 | 0.950 | |
| Satd. Flow (perm) | 1731 | 1616 | 0 | 1098 | 1628 | 1600 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 207 | | | | 253 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 4% | 1% | 1% | 2% | 4% | 1% |
| Parking (#/hr) | | | 0 | | | |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 488 | 210 | 0 | 540 | 129 | 253 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Total Split (s) | 33.0 | 33.0 | 11.0 | 44.0 | 26.0 | 26.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Act Effct Green (s) | 49.1 | 49.1 | | 49.1 | 11.9 | 11.9 |
| Actuated g/C Ratio | 0.70 | 0.70 | | 0.70 | 0.17 | 0.17 |
| v/c Ratio | 0.40 | 0.18 | | 0.70 | 0.47 | 0.52 |
| Control Delay | 6.1 | 1.2 | | 19.6 | 30.9 | 7.8 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 6.1 | 1.2 | | 19.6 | 30.9 | 7.8 |
| LOS | A | A | | B | C | A |
| Approach Delay | 4.7 | | | 19.6 | 15.6 | |
| Approach LOS | A | | | B | B | |
| Queue Length 50th (ft) | 71 | 0 | | 228 | 51 | 0 |
| Queue Length 95th (ft) | 148 | 20 | | #368 | 92 | 53 |
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1213 | 1194 | | 769 | 511 | 676 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.18 | | 0.70 | 0.25 | 0.37 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 70 | |
| Actuated Cycle Length: 70 | |

| | |
|---|---|
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.70 | |
| Intersection Signal Delay: 12.2 | Intersection LOS: B |
| Intersection Capacity Utilization 70.4% | ICU Level of Service C |
| Analysis Period (min) 15 | |

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

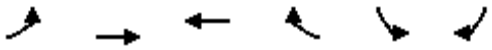
Splits and Phases: 1: Mirror Lake Road & SR 332

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 439 | 189 | 204 | 282 | 116 | 228 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1731 | 1853 | 1791 | 1763 | 1713 | 1835 |
| Adj Flow Rate, veh/h | 488 | 210 | 227 | 313 | 129 | 253 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 4 | 1 | 2 | 2 | 4 | 1 |
| Cap, veh/h | 1137 | 1035 | 74 | 58 | 350 | 335 |
| Arrive On Green | 0.66 | 0.66 | 1.00 | 1.00 | 0.21 | 0.21 |
| Sat Flow, veh/h | 1731 | 1575 | 2 | 89 | 1632 | 1560 |
| Grp Volume(v), veh/h | 488 | 210 | 540 | 0 | 129 | 253 |
| Grp Sat Flow(s),veh/h/ln | 1731 | 1575 | 90 | 0 | 1632 | 1560 |
| Q Serve(g_s), s | 9.4 | 3.7 | 19.6 | 0.0 | 4.7 | 10.6 |
| Cycle Q Clear(g_c), s | 9.4 | 3.7 | 19.6 | 0.0 | 4.7 | 10.6 |
| Prop In Lane | | 1.00 | 0.42 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1137 | 1035 | 0 | 0 | 350 | 335 |
| V/C Ratio(X) | 0.43 | 0.20 | 0.00 | 0.00 | 0.37 | 0.76 |
| Avail Cap(c_a), veh/h | 1137 | 1035 | 0 | 0 | 513 | 490 |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.91 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 5.7 | 4.8 | 0.0 | 0.0 | 23.4 | 25.8 |
| Incr Delay (d2), s/veh | 1.2 | 0.4 | 0.0 | 0.0 | 0.6 | 3.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 8.5 | 3.1 | 0.0 | 0.0 | 3.9 | 8.6 |
| LnGrp Delay(d),s/veh | 6.9 | 5.2 | 0.0 | 0.0 | 24.1 | 29.6 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 698 | | | 540 | 382 | |
| Approach Delay, s/veh | 6.4 | | | 0.0 | 27.8 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 51.0 | | | | 51.0 | | 19.0 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 27.0 | | | | 38.0 | | 21.0 |
| Max Q Clear Time (g_c+I1), s | | 11.9 | | | | 21.6 | | 13.1 |
| Green Ext Time (p_c), s | | 13.7 | | | | 14.9 | | 0.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.3 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.

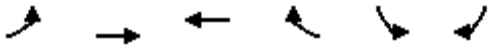


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 359 | 314 | 231 | 61 | 84 | 260 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1612 | 1800 | 1657 | 0 | 1528 | 0 |
| Flt Permitted | 0.458 | | | | 0.988 | |
| Satd. Flow (perm) | 777 | 1800 | 1657 | 0 | 1528 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 215 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 0% | 1% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 386 | 338 | 314 | 0 | 370 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Total Split (s) | 16.0 | 48.0 | 32.0 | | 22.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Act Effct Green (s) | 48.4 | 47.4 | 32.0 | | 13.6 | |
| Actuated g/C Ratio | 0.69 | 0.68 | 0.46 | | 0.19 | |
| v/c Ratio | 0.57 | 0.28 | 0.41 | | 0.79 | |
| Control Delay | 10.6 | 7.0 | 16.6 | | 23.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 10.6 | 7.0 | 16.6 | | 23.4 | |
| LOS | B | A | B | | C | |
| Approach Delay | | 8.9 | 16.6 | | 23.4 | |
| Approach LOS | | A | B | | C | |
| Queue Length 50th (ft) | 91 | 76 | 94 | | 59 | |
| Queue Length 95th (ft) | 154 | 129 | 169 | | 145 | |
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 684 | 1219 | 757 | | 552 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.56 | 0.28 | 0.41 | | 0.67 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 70 | |
| Actuated Cycle Length: 70 | |
| Offset: 22 (31%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |

| | |
|---|---|
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.79 | |
| Intersection Signal Delay: 14.4 | Intersection LOS: B |
| Intersection Capacity Utilization 70.4% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: SR 332 & Creamery Road



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 359 | 314 | 231 | 61 | 84 | 260 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1818 | 1800 | 1763 | 1791 | 1782 | 1800 |
| Adj Flow Rate, veh/h | 386 | 338 | 248 | 66 | 90 | 280 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, % | 0 | 1 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 673 | 1106 | 530 | 141 | 97 | 302 |
| Arrive On Green | 0.05 | 0.20 | 0.39 | 0.38 | 0.26 | 0.24 |
| Sat Flow, veh/h | 1731 | 1800 | 1343 | 357 | 377 | 1174 |
| Grp Volume(v), veh/h | 386 | 338 | 0 | 314 | 371 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1731 | 1800 | 0 | 1700 | 1556 | 0 |
| Q Serve(g_s), s | 7.7 | 11.2 | 0.0 | 9.6 | 16.3 | 0.0 |
| Cycle Q Clear(g_c), s | 7.7 | 11.2 | 0.0 | 9.6 | 16.3 | 0.0 |
| Prop In Lane | 1.00 | | | 0.21 | 0.24 | 0.75 |
| Lane Grp Cap(c), veh/h | 673 | 1106 | 0 | 671 | 400 | 0 |
| V/C Ratio(X) | 0.57 | 0.31 | 0.00 | 0.47 | 0.93 | 0.00 |
| Avail Cap(c_a), veh/h | 689 | 1106 | 0 | 671 | 400 | 0 |
| HCM Platoon Ratio | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.90 | 0.90 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 10.2 | 15.2 | 0.0 | 15.8 | 25.7 | 0.0 |
| Incr Delay (d2), s/veh | 1.0 | 0.6 | 0.0 | 2.3 | 27.6 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 6.8 | 9.5 | 0.0 | 8.5 | 15.3 | 0.0 |
| LnGrp Delay(d),s/veh | 11.2 | 15.9 | 0.0 | 18.1 | 53.3 | 0.0 |
| LnGrp LOS | B | B | | B | D | |
| Approach Vol, veh/h | | 724 | 314 | | 371 | |
| Approach Delay, s/veh | | 13.3 | 18.1 | | 53.3 | |
| Approach LOS | | B | B | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 48.0 | | 22.0 | 15.4 | 32.6 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 42.0 | | 17.0 | 11.0 | 26.0 | | |
| Max Q Clear Time (g_c+I1), s | | 13.7 | | 18.8 | 10.2 | 11.6 | | |
| Green Ext Time (p_c), s | | 4.6 | | 0.0 | 0.1 | 3.7 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 24.9 |
| HCM 2010 LOS | C |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 73 | 101 | 213 | 120 | 119 | 235 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1709 | 0 | 0 | 1805 | 1805 | 1599 |
| Flt Permitted | | | | 0.969 | 0.950 | |
| Satd. Flow (perm) | 1709 | 0 | 0 | 1805 | 1805 | 1599 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 558 | | | 335 | 3967 | |
| Travel Time (s) | 15.2 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 6% | 0% | 2% | 2% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 193 | 0 | 0 | 370 | 132 | 261 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 44.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

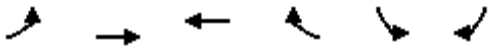
| Intersection | |
|---|---|
| Int Delay, s/veh | 8.6 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 73 | 101 | 213 | 120 | 119 | 235 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 6 | 0 | 2 | 2 | 0 | 1 |
| Mvmt Flow | 81 | 112 | 237 | 133 | 132 | 261 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 193 | 0 | 744 | 137 |
| Stage 1 | - | - | - | - | 137 | - |
| Stage 2 | - | - | - | - | 607 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.4 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1032 | - | 419 | 943 |
| Stage 1 | - | - | - | - | 1002 | - |
| Stage 2 | - | - | - | - | 600 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1032 | - | 315 | 943 |
| Mov Cap-2 Maneuver | - | - | - | - | 315 | - |
| Stage 1 | - | - | - | - | 1002 | - |
| Stage 2 | - | - | - | - | 451 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 6.1 | 15.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 315 | 943 | - | - | 1032 | - |
| HCM Lane V/C Ratio | 0.42 | 0.277 | - | - | 0.229 | - |
| HCM Control Delay (s) | 24.5 | 10.3 | - | - | 9.5 | 0 |
| HCM Lane LOS | C | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 2 | 1.1 | - | - | 0.9 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 144 | 165 | 212 | 41 | 28 | 119 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1820 | 1834 | 0 | 1626 | 0 |
| Flt Permitted | | 0.977 | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1820 | 1834 | 0 | 1626 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 634 | |
| Travel Time (s) | | 9.1 | 8.9 | | 10.8 | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Heavy Vehicles (%) | 2% | 2% | 1% | 3% | 4% | 3% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 356 | 291 | 0 | 169 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 49.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

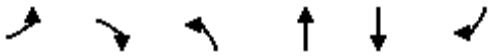
| Intersection | |
|---|---|
| Int Delay, s/veh | 4.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 144 | 165 | 212 | 41 | 28 | 119 |
| 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 | 87 | 87 | 87 | 87 | 87 | 87 |
| Heavy Vehicles, % | 2 | 2 | 1 | 3 | 4 | 3 |
| Mvmt Flow | 166 | 190 | 244 | 47 | 32 | 137 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 291 | 0 | - | 0 | 788 | 267 |
| Stage 1 | - | - | - | - | 267 | - |
| Stage 2 | - | - | - | - | 521 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.44 | 6.23 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.44 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.44 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 920 | - | - | - | 400 | 796 |
| Stage 1 | - | - | - | - | 894 | - |
| Stage 2 | - | - | - | - | 673 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 920 | - | - | - | 319 | 796 |
| Mov Cap-2 Maneuver | - | - | - | - | 319 | - |
| Stage 1 | - | - | - | - | 894 | - |
| Stage 2 | - | - | - | - | 537 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.6 | 0 | 13 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 920 | - | - | - | 620 |
| HCM Lane V/C Ratio | 0.18 | - | - | - | 0.273 |
| HCM Control Delay (s) | 9.8 | 0 | - | - | 13 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.7 | - | - | - | 1.1 |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 2 | 10 | 17 | 168 | 137 | 5 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 1770 | 1583 | 0 | 1805 | 1770 | 0 |
| Flt Permitted | 0.950 | | | 0.995 | | |
| Satd. Flow (perm) | 1770 | 1583 | 0 | 1805 | 1770 | 0 |
| Link Speed (mph) | 30 | | | 30 | 40 | |
| Link Distance (ft) | 442 | | | 634 | 266 | |
| Travel Time (s) | 10.0 | | | 14.4 | 4.5 | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 5% | 7% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2 | 11 | 0 | 213 | 163 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 30.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

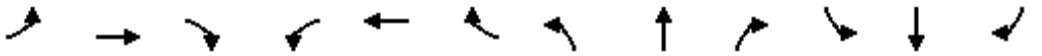
| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 2 | 10 | 17 | 168 | 137 | 5 |
| 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 | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 87 | 87 | 87 | 87 | 87 | 87 |
| Heavy Vehicles, % | 2 | 2 | 2 | 5 | 7 | 2 |
| Mvmt Flow | 2 | 11 | 20 | 193 | 157 | 6 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 392 | 160 | 163 | 0 | - | 0 |
| Stage 1 | 160 | - | - | - | - | - |
| Stage 2 | 232 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.3 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3 | 3.1 | 3 | - | - | - |
| Pot Cap-1 Maneuver | 699 | 943 | 1056 | - | - | - |
| Stage 1 | 1007 | - | - | - | - | - |
| Stage 2 | 931 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 684 | 943 | 1056 | - | - | - |
| Mov Cap-2 Maneuver | 684 | - | - | - | - | - |
| Stage 1 | 1007 | - | - | - | - | - |
| Stage 2 | 911 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.1 | 0.8 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1056 | - | 684 | 943 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.003 | 0.012 | - | - |
| HCM Control Delay (s) | 8.5 | 0 | 10.3 | 8.9 | - | - |
| HCM Lane LOS | A | A | B | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | 0 | - | - |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 5 | 220 | 3 | 36 | 188 | 21 | 3 | 0 | 20 | 9 | 0 | 2 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | | 1% | | | -2% | | | 0% | | | 0% | |
| Satd. Flow (prot) | 0 | 1769 | 0 | 0 | 1762 | 0 | 0 | 1511 | 0 | 0 | 1710 | 1530 |
| Flt Permitted | | 0.999 | | | 0.993 | | | 0.993 | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1769 | 0 | 0 | 1762 | 0 | 0 | 1511 | 0 | 0 | 1710 | 1530 |
| Link Speed (mph) | | 25 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 669 | | | 558 | | | 377 | | | 472 | |
| Travel Time (s) | | 18.2 | | | 12.7 | | | 8.6 | | | 10.7 | |
| Peak Hour Factor | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 3% | 1% | 0% | 33% | 0% | 0% | 0% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 368 | 0 | 0 | 395 | 0 | 0 | 37 | 0 | 0 | 15 | 3 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 41.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 5 | 220 | 3 | 36 | 188 | 21 | 3 | 0 | 20 | 9 | 0 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | -2 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| Heavy Vehicles, % | 0 | 1 | 0 | 3 | 1 | 0 | 33 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 8 | 355 | 5 | 58 | 303 | 34 | 5 | 0 | 32 | 15 | 0 | 3 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 337 | 0 | 0 | 360 | 0 | 0 | 809 | 826 | 357 | 826 | 812 | 320 |
| Stage 1 | - | - | - | - | - | - | 373 | 373 | - | 436 | 436 | - |
| Stage 2 | - | - | - | - | - | - | 436 | 453 | - | 390 | 376 | - |
| Critical Hdwy | 4.3 | - | - | 4.3 | - | - | 7.43 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.43 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.43 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 3 | - | - | 3 | - | - | 3.3 | 4 | 3.1 | 3 | 4 | 3.1 |
| Pot Cap-1 Maneuver | 920 | - | - | 904 | - | - | 291 | 310 | 729 | 326 | 315 | 766 |
| Stage 1 | - | - | - | - | - | - | 662 | 622 | - | 684 | 583 | - |
| Stage 2 | - | - | - | - | - | - | 607 | 573 | - | 726 | 620 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 920 | - | - | 904 | - | - | 270 | 282 | 729 | 290 | 287 | 766 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 270 | 282 | - | 290 | 287 | - |
| Stage 1 | - | - | - | - | - | - | 655 | 615 | - | 676 | 537 | - |
| Stage 2 | - | - | - | - | - | - | 557 | 528 | - | 686 | 613 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 1.4 | 11.4 | 16.6 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 597 | 920 | - | - | 904 | - | - | 290 | 766 |
| HCM Lane V/C Ratio | 0.062 | 0.009 | - | - | 0.064 | - | - | 0.05 | 0.004 |
| HCM Control Delay (s) | 11.4 | 8.9 | 0 | - | 9.3 | 0 | - | 18.1 | 9.7 |
| HCM Lane LOS | B | A | A | - | A | A | - | C | A |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | 0.2 | - | - | 0.2 | 0 |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 340 | 112 | 128 | 337 | 110 | 156 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 12 | 14 | 12 | 12 | 12 | 14 |
| Grade (%) | 0% | | | 1% | 2% | |
| Storage Length (ft) | | 115 | 0 | | 140 | 0 |
| Storage Lanes | | 1 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 75 | |
| Satd. Flow (prot) | 1748 | 1584 | 0 | 1736 | 1693 | 1616 |
| Flt Permitted | | | | 0.800 | 0.950 | |
| Satd. Flow (perm) | 1748 | 1584 | 0 | 1409 | 1693 | 1616 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | | 111 | | | | 170 |
| Link Speed (mph) | 45 | | | 45 | 40 | |
| Link Distance (ft) | 1188 | | | 514 | 661 | |
| Travel Time (s) | 18.0 | | | 7.8 | 11.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 1% | 2% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 370 | 122 | 0 | 505 | 120 | 170 |
| Turn Type | NA | Perm | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | 2 | 6 | | | 8 |
| Total Split (s) | 47.0 | 47.0 | 15.0 | 62.0 | 40.0 | 40.0 |
| Total Lost Time (s) | 5.0 | 5.0 | | 5.0 | 4.0 | 4.0 |
| Act Effct Green (s) | 57.1 | 57.1 | | 57.1 | 11.9 | 11.9 |
| Actuated g/C Ratio | 0.73 | 0.73 | | 0.73 | 0.15 | 0.15 |
| v/c Ratio | 0.29 | 0.10 | | 0.49 | 0.47 | 0.44 |
| Control Delay | 4.6 | 1.2 | | 6.8 | 36.1 | 8.8 |
| Queue Delay | 0.0 | 0.0 | | 0.3 | 0.0 | 0.0 |
| Total Delay | 4.6 | 1.2 | | 7.1 | 36.1 | 8.8 |
| LOS | A | A | | A | D | A |
| Approach Delay | 3.8 | | | 7.1 | 20.1 | |
| Approach LOS | A | | | A | C | |
| Queue Length 50th (ft) | 49 | 1 | | 82 | 54 | 0 |
| Queue Length 95th (ft) | 98 | 15 | | 171 | 103 | 50 |
| Internal Link Dist (ft) | 1108 | | | 434 | 581 | |
| Turn Bay Length (ft) | | 115 | | | 140 | |
| Base Capacity (vph) | 1279 | 1189 | | 1031 | 782 | 838 |
| Starvation Cap Reductn | 0 | 0 | | 144 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 0.10 | | 0.57 | 0.15 | 0.20 |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 102 | |
| Actuated Cycle Length: 78 | |
| Control Type: Semi Act-Uncoord | |

| | |
|---|---|
| Maximum v/c Ratio: 0.49 | |
| Intersection Signal Delay: 8.8 | Intersection LOS: A |
| Intersection Capacity Utilization 63.2% | ICU Level of Service B |
| Analysis Period (min) 15 | |

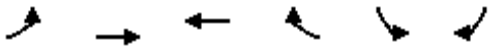
Splits and Phases: 1: Mirror Lake Road & SR 332

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 340 | 112 | 128 | 337 | 110 | 156 |
| Number | 2 | 12 | 1 | 6 | 3 | 18 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1748 | 1817 | 1791 | 1761 | 1782 | 1853 |
| Adj Flow Rate, veh/h | 370 | 122 | 139 | 366 | 120 | 170 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 3 | 3 | 2 | 2 | 0 | 0 |
| Cap, veh/h | 1269 | 1122 | 59 | 120 | 270 | 250 |
| Arrive On Green | 0.73 | 0.73 | 0.71 | 0.73 | 0.16 | 0.16 |
| Sat Flow, veh/h | 1748 | 1545 | 1 | 165 | 1697 | 1575 |
| Grp Volume(v), veh/h | 370 | 122 | 505 | 0 | 120 | 170 |
| Grp Sat Flow(s),veh/h/ln | 1748 | 1545 | 166 | 0 | 1697 | 1575 |
| Q Serve(g_s), s | 5.8 | 1.8 | 17.6 | 0.0 | 5.0 | 8.0 |
| Cycle Q Clear(g_c), s | 5.8 | 1.8 | 17.6 | 0.0 | 5.0 | 8.0 |
| Prop In Lane | | 1.00 | 0.28 | | 1.00 | 1.00 |
| Lane Grp Cap(c), veh/h | 1269 | 1122 | 0 | 0 | 270 | 250 |
| V/C Ratio(X) | 0.29 | 0.11 | 0.00 | 0.00 | 0.44 | 0.68 |
| Avail Cap(c_a), veh/h | 1269 | 1122 | 0 | 0 | 779 | 723 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 3.7 | 3.2 | 0.0 | 0.0 | 29.9 | 31.1 |
| Incr Delay (d2), s/veh | 0.6 | 0.2 | 0.0 | 0.0 | 1.2 | 3.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 5.4 | 1.5 | 0.0 | 0.0 | 4.4 | 6.6 |
| LnGrp Delay(d),s/veh | 4.3 | 3.4 | 0.0 | 0.0 | 31.0 | 34.3 |
| LnGrp LOS | A | A | | | C | C |
| Approach Vol, veh/h | 492 | | | 505 | 290 | |
| Approach Delay, s/veh | 4.1 | | | 0.0 | 33.0 | |
| Approach LOS | A | | | A | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | 62.0 | | | | 62.0 | | 16.5 |
| Change Period (Y+Rc), s | | 6.0 | | | | 6.0 | | 5.0 |
| Max Green Setting (Gmax), s | | 41.0 | | | | 56.0 | | 35.0 |
| Max Q Clear Time (g_c+I1), s | | 8.3 | | | | 19.6 | | 10.5 |
| Green Ext Time (p_c), s | | 18.8 | | | | 20.1 | | 1.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.0 |
| HCM 2010 LOS | A |

Two Way Analysis cannot be performed on Signalized Intersection.

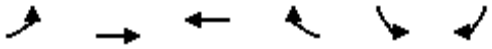


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 228 | 268 | 265 | 57 | 56 | 199 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Lane Width (ft) | 10 | 12 | 11 | 12 | 11 | 12 |
| Grade (%) | | -2% | 1% | | 0% | |
| Storage Length (ft) | 110 | | | 0 | 0 | 0 |
| Storage Lanes | 1 | | | 0 | 1 | 0 |
| Taper Length (ft) | 50 | | | | 25 | |
| Satd. Flow (prot) | 1565 | 1782 | 1676 | 0 | 1499 | 0 |
| Flt Permitted | 0.429 | | | | 0.989 | |
| Satd. Flow (perm) | 707 | 1782 | 1676 | 0 | 1499 | 0 |
| Right Turn on Red | | | | No | | Yes |
| Satd. Flow (RTOR) | | | | | 202 | |
| Link Speed (mph) | | 45 | 45 | | 35 | |
| Link Distance (ft) | | 514 | 910 | | 3967 | |
| Travel Time (s) | | 7.8 | 13.8 | | 77.3 | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles (%) | 3% | 2% | 1% | 0% | 2% | 3% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 240 | 282 | 339 | 0 | 268 | 0 |
| Turn Type | pm+pt | NA | NA | | Prot | |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | | | |
| Total Split (s) | 8.0 | 59.0 | 51.0 | | 22.0 | |
| Total Lost Time (s) | 4.0 | 5.0 | 5.0 | | 4.0 | |
| Act Effct Green (s) | 27.7 | 26.6 | 18.5 | | 9.4 | |
| Actuated g/C Ratio | 0.61 | 0.59 | 0.41 | | 0.21 | |
| v/c Ratio | 0.47 | 0.27 | 0.49 | | 0.57 | |
| Control Delay | 8.2 | 5.9 | 13.3 | | 10.7 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | |
| Total Delay | 8.2 | 5.9 | 13.3 | | 10.7 | |
| LOS | A | A | B | | B | |
| Approach Delay | | 7.0 | 13.3 | | 10.7 | |
| Approach LOS | | A | B | | B | |
| Queue Length 50th (ft) | 21 | 27 | 58 | | 13 | |
| Queue Length 95th (ft) | 64 | 77 | 138 | | 70 | |
| Internal Link Dist (ft) | | 434 | 830 | | 3887 | |
| Turn Bay Length (ft) | 110 | | | | | |
| Base Capacity (vph) | 510 | 1758 | 1599 | | 728 | |
| Starvation Cap Reductn | 0 | 0 | 0 | | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | |
| Reduced v/c Ratio | 0.47 | 0.16 | 0.21 | | 0.37 | |

| Intersection Summary | |
|---|---|
| Area Type: | Other |
| Cycle Length: 81 | |
| Actuated Cycle Length: 45.2 | |
| Control Type: Semi Act-Uncoord | |

| | |
|---|---|
| Maximum v/c Ratio: 0.57 | |
| Intersection Signal Delay: 9.8 | Intersection LOS: A |
| Intersection Capacity Utilization 58.8% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 2: SR 332 & Creamery Road



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 228 | 268 | 265 | 57 | 56 | 199 |
| Number | 5 | 2 | 6 | 16 | 7 | 14 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1765 | 1782 | 1776 | 1791 | 1751 | 1800 |
| Adj Flow Rate, veh/h | 240 | 282 | 279 | 60 | 59 | 209 |
| Adj No. of Lanes | 1 | 1 | 1 | 0 | 0 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, % | 3 | 2 | 1 | 1 | 0 | 0 |
| Cap, veh/h | 546 | 976 | 517 | 111 | 83 | 293 |
| Arrive On Green | 0.09 | 0.55 | 0.36 | 0.34 | 0.25 | 0.22 |
| Sat Flow, veh/h | 1681 | 1782 | 1418 | 305 | 335 | 1185 |
| Grp Volume(v), veh/h | 240 | 282 | 0 | 339 | 269 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1681 | 1782 | 0 | 1723 | 1525 | 0 |
| Q Serve(g_s), s | 3.6 | 3.7 | 0.0 | 6.8 | 7.1 | 0.0 |
| Cycle Q Clear(g_c), s | 3.6 | 3.7 | 0.0 | 6.8 | 7.1 | 0.0 |
| Prop In Lane | 1.00 | | | 0.18 | 0.22 | 0.78 |
| Lane Grp Cap(c), veh/h | 546 | 976 | 0 | 629 | 377 | 0 |
| V/C Ratio(X) | 0.44 | 0.29 | 0.00 | 0.54 | 0.71 | 0.00 |
| Avail Cap(c_a), veh/h | 546 | 2197 | 0 | 1808 | 627 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 7.2 | 5.3 | 0.0 | 11.1 | 15.5 | 0.0 |
| Incr Delay (d2), s/veh | 0.6 | 0.3 | 0.0 | 1.5 | 2.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(95%),veh/ln | 2.9 | 3.4 | 0.0 | 6.3 | 5.8 | 0.0 |
| LnGrp Delay(d),s/veh | 7.8 | 5.7 | 0.0 | 12.6 | 18.0 | 0.0 |
| LnGrp LOS | A | A | | B | B | |
| Approach Vol, veh/h | | 522 | 339 | | 269 | |
| Approach Delay, s/veh | | 6.6 | 12.6 | | 18.0 | |
| Approach LOS | | A | B | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 29.0 | | 14.8 | 8.0 | 21.0 | | |
| Change Period (Y+Rc), s | | 6.0 | | 5.0 | 5.0 | 6.0 | | |
| Max Green Setting (Gmax), s | | 53.0 | | 17.0 | 3.0 | 45.0 | | |
| Max Q Clear Time (g_c+I1), s | | 6.2 | | 9.6 | 6.1 | 8.8 | | |
| Green Ext Time (p_c), s | | 4.6 | | 0.6 | 0.0 | 4.5 | | |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 11.1 |
| HCM 2010 LOS | B |

**Notes**

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 54 | 57 | 153 | 66 | 83 | 167 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | | 0 | 0 | | 90 | 0 |
| Storage Lanes | | 0 | 0 | | 1 | 1 |
| Taper Length (ft) | | | 25 | | 50 | |
| Satd. Flow (prot) | 1769 | 0 | 0 | 1810 | 1770 | 1599 |
| Flt Permitted | | | | 0.966 | 0.950 | |
| Satd. Flow (perm) | 1769 | 0 | 0 | 1810 | 1770 | 1599 |
| Link Speed (mph) | 25 | | | 25 | 35 | |
| Link Distance (ft) | 558 | | | 335 | 3967 | |
| Travel Time (s) | 15.2 | | | 9.1 | 77.3 | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 0% | 2% | 1% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 119 | 0 | 0 | 236 | 89 | 180 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 29.9% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

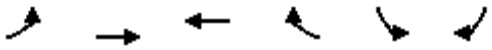
| Intersection | |
|---|---|
| Int Delay, s/veh | 7 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 54 | 57 | 153 | 66 | 83 | 167 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 90 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 0 | 0 | 2 | 0 | 2 | 1 |
| Mvmt Flow | 58 | 61 | 165 | 71 | 89 | 180 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 119 | 0 | 489 | 89 |
| Stage 1 | - | - | - | - | 89 | - |
| Stage 2 | - | - | - | - | 400 | - |
| Critical Hdwy | - | - | 4.3 | - | 6.42 | 6.21 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 3 | - | 3.1 | 3.2 |
| Pot Cap-1 Maneuver | - | - | 1093 | - | 595 | 1004 |
| Stage 1 | - | - | - | - | 1055 | - |
| Stage 2 | - | - | - | - | 752 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1093 | - | 502 | 1004 |
| Mov Cap-2 Maneuver | - | - | - | - | 502 | - |
| Stage 1 | - | - | - | - | 1055 | - |
| Stage 2 | - | - | - | - | 634 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 6.2 | 10.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 502 | 1004 | - | - | 1093 | - |
| HCM Lane V/C Ratio | 0.178 | 0.179 | - | - | 0.151 | - |
| HCM Control Delay (s) | 13.7 | 9.4 | - | - | 8.9 | 0 |
| HCM Lane LOS | B | A | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.6 | 0.6 | - | - | 0.5 | - |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 100 | 122 | 136 | 43 | 48 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 0 | 1840 | 1799 | 0 | 1683 | 0 |
| Flt Permitted | | 0.978 | | | 0.983 | |
| Satd. Flow (perm) | 0 | 1840 | 1799 | 0 | 1683 | 0 |
| Link Speed (mph) | | 25 | 35 | | 40 | |
| Link Distance (ft) | | 335 | 459 | | 624 | |
| Travel Time (s) | | 9.1 | 8.9 | | 10.6 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 3% | 0% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 229 | 184 | 0 | 139 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 39.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

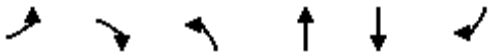
| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 100 | 122 | 136 | 43 | 48 | 87 |
| 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 | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 1 | 1 | 2 | 3 | 0 | 2 |
| Mvmt Flow | 103 | 126 | 140 | 44 | 49 | 90 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 185 | 0 | - | 0 | 494 | 162 |
| Stage 1 | - | - | - | - | 162 | - |
| Stage 2 | - | - | - | - | 332 | - |
| Critical Hdwy | 4.4 | - | - | - | 6.4 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 3.1 | - | - | - | 3 | 3.2 |
| Pot Cap-1 Maneuver | 1002 | - | - | - | 608 | 913 |
| Stage 1 | - | - | - | - | 1006 | - |
| Stage 2 | - | - | - | - | 835 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1002 | - | - | - | 541 | 913 |
| Mov Cap-2 Maneuver | - | - | - | - | 541 | - |
| Stage 1 | - | - | - | - | 1006 | - |
| Stage 2 | - | - | - | - | 742 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.1 | 0 | 11 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1002 | - | - | - | 734 |
| HCM Lane V/C Ratio | 0.103 | - | - | - | 0.19 |
| HCM Control Delay (s) | 9 | 0 | - | - | 11 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 0.7 |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 5 | 29 | 23 | 121 | 106 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 1770 | 1583 | 0 | 1818 | 1853 | 0 |
| Flt Permitted | 0.950 | | | 0.992 | | |
| Satd. Flow (perm) | 1770 | 1583 | 0 | 1818 | 1853 | 0 |
| Link Speed (mph) | 30 | | | 30 | 40 | |
| Link Distance (ft) | 376 | | | 624 | 275 | |
| Travel Time (s) | 8.5 | | | 14.2 | 4.7 | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 4% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 5 | 30 | 0 | 149 | 113 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 24.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

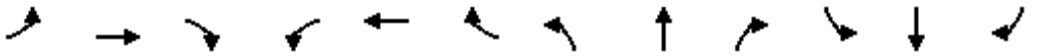
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Vol, veh/h | 5 | 29 | 23 | 121 | 106 | 4 |
| 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 | 0 | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 4 | 2 | 2 |
| Mvmt Flow | 5 | 30 | 24 | 125 | 109 | 4 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 283 | 111 | 113 | 0 | - | 0 |
| Stage 1 | 111 | - | - | - | - | - |
| Stage 2 | 172 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.3 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3 | 3.1 | 3 | - | - | - |
| Pot Cap-1 Maneuver | 813 | 1005 | 1099 | - | - | - |
| Stage 1 | 1063 | - | - | - | - | - |
| Stage 2 | 994 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 794 | 1005 | 1099 | - | - | - |
| Mov Cap-2 Maneuver | 794 | - | - | - | - | - |
| Stage 1 | 1063 | - | - | - | - | - |
| Stage 2 | 971 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 8.8 | 1.3 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1099 | - | 794 | 1005 | - | - |
| HCM Lane V/C Ratio | 0.022 | - | 0.006 | 0.03 | - | - |
| HCM Control Delay (s) | 8.3 | 0 | 9.6 | 8.7 | - | - |
| HCM Lane LOS | A | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | 0.1 | - | - |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 6 | 84 | 0 | 3 | 70 | 25 | 2 | 0 | 5 | 23 | 0 | 6 |
| Ideal Flow (vphpl) | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| Grade (%) | | 1% | | | -2% | | | 0% | | | 0% | |
| Satd. Flow (prot) | 0 | 1767 | 0 | 0 | 1714 | 0 | 0 | 1604 | 0 | 0 | 1710 | 1530 |
| Flt Permitted | | 0.996 | | | 0.999 | | | 0.986 | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1767 | 0 | 0 | 1714 | 0 | 0 | 1604 | 0 | 0 | 1710 | 1530 |
| Link Speed (mph) | | 25 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 668 | | | 558 | | | 397 | | | 456 | |
| Travel Time (s) | | 18.2 | | | 12.7 | | | 9.0 | | | 10.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 33% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 98 | 0 | 0 | 106 | 0 | 0 | 7 | 0 | 0 | 25 | 7 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 22.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 6 | 84 | 0 | 3 | 70 | 25 | 2 | 0 | 5 | 23 | 0 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 1 | - | - | -2 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 1 | 0 | 33 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 7 | 91 | 0 | 3 | 76 | 27 | 2 | 0 | 5 | 25 | 0 | 7 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 103 | 0 | 0 | 91 | 0 | 0 | 200 | 214 | 91 | 203 | 200 | 90 |
| Stage 1 | - | - | - | - | - | - | 104 | 104 | - | 96 | 96 | - |
| Stage 2 | - | - | - | - | - | - | 96 | 110 | - | 107 | 104 | - |
| Critical Hdwy | 4.3 | - | - | 4.6 | - | - | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.1 | 5.5 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 3 | - | - | 3.3 | - | - | 3 | 4 | 3.1 | 3 | 4 | 3.1 |
| Pot Cap-1 Maneuver | 1107 | - | - | 1012 | - | - | 878 | 687 | 1032 | 874 | 699 | 1034 |
| Stage 1 | - | - | - | - | - | - | 1050 | 813 | - | 1061 | 819 | - |
| Stage 2 | - | - | - | - | - | - | 1061 | 808 | - | 1046 | 813 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1107 | - | - | 1012 | - | - | 866 | 680 | 1032 | 863 | 692 | 1034 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 866 | 680 | - | 863 | 692 | - |
| Stage 1 | - | - | - | - | - | - | 1043 | 807 | - | 1054 | 817 | - |
| Stage 2 | - | - | - | - | - | - | 1051 | 806 | - | 1033 | 807 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.6 | 0.3 | 8.7 | 9.1 |
| HCM LOS | | | A | A |

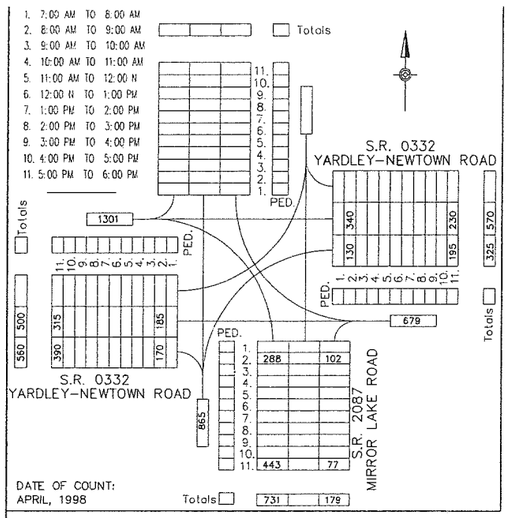
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 978 | 1107 | - | - | 1012 | - | - | 863 | 1034 |
| HCM Lane V/C Ratio | 0.008 | 0.006 | - | - | 0.003 | - | - | 0.029 | 0.006 |
| HCM Control Delay (s) | 8.7 | 8.3 | 0 | - | 8.6 | 0 | - | 9.3 | 8.5 |
| HCM Lane LOS | A | A | A | - | A | A | - | A | A |
| HCM 95th %tile Q(veh) | 0 | 0 | - | - | 0 | - | - | 0.1 | 0 |

# *APPENDIX D:*

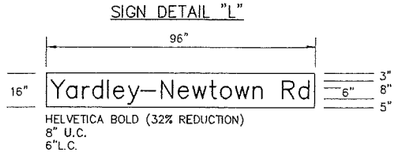
## *Traffic Signal Diagrams*

*Yardley Newtown Road (S.R. 0332) &*
*Mirror Lake Road (S.R. 2087)*

LOWER MAKEFIELD TWP #

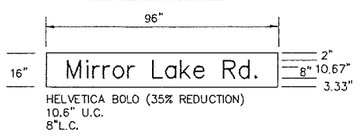



SIGN DETAIL "L"




HELVETICA BOLD (32% REDUCTION)
8" U.C.
6"L.C.

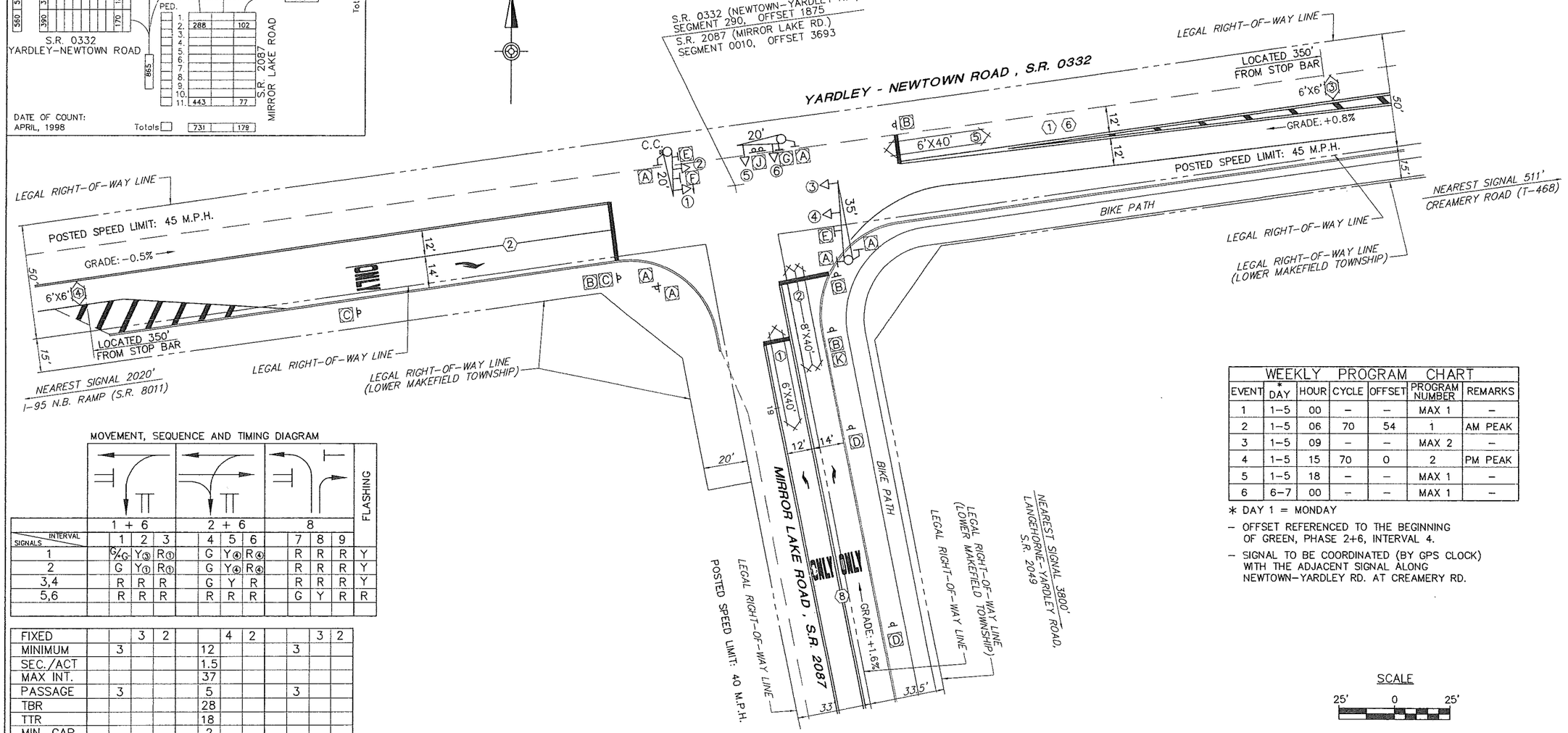
SIGN DETAIL "E"




HELVETICA BOLD (35% REDUCTION)
10.6" U.C.
8"L.C.

SIGN TABULATION

| PLAN | SERIES | SIZE | REMARKS |
|---|---|---|---|
| A | R9-3 | 9"X12" | NO PEDESTRIAN CROSSING |
| B | R10-6L | 24"X30" | STOP HERE ON RED SIGN |
| C | R3-7R | 30"X30" | RIGHT LANE MUST TURN RIGHT SIGN |
| D | R3-8LR | 30"X30" | LANE USE CONTROL SIGN |
| E | D3-4 | 96"X16" | MIRROR LAKE ROAD |
| F | R10-12 | 30"X36" | LEFT TURN YIELD ON GREEN SIGN |
| G | D3-4 | 96"X16" | YARDLEY-NEWTOWN ROAD SIGN |
| J | W1-7 | 48"X24" | LARGE DOUBLE ARROW SIGN |
| K | R10-6-1 | 24"X18" | LEFT LANE SIGN |
| | | | |




MOVEMENT, SEQUENCE AND TIMING DIAGRAM

| INTERVAL / SIGNALS | 1 + 6 | | | 2 + 6 | | | 8 | | | FLASHING |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1 | G/G | Y③ | R① | G | Y④ | R④ | R | R | R | Y |
| 2 | G | Y① | R① | G | Y④ | R④ | R | R | R | Y |
| 3,4 | R | R | R | G | Y | R | R | R | R | Y |
| 5,6 | R | R | R | R | R | R | G | Y | R | R |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| FIXED | | | 3 | 2 | | | 4 | 2 | | 3 | 2 | |
| MINIMUM | 3 | | | | 12 | | | | 3 | | | |
| SEC./ACT | | | | | 1.5 | | | | | | | |
| MAX INT. | | | | | 37 | | | | | | | |
| PASSAGE | 3 | | | | 5 | | | | 3 | | | |
| TBR | | | | | 28 | | | | | | | |
| TTR | | | | | 18 | | | | | | | |
| MIN. GAP | | | | | 2 | | | | | | | |
| MAX | 10 | | | | 41 | | | | 35 | | | |
| MEMORY | NL | | | | MR | | | | NL | | | |
| PROGRAM 1 | 6 | 3 | 2 | | 28 | 4 | 2 | | 20 | 3 | 2 | (70 SEC.) |
| PROGRAM 2 | 6 | 3 | 2 | | 27 | 4 | 2 | | 21 | 3 | 2 | (70 SEC.) |

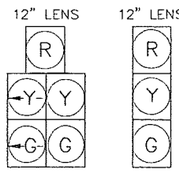
DETECTOR NOTES:

1. DETECTOR 5 CALLS AND EXTENDS PHASE 6.

CONTROLLER NOTES:

1. G IF FOLLOWED BY 2+6.
2. CONTROLLER TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 8.
3. G/Y IF FOLLOWED BY 2+6.

SIGNAL INDICATIONS




WEEKLY PROGRAM CHART

| EVENT | * DAY | HOUR | CYCLE | OFFSET | PROGRAM NUMBER | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 1-5 | 00 | – | – | MAX 1 | – |
| 2 | 1-5 | 06 | 70 | 54 | 1 | AM PEAK |
| 3 | 1-5 | 09 | – | – | MAX 2 | – |
| 4 | 1-5 | 15 | 70 | 0 | 2 | PM PEAK |
| 5 | 1-5 | 18 | – | – | MAX 1 | – |
| 6 | 6-7 | 00 | – | – | MAX 1 | – |

* DAY 1 = MONDAY

– OFFSET REFERENCED TO THE BEGINNING OF GREEN, PHASE 2+6, INTERVAL 4.

– SIGNAL TO BE COORDINATED (BY GPS CLOCK) WITH THE ADJACENT SIGNAL ALONG NEWTOWN-YARDLEY RD. AT CREAMERY RD.

SCALE

25' 0 25'

LEGEND

- 20' MAST ARM/ IDENTIFYING LENGTH
- ② VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- ② PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSH BUTTON/ SIGN
- 8'x6' LOOP SENSOR/SIZE
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- C.R. CURB RAMP

## GENERAL NOTE

ND MODIFICATIONS OF THIS INSTALLATION ARE PE PRIOR APPROVAL IS GRANTED IN WRITING BY A REI THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ARE CONSIDERED PART OF THE PERMIT AND SHALL AND MAINTAINED IN ACCORDANCE WITH PUBLICATIOI

POST MOUNTED SIGNALS SHALL BE INSTALLED WI HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF EDGE OF THE SHOULDER. SUPPORT POLES FOR OV SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZON

SIGNALS ERECTED OVER THE ROADWAY SHALL HA VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADV MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNT BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SI AT RIGHT ANGLES TO THE APPROACH SHALL BE B

EXACT LOCATION OF DETECTORS SHALL BE DETEI INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND SHALL BE PLAIN CEMENT CONCRETE CURB OR GRAI INSTALLED IN ACCORDANCE WITH DEPARTMENT SPEC FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL THE LOCAL OFFICIALS AND UTILITY COMPANIES TO F PROBLEMS WHICH MAY BE CREATED DUE TO THE L UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUC UNLESS THE PERMITTEE COMPLIES WITH THE PROVIS ACT 199, PREVENTION OF DAMAGE TO UNDERGROUN EFFECTIVE DATE NOVEMBER 30, 1999.

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PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANC ANY CHANGES IN INTERSECTION GEOMETRY REGARDI

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LES OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, OR JACKED UNDER THE ROADWAY. INSTALL IN ACC TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

PENNSYLVANIA DEPARTMENT OF TRAI
ENGINEERING DISTRICT 6-

COUNTY: BUCKS

MUNICIPALITY: LOWER MAKEFIE

INTERSECTION: YARDLEY-NEWTOWN (SR 0332) & MIRROR LAKE RD

REVIEWED:

MUNICIPAL OFFICIAL

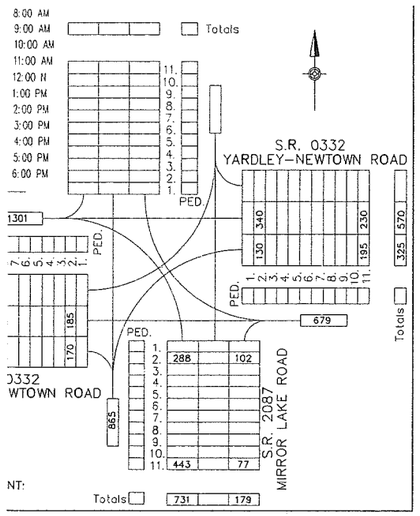
RECOMMENDED:

MARK L. KRAY

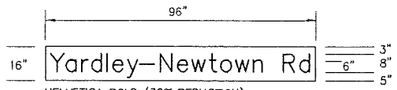
DOUGLAS W. MAY
DISTRICT TRAFFIC ENGINEER

| NO. | REVISION | DES./ REVW. | DATE | REVW. |
|---|---|---|---|---|
| 1 | Coordination w/Creamery Road Signal | PCS DJD | 4/06 4/06 | MLK |

POWER MAKEFIELD TWP #2495

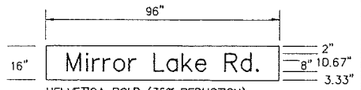



SIGN DETAIL "L"




HELVETICA BOLD (32% REDUCTION)
8" U.C.
6"L.C.

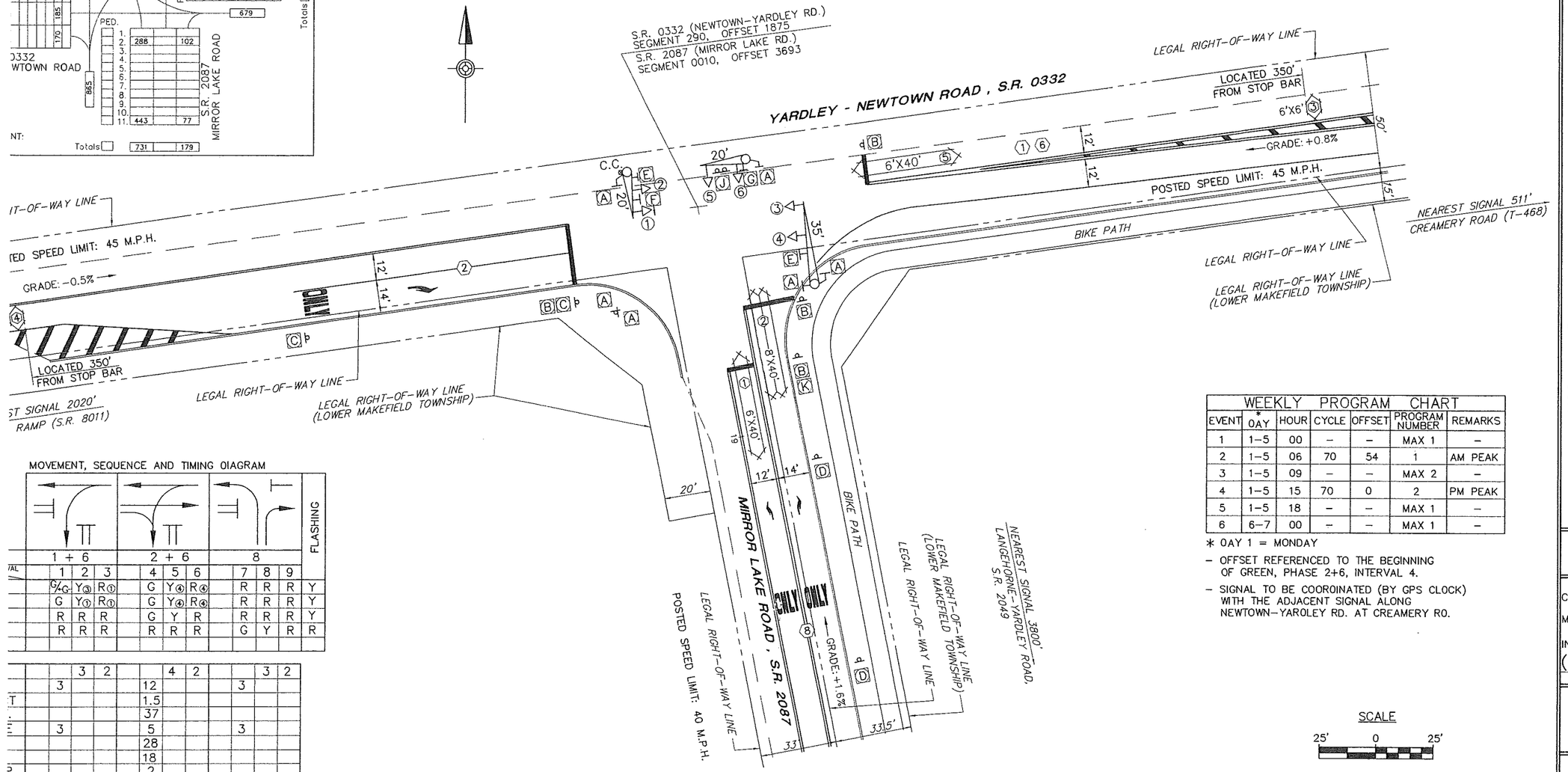
SIGN DETAIL "E"




HELVETICA BOLD (35% REDUCTION)
10.6" U.C.
8"L.C.

SIGN TABULATION

| PLAN | SERIES | SIZE | REMARKS |
|---|---|---|---|
| A | R9-3 | 9"X12" | NO PEDESTRIAN CROSSING |
| B | R10-6L | 24"X30" | STOP HERE ON RED SIGN |
| C | R3-7R | 30"X30" | RIGHT LANE MUST TURN RIGHT SIGN |
| D | R3-8LR | 30"X30" | LANE USE CONTROL SIGN |
| E | D3-4 | 96"X16" | MIRROR LAKE ROAD |
| F | R10-12 | 30"X36" | LEFT TURN YIELD ON GREEN SIGN |
| G | D3-4 | 96"X16" | YARDLEY-NEWTOWN ROAD SIGN |
| J | W1-7 | 48"X24" | LARGE DOUBLE ARROW SIGN |
| K | R10-6-1 | 24"X18" | LEFT LANE SIGN |
| | | | |




MOVEMENT, SEQUENCE AND TIMING DIAGRAM

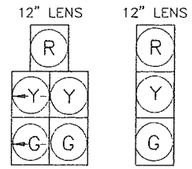
| | 1 + 6 | | | 2 + 6 | | | 8 | | | FLASHING |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | G/Y | Y③ | R① | G | Y④ | R④ | R | R | R | Y |
| | G | Y① | R① | G | Y④ | R④ | R | R | R | Y |
| | R | R | R | G | Y | R | R | R | R | Y |
| | R | R | R | R | R | R | G | Y | R | R |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 3 | 2 | | | 4 | 2 | | | 3 | 2 | |
| T | | 3 | | | | 12 | | | | 3 | | | |
| | | | | | | 1.5 | | | | | | | |
| | | | | | | 37 | | | | | | | |
| | | 3 | | | | 5 | | | | 3 | | | |
| | | | | | | 28 | | | | | | | |
| | | | | | | 18 | | | | | | | |
| D | | | | | | 2 | | | | | | | |
| | | 10 | | | | 41 | | | | 35 | | | |
| | | NL | | | | MR | | | | NL | | | |
| 1 | | 6 | 3 | 2 | | 28 | 4 | 2 | | 20 | 3 | 2 | (70 SEC.) |
| 2 | | 6 | 3 | 2 | | 27 | 4 | 2 | | 21 | 3 | 2 | (70 SEC.) |

R NOTES:
TOR 5 CALLS AND EXTENDS PHASE 6.

LER NOTES:
FOLLOWED BY 2+6.
ROLLER TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 8.
OF FOLLOWED BY 2+6.
OLLOWED BY 6.

SIGNAL INDICATIONS




SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS 1,2,3,4,5,6

WEEKLY PROGRAM CHART

| EVENT | *OAY | HOUR | CYCLE | OFFSET | PROGRAM NUMBER | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 1-5 | 00 | - | - | MAX 1 | - |
| 2 | 1-5 | 06 | 70 | 54 | 1 | AM PEAK |
| 3 | 1-5 | 09 | - | - | MAX 2 | - |
| 4 | 1-5 | 15 | 70 | 0 | 2 | PM PEAK |
| 5 | 1-5 | 18 | - | - | MAX 1 | - |
| 6 | 6-7 | 00 | - | - | MAX 1 | - |

* OAY 1 = MONDAY
- OFFSET REFERENCED TO THE BEGINNING OF GREEN, PHASE 2+6, INTERVAL 4.
- SIGNAL TO BE COORDINATED (BY GPS CLOCK) WITH THE ADJACENT SIGNAL ALONG NEWTOWN-YAROLEY RD. AT CREAMERY RO.

SCALE




LEGEND

- 20' MAST ARM/ IDENTIFYING LENGTH
- (2) VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- (2) PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSH BUTTON/ SIGN
- (8'x6') LOOP SENSOR/SIZE
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- C.R. CURB RAMP
- (2) PHASE NUMBER

# GENERAL NOTES

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ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 68.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

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CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS
MUNICIPALITY: LOWER MAKEFIELD TWP.
INTERSECTION: YARDLEY-NEWTOWN RD.
(SR 0332) & MIRROR LAKE RD.(SR 2087)

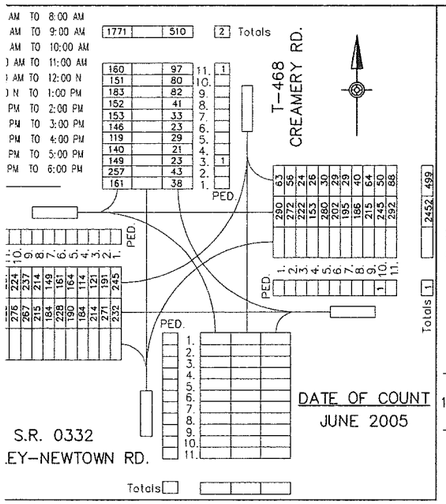
REVIEWED:
MUNICIPAL OFFICIAL — DATE 7/5/06

RECOMMENDED:
MARK L. KRAY — DATE 3-2-99
DOUGLAS W. MAY — DATE 3-5-99
DISTRICT TRAFFIC ENGINEER

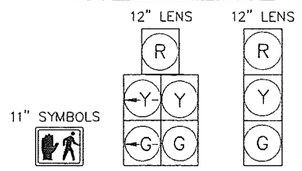
| NO. | REVISION | DES./ REVW. | DATE | REVW. | DATE | RECOM. | DATE |
|---|---|---|---|---|---|---|---|
| 1 | Coordination w/Creamery Road Signal | PCS GTD | 4/06 4/06 | MLL | 7/5/06 | LBB | 8/3/06 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

## *Yardley Newtown Road (S.R. 0332) & Creamery Road*

LOWER MAKEFIELD PERMIT # 3562



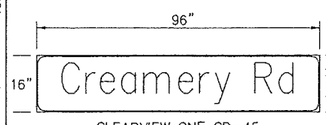

## SIGNAL INDICATIONS




SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS ____

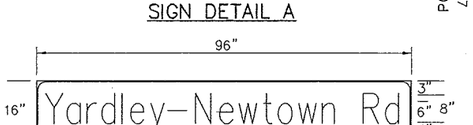
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS AND LOUVERS ____

## SIGN DETAIL B

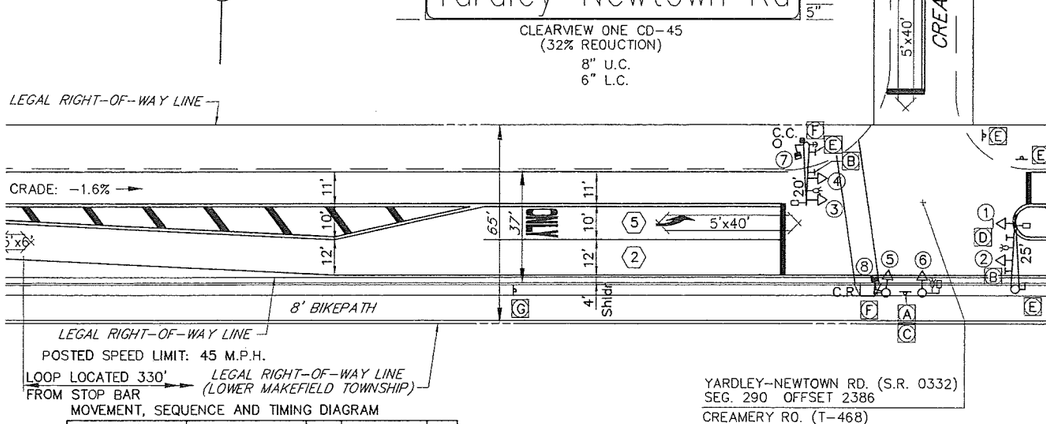



CLEARVIEW ONE CD-45
(16% REDUCTION)
10.6" U.C.
8" L.C.

## SIGN DETAIL A




CLEARVIEW ONE CD-45
(32% REDUCTION)
8" U.C.
6" L.C.




YARDLEY-NEWTOWN RD. (S.R. 0332)
SEG. 290 OFFSET 2386
CREAMERY RD. (T-468)

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

| PHASE | 2+5 | | | | 2+6 | | | | 4 | | | | FLASHING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTERVAL | 1 | 2 | 3 | | 4 | 5 | 6 | | 7 | 8 | 9 | 10 | |
| 1 | G | Y④ | R① | | G | Y④ | R④ | | R | R | R | R | Y |
| 2 | G | Y① | R① | | G | Y④ | R④ | | R | R | R | R | Y |
| 3,4 | R | R | R | | G | Y | R | | R | R | R | R | Y |
| 5,6 | R | R | R | | R | R | R | | G | G | Y | R | R |
| 7,8 | H | H | H | | H | H | H | | M | FH | H | H | OFF |
| FIXED | | | 3 | 2 | | | 4 | 2 | | | 3 | 2 | |
| MINIMUM | 3 | | | | 15 | | | | 3 | | | | |
| ACT | | | | | 2 | | | | | | | | |
| INT | | | | | 35 | | | | | | | | |
| GAGE | 3 | | | | 5 | | | | 3 | | | | |
| BR | | | | | 35 | | | | | | | | |
| TR | | | | | 10 | | | | | | | | |
| GAP | | | | | 2.7 | | | | | | | | |
| X 1 | 3 | | | | 45 | | | | 17 | | | | |
| STRIAN** | | | | | | | | | 9 | 8 | | | |
| MORY | NL | | | | MR | | | | NL | | | | |
| RAM 1 | 10 | 3 | 2 | | 24 | 4 | 2 | | 20 | | 3 | 2 | (70 SEC.) |
| RAM 2 | 11 | 3 | 2 | | 26 | 4 | 2 | | 17 | | 3 | 2 | (70 SEC.) |

ON PEDESTRIAN ACTUATION ONLY
IF FOLLOWED BY 2+6
ONTROLLER TO OWELL IN PHASE 2+6
TH ACTUATED BY PHASE 4
③ C/-Y- IF FOLLOWED BY 2+6
④ G IF FOLLOWED BY 2+5

## EMERGENCY PRE-EMPTION PHASING

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

| PHASE | 2+5 | | | | 6 | | | | 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTERVAL / SIGNAL | 11 | 12 | 13 | | 14 | 15 | 16 | | 17 | 18 | 19 | |
| 1 | G | Y⑨ | R⑨ | | R | R | R | | R | R | R | |
| 2 | G | Y⑨ | R⑨ | | R | R | R | | R | R | R | |
| 3,4 | R | R | R | | G | Y⑨ | R | | R | R | R | |
| 5,6 | R | R | R | | R | R | R | | C | Y | R | |
| 7,8 | H | H | H | | H | H | H | | H | H | H | |
| FIXED TIME | | * | 3 | 2 | | * | 4 | 2 | | * | 3 | 2 |

* FOR DURATION OF PRE-EMPTION

* NOTE: IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERCENCY PRE-EMPTION.

ⓐ -Y-/G WHEN RETURNINC TO PHASE 2+6.

(b) C IF FOLLOWED BY PHASE 2+6.

## SIGN TABULATION

| PLAN SYMBOL | SERIES NUMBER | SIZE | REMARKS |
|---|---|---|---|
| A | D3-4 | 96"X16" | YARDLEY-NEWTOWN RD (SEE SIGN DETAIL A) |
| B | D3-4 | 96"X16" | CREAMERY RD (SEE SIGN DETAIL B) |
| C | W1-7 | 48"X24" | LARGE DOUBLE YELLOW SIGN |
| 0 | R10-12 | 30"X36" | LEFT TURN YIELO ON GREEN SIGN |
| E | R9-3 | 18"X18" | NO PEDESTRIAN CROSSING SIGN |
| F | R10-3BL | 9"X12" | EDUCATIONAL PUSH BUTTON SIGN (LEFT) |
| G | R3-7L | 30"X30" | LEFT LANE MUST TURN LEFT |

## WEEKLY PROGRAM CHART

| EVENT | DAY * | HOUR | CYCLE | OFFSET | PROGRAM NUMBER | REMARKS |
|---|---|---|---|---|---|---|
| 1 | 1-5 | 00 | - | - | MAX 1 | - |
| 2 | 1-5 | 06 | 70 | 64 | 1 | AM PEAK |
| 3 | 1-5 | 09 | - | - | MAX 1 | - |
| 4 | 1-5 | 15 | 70 | 22 | 2 | PM PEAK |
| 5 | 1-5 | 18 | - | - | MAX 1 | - |
| 6 | 6-7 | 00 | - | - | MAX 1 | - |

* DAY 1 = MONDAY

- OFFSET REFERENCED TO THE START OF INTERVAL 4.
- SIGNAL TO BE COORDINATED (BY GPS CLOCK) WITH THE ADJACENT SIGNAL ALONG YAROLEY-NEWTOWN ROAD AT MIRROR LAKE ROAD.

## EMERGENCY PRE-EMPTION NOTES

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND AND WESTBOUND APPROACHES OF YARDLEY-NEWTOWN ROAD AND THE SOUTHBOUND APPROACH OF CREAMERY ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION. THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.

THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY, THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.

THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES SHALL TIME OUT ALL YELLOW AND REO INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNAL HAS BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS PRE-EMPTED DURING THE "MAN" INTERVAL, THE MAN INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "FLASHING HAND" INDICATION IN ITS ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.

UPON COMPLETION OF PRE-EMPTION, PHASE 2+5, 4 OR 6 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.

IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

SCALE
25' 0 25'

LEGEND

- 20' MAST ARM/ IDENTIFYING LENGTH
- (8'x6') LOOP SENSOR/SIZE
- (2) VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- (2) PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- EMERGENCY PRE-EMPTION DEVICE
- PEDESTRIAN PUSH BUTTON/ SIGN
- C.R. CURB RAMP
- (A) SIGN/IDENTIFYING LETTER
- (2) PHASE NUMBER

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ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 6B.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF B FT. ABDVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP ANO BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE B FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CDNCRETE CURB DR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PRDBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

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CDNDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN S YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BOREO OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS
MUNICIPALITY: LOWER MAKEFIELD TWP.
INTERSECTION: YARDLEY-NEWTOWN ROAD
(S.R. 0332) & CREAMERY ROAD (T-468)

REVIEWED:
MUNICIPAL OFFICIAL — DATE 7/5/06
RECOMMENDED — DATE 7/25/06
DISTRICT TRAFFIC ENGINEER — DATE 8/3/06

| NO. | REVISION | DES./ REVW. | DATE | REVW. | DATE | RECOM. | DATE |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

SHEET 2 OF 2 | PERMIT # 61-3562 | FILE # 3562

# APPENDIX E:

## Auxiliary Turn Lane Warrants

# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Dolington Road & Site Driveway NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 1 | 2.0% | 2 |
| | Through | - | 92 | 2.0% | 95 |
| | Right | Yes | | | 0 |
| Opposing | Left | Yes | | | 0 |
| | Through | - | 127 | 2.0% | 131 |
| | Right | Yes | 0 | 2.0% | 0 |

| | |
|---|---|
| **Advancing Volume:** | 97 |
| **Opposing Volume:** | 131 |
| **Left Turn Volume:** | 2 |
| **% Left Turns in Advancing Volume:** | 2.06% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 2 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

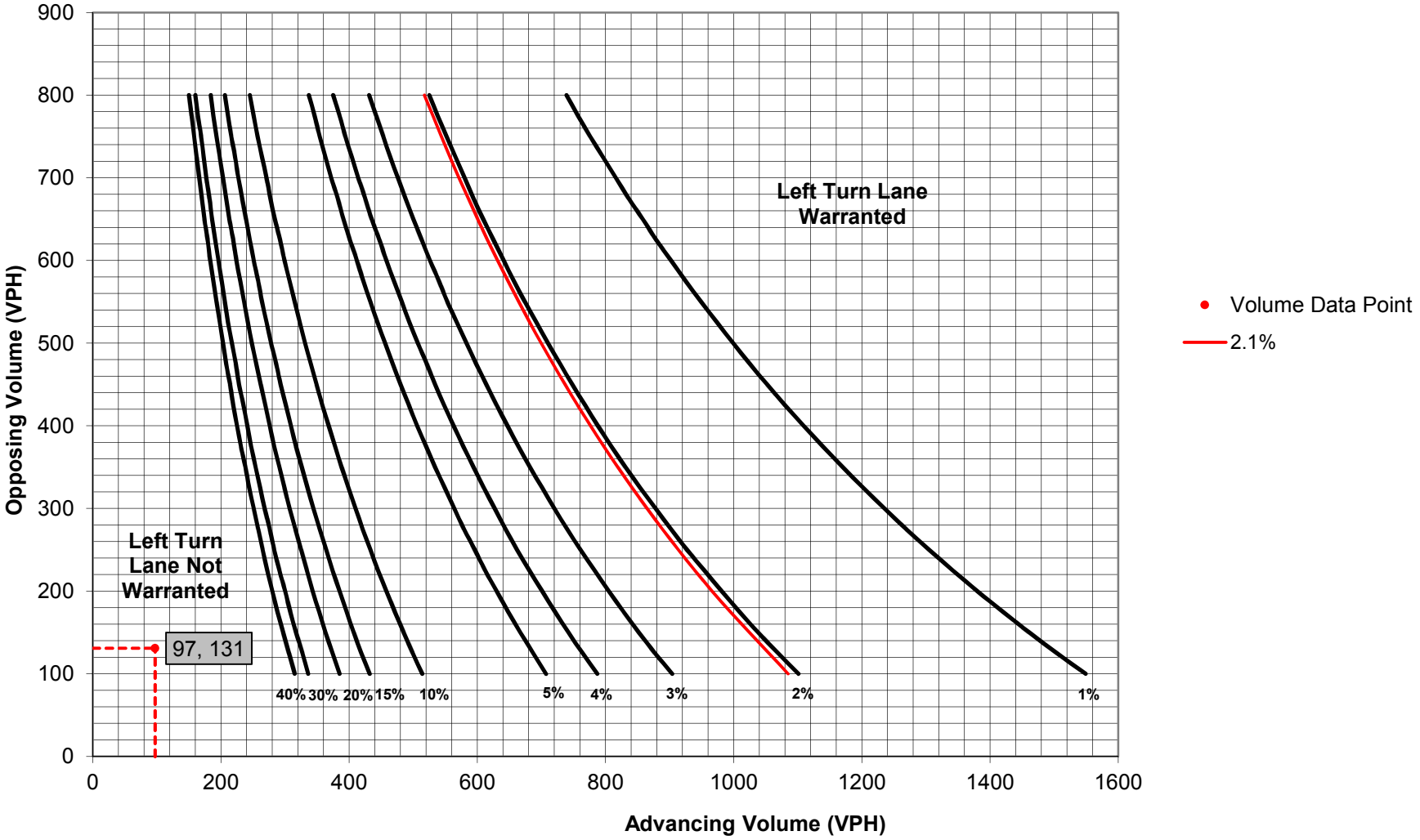
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Dolington Road & Site Driveway NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 17 | 2.0% | 18 |
| | Through | - | 168 | 5.0% | 181 |
| | Right | Yes | | | 0 |
| Opposing | Left | Yes | | | 0 |
| | Through | - | 137 | 7.0% | 152 |
| | Right | Yes | 5 | 2.0% | 6 |

| | |
|---|---|
| **Advancing Volume:** | 199 |
| **Opposing Volume:** | 158 |
| **Left Turn Volume:** | 18 |
| **% Left Turns in Advancing Volume:** | 9.05% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 18 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

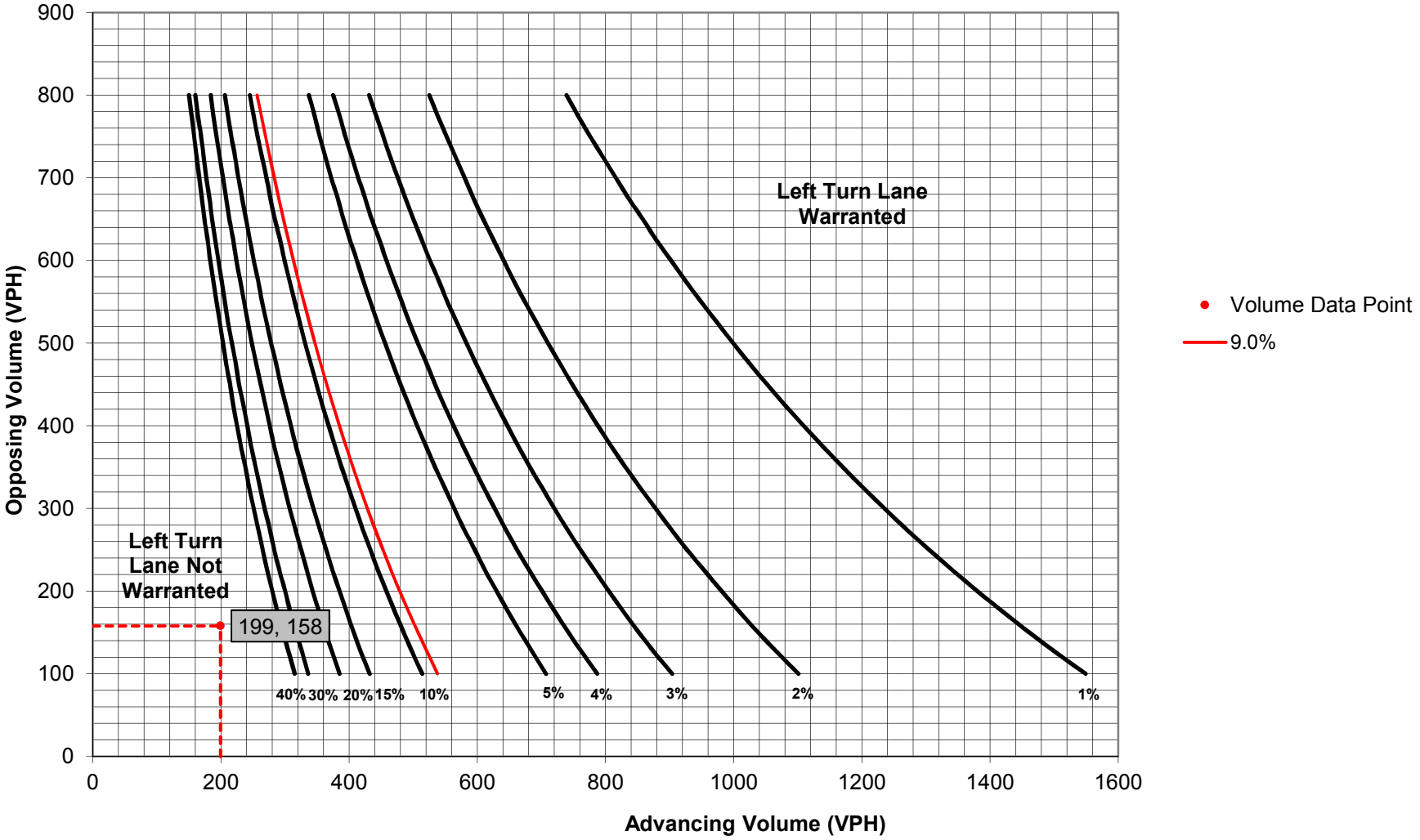
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Dolington Road & Site Driveway NB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | SAT Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 23 | 2.0% | 24 |
| | Through | - | 121 | 4.0% | 129 |
| | Right | Yes | | | 0 |
| Opposing | Left | Yes | | | 0 |
| | Through | - | 106 | 2.0% | 110 |
| | Right | Yes | 4 | 2.0% | 5 |

| | |
|---|---|
| **Advancing Volume:** | 153 |
| **Opposing Volume:** | 115 |
| **Left Turn Volume:** | 24 |
| **% Left Turns in Advancing Volume:** | 15.69% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | N/A |
| | Through | - | | | N/A |
| | Right | - | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 24 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

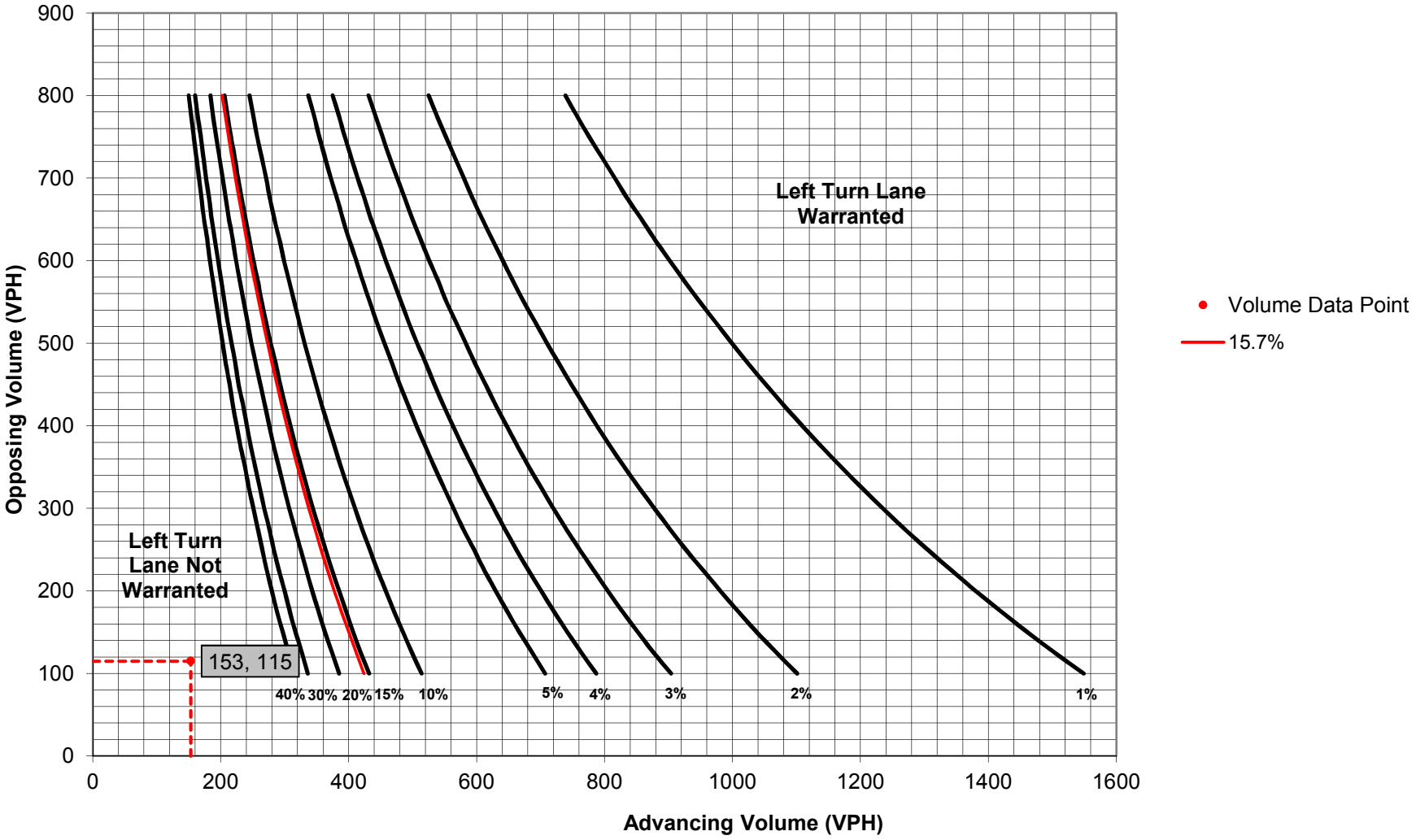
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Dolington Road & Site Driveway SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 17 | 2.0% | N/A |
| | Through | - | 168 | 5.0% | N/A |
| | Right | Yes | | | N/A |
| Opposing | Left | Yes | | | N/A |
| | Through | - | 137 | 7.0% | N/A |
| | Right | Yes | 5 | 2.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | 0 |
| | Through | - | 137 | 7.0% | 152 |
| | Right | - | 5 | 2.0% | 6 |

| | |
|---|---|
| **Advancing Volume:** | 158 |
| **Right Turn Volume:** | 6 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 6 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

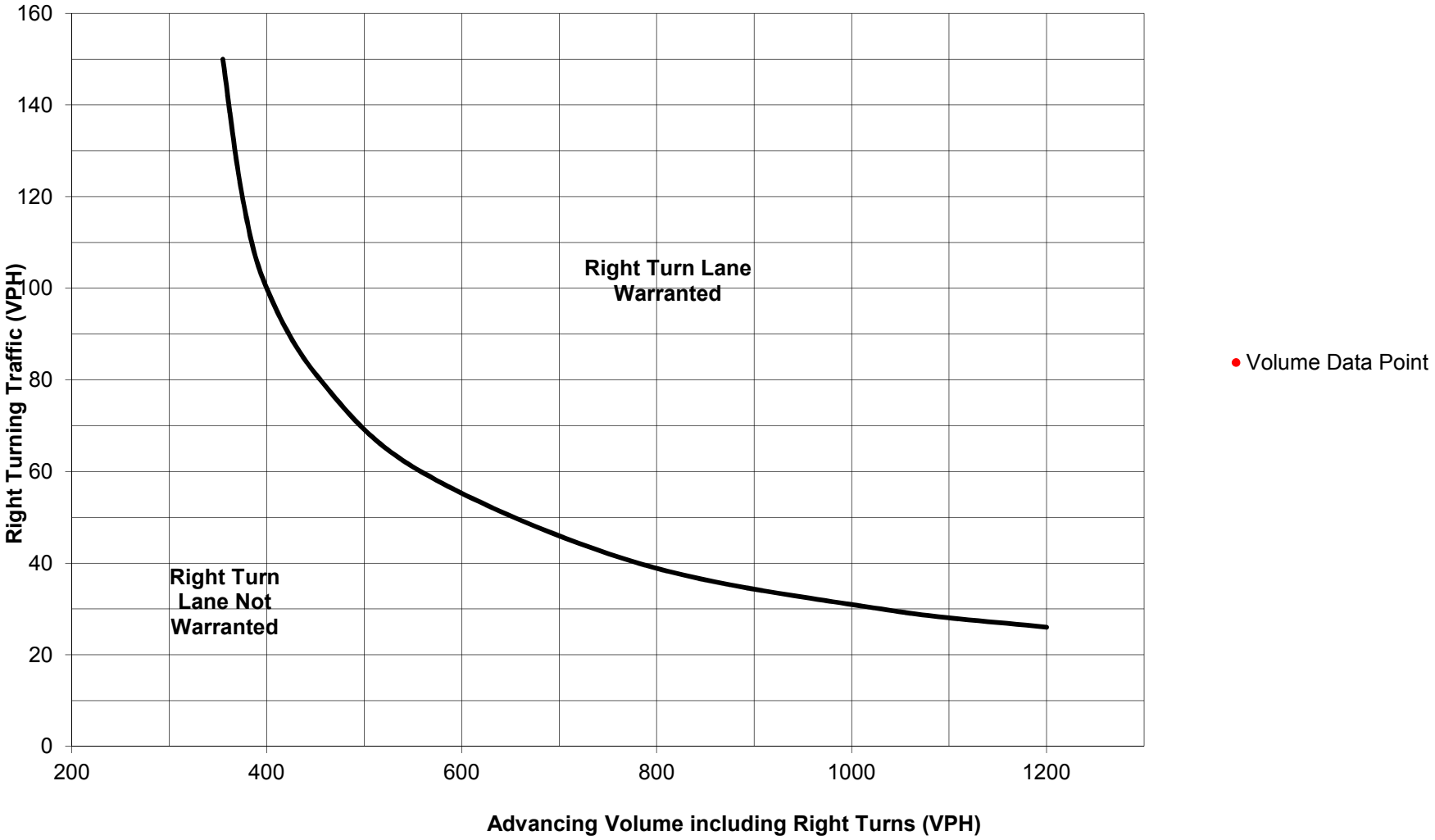
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Dolington Road & Site Driveway SB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | SAT Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 23 | 2.0% | N/A |
| | Through | - | 121 | 4.0% | N/A |
| | Right | Yes | | | N/A |
| Opposing | Left | Yes | | | N/A |
| | Through | - | 106 | 2.0% | N/A |
| | Right | Yes | 4 | 2.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | 0 |
| | Through | - | 106 | 2.0% | 110 |
| | Right | - | 4 | 2.0% | 5 |

| | |
|---|---|
| **Advancing Volume:** | 115 |
| **Right Turn Volume:** | 5 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 5 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

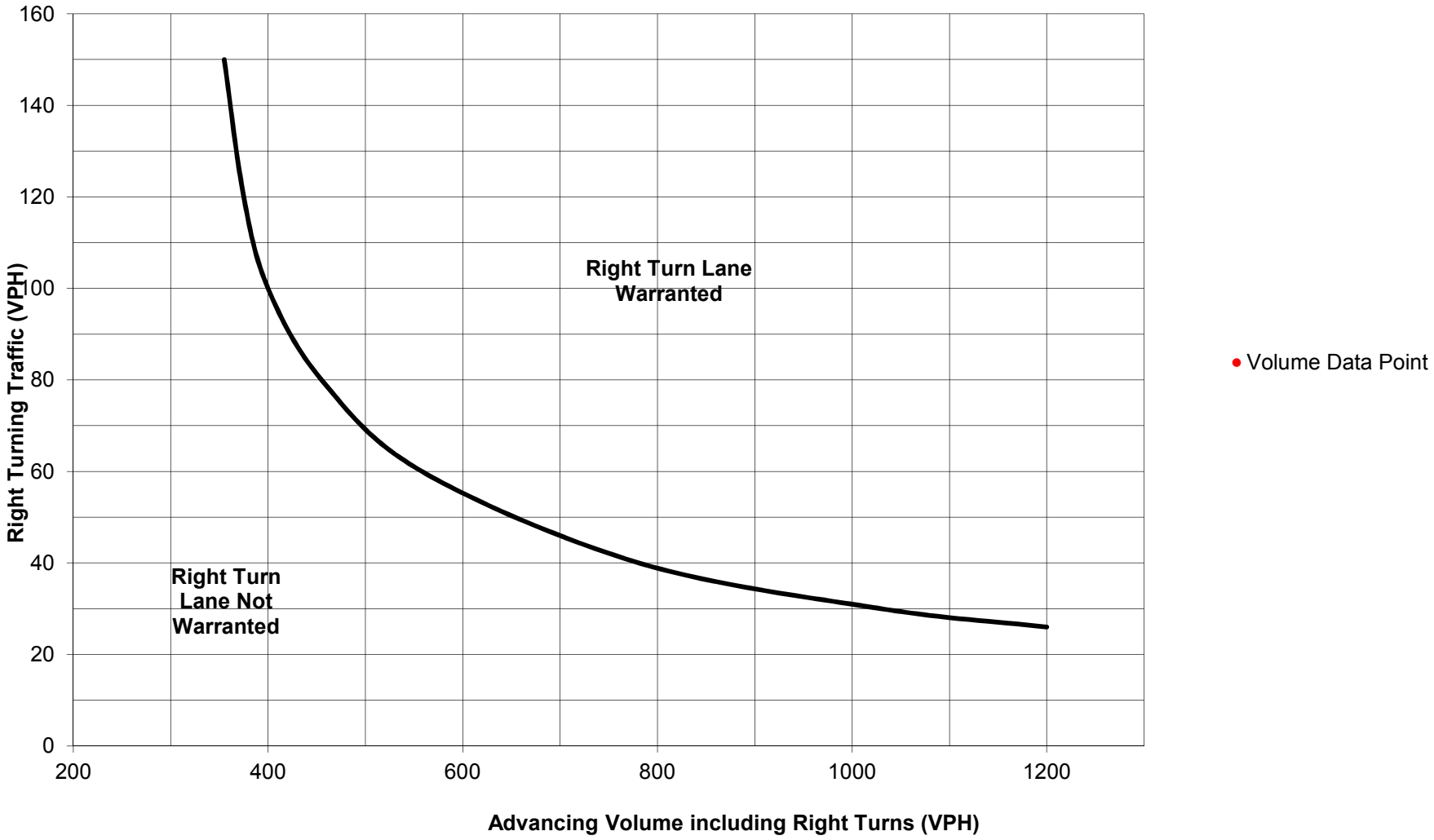
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 11/22/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Quarry Road & Site Driveway WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | AM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 30 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | | | N/A |
| | Through | - | | | N/A |
| | Right | Yes | | | N/A |
| Opposing | Left | Yes | | | N/A |
| | Through | - | | | N/A |
| | Right | Yes | | | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 129 | 8.0% | 145 |
| | Through | - | 141 | 9.0% | 161 |
| | Right | - | 2 | 0.0% | 2 |

| | |
|---|---|
| **Advancing Volume:** | 308 |
| **Right Turn Volume:** | 2 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 2 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

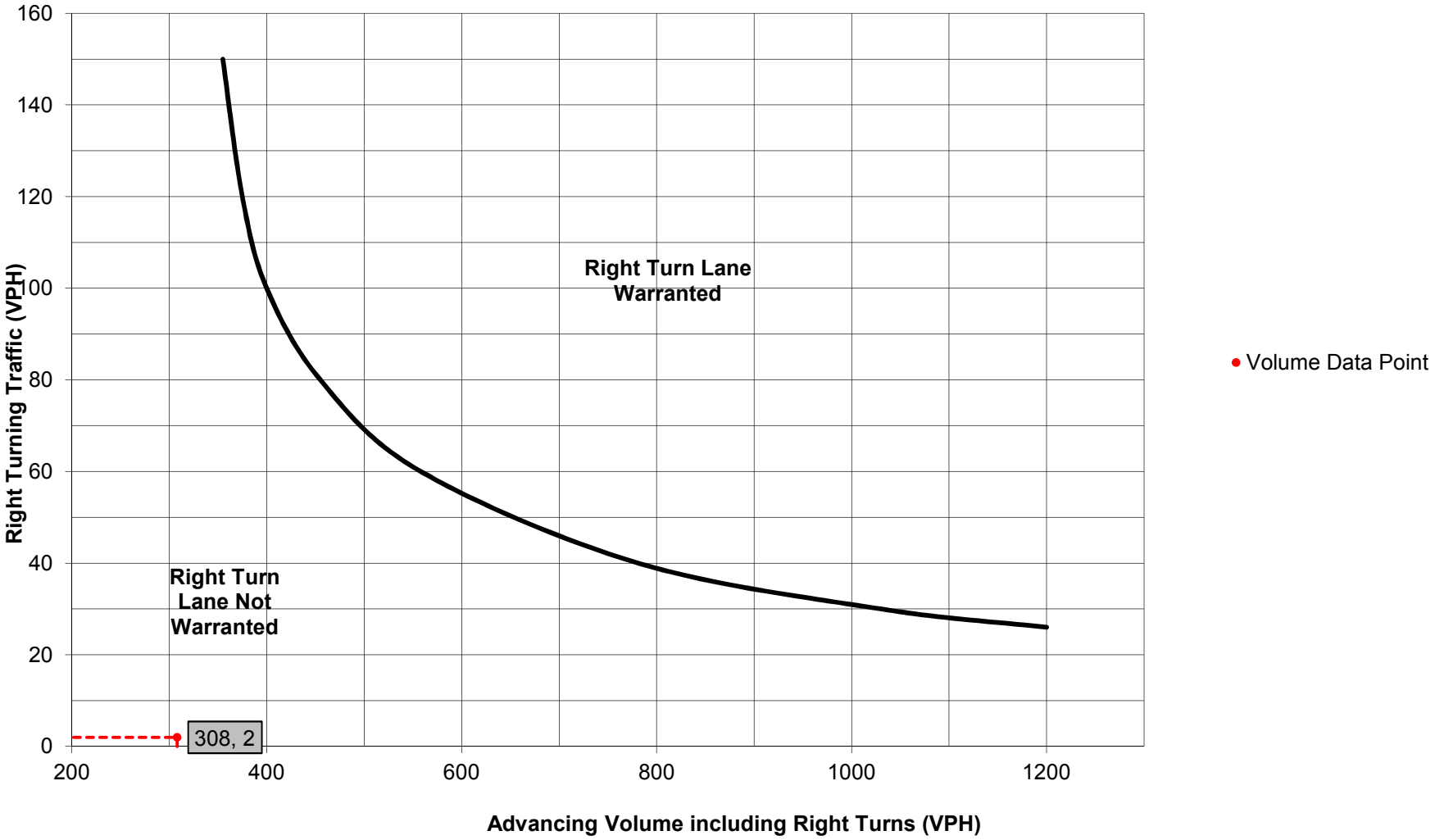
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Quarry Road & Site Driveway EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 5 | 0.0% | 5 |
| | Through | - | 220 | 1.0% | 224 |
| | Right | Yes | 3 | 0.0% | 3 |
| Opposing | Left | Yes | 36 | 3.0% | 38 |
| | Through | - | 188 | 1.0% | 191 |
| | Right | Yes | 21 | 0.0% | 21 |

| | |
|---|---|
| **Advancing Volume:** | 232 |
| **Opposing Volume:** | 250 |
| **Left Turn Volume:** | 5 |
| **% Left Turns in Advancing Volume:** | 2.16% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 36 | 3.0% | N/A |
| | Through | - | 188 | 1.0% | N/A |
| | Right | - | 21 | 0.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 2

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 5 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

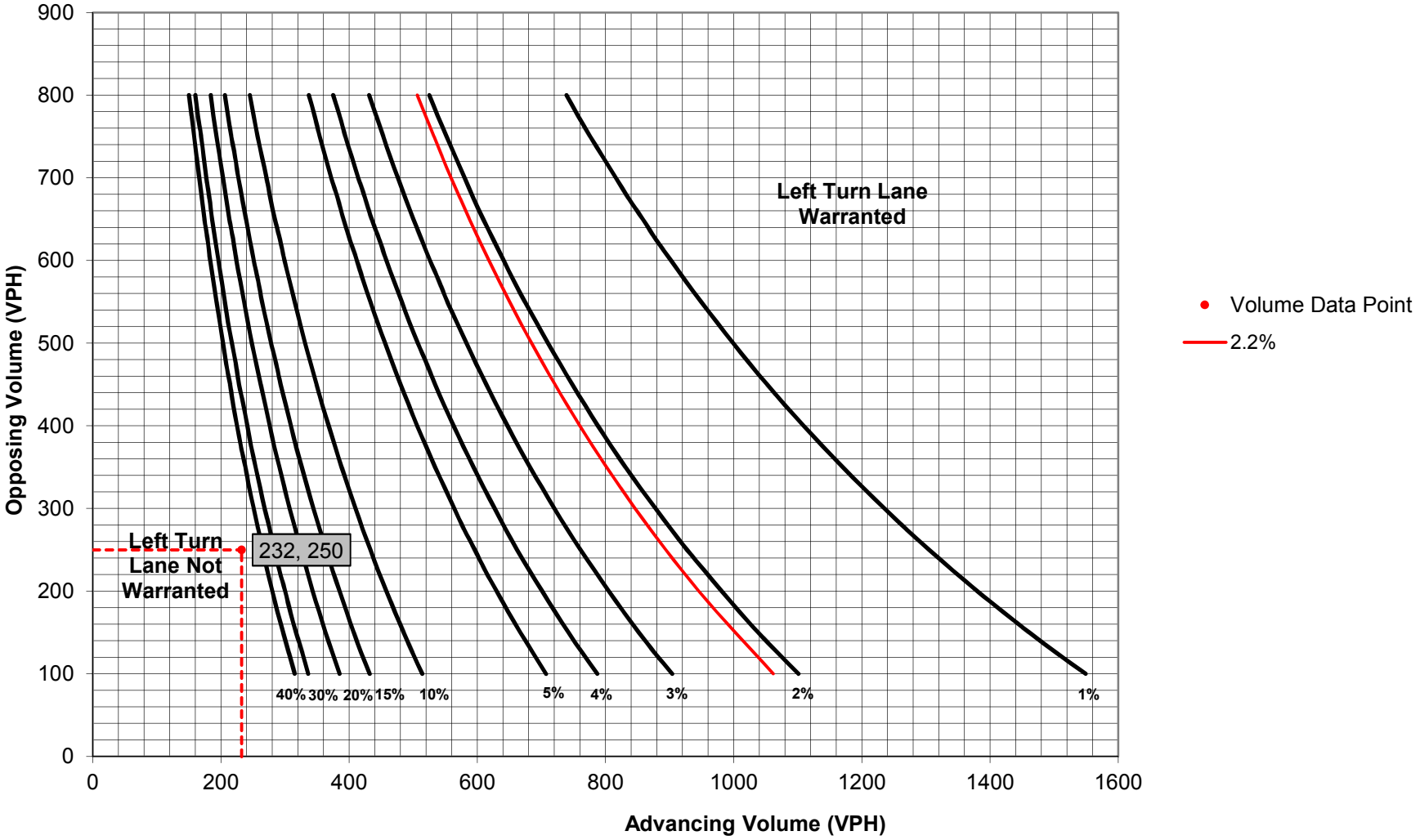
| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)**

(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 8/24/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Quarry Road & Site Driveway WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | PM Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 40 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 5 | 0.0% | N/A |
| | Through | - | 220 | 1.0% | N/A |
| | Right | Yes | 3 | 0.0% | N/A |
| Opposing | Left | Yes | 36 | 3.0% | N/A |
| | Through | - | 188 | 1.0% | N/A |
| | Right | Yes | 21 | 0.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 36 | 3.0% | 38 |
| | Through | - | 188 | 1.0% | 191 |
| | Right | - | 21 | 0.0% | 21 |

| | |
|---|---|
| **Advancing Volume:** | 250 |
| **Right Turn Volume:** | 21 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 21 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

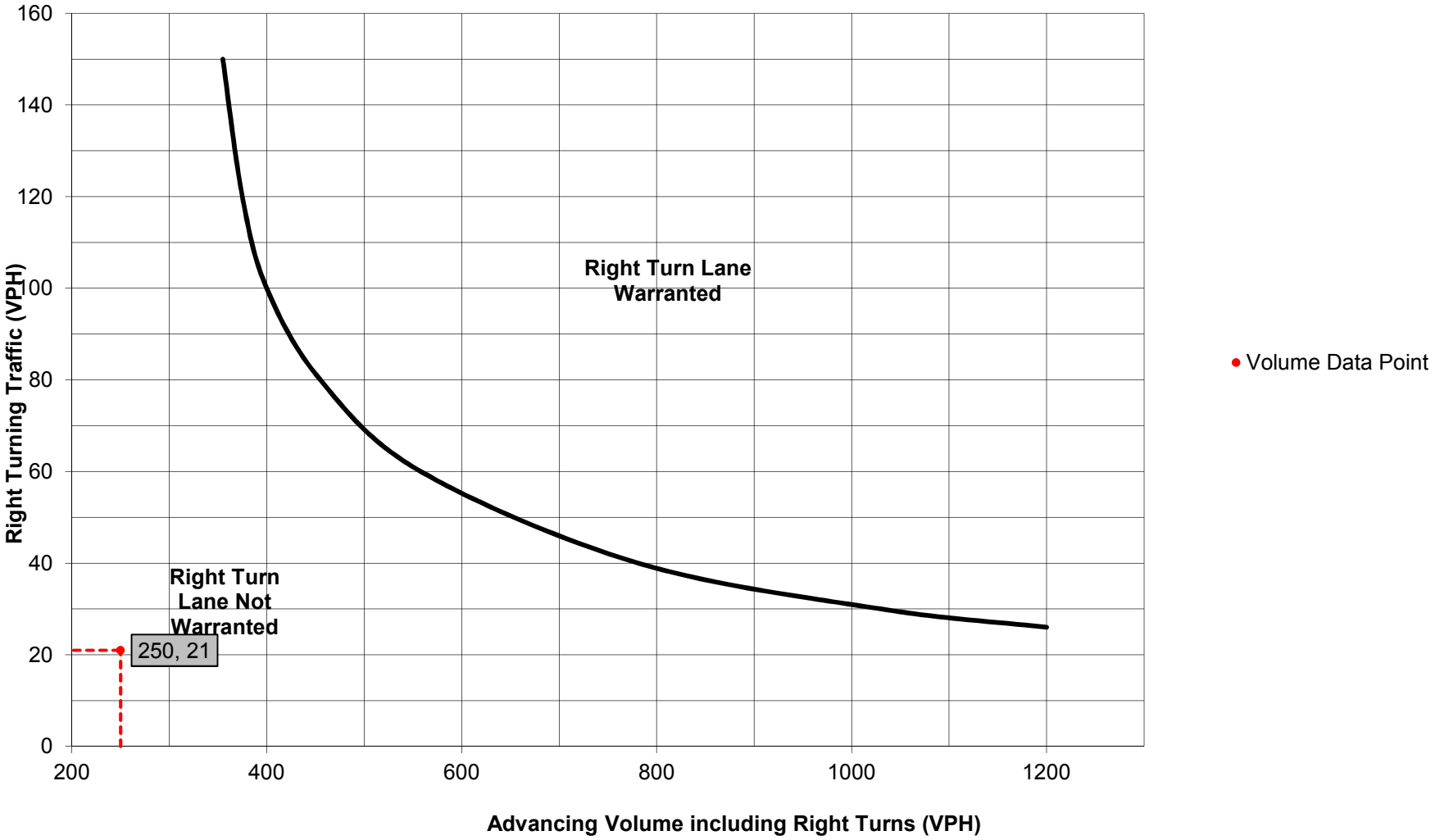
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 11/22/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Quarry Road & Site Driveway EB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | SAT Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 25 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Left Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | 6 |
| | Through | - | 84 | 1.0% | 86 |
| | Right | Yes | 0 | 0.0% | 0 |
| Opposing | Left | Yes | 3 | 33.0% | 5 |
| | Through | - | 70 | 2.0% | 73 |
| | Right | Yes | 25 | 0.0% | 25 |

| | |
|---|---|
| **Advancing Volume:** | 92 |
| **Opposing Volume:** | 103 |
| **Left Turn Volume:** | 6 |
| **% Left Turns in Advancing Volume:** | 6.52% |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 3 | 33.0% | N/A |
| | Through | - | 70 | 2.0% | N/A |
| | Right | - | 25 | 0.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Right Turn Volume:** | N/A |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 1

**Warrant Met?:** No

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 6 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

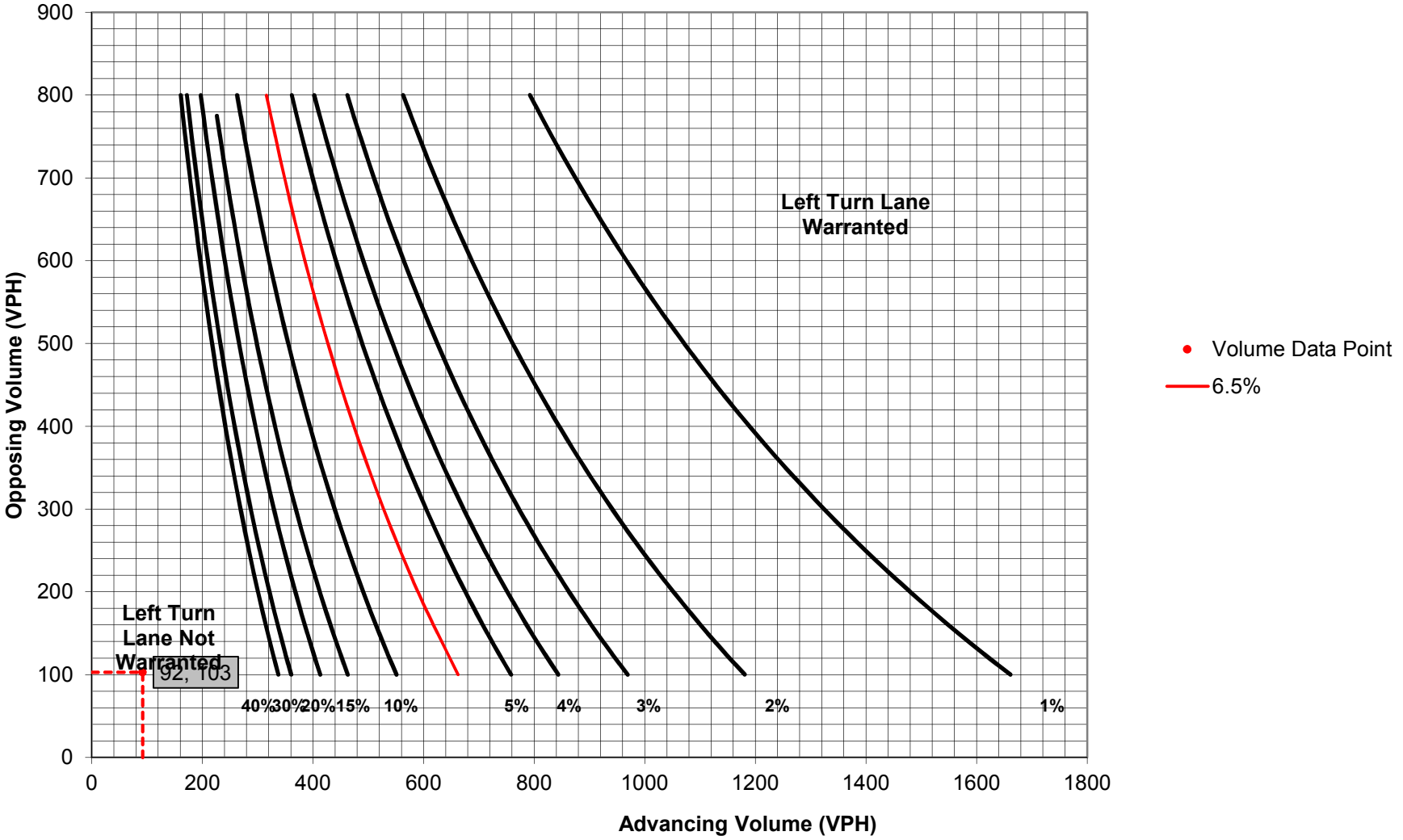
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Left Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Left Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 1. Warrant for left turn lanes on two-lane roadways**
**(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



# Turn Lane Warrant and Length Analysis Workbook

## STUDY LOCATION AND ANALYSIS INFORMATION

| | | | |
|---|---|---|---|
| **Municipality:** | Lower Makefield Township | **Analysis Date:** | 11/22/2016 |
| **County:** | Bucks County | **Conducted By:** | MH |
| **PennDOT Engineering District:** | 6 | **Checked By:** | |
| | | **Agency/Company Name:** | Traffic Planning and Design, Inc. |

**Intersection & Approach Description:** Quarry Road & Site Driveway WB Approach

| | | | |
|---|---|---|---|
| **Analysis Period:** | 2019 Projected (Build) | **Number of Approach Lanes:** | 1 |
| **Design Hour:** | SAT Peak Hour | **Undivided or Divided Highway:** | Undivided |
| **Intersection Control:** | Unsignalized | | |
| **Posted Speed Limit (MPH):** | 30 | | **Type of Analysis** |
| **Type of Terrain:** | Rolling | **Left or Right-Turn Lane Analysis?:** | Right Turn Lane |

## VOLUME CALCULATIONS

### Left Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 6 | 0.0% | N/A |
| | Through | - | 84 | 1.0% | N/A |
| | Right | Yes | 0 | 0.0% | N/A |
| Opposing | Left | Yes | 3 | 33.0% | N/A |
| | Through | - | 70 | 2.0% | N/A |
| | Right | Yes | 25 | 0.0% | N/A |

| | |
|---|---|
| **Advancing Volume:** | N/A |
| **Opposing Volume:** | N/A |
| **Left Turn Volume:** | N/A |
| **% Left Turns in Advancing Volume:** | N/A |

### Right Turn Lane Volume Calculations

| Movement | | Include? | Volume | % Trucks | PCEV |
|---|---|---|---|---|---|
| Advancing | Left | Yes | 3 | 33.0% | 5 |
| | Through | - | 70 | 2.0% | 73 |
| | Right | - | 25 | 0.0% | 25 |

| | |
|---|---|
| **Advancing Volume:** | 103 |
| **Right Turn Volume:** | 25 |

## TURN LANE WARRANT FINDINGS

### Left Turn Lane Warrant Findings

**Applicable Warrant Figure:** N/A

**Warrant Met?:** N/A

### Right Turn Lane Warrant Findings

**Applicable Warrant Figure:** Figure 9

**Warrant Met?:** No

## TURN LANE LENGTH CALCULATIONS

| | |
|---|---|
| **Intersection Control:** | Unsignalized |
| **Design Hour Volume of Turning Lane:** | 25 |
| **Cycles Per Hour (Assumed):** | 60 |
| **Cycles Per Hour (If Known):** | |

**Average # of Vehicles/Cycle:** N/A

**PennDOT Publication 46, Exhibit 11-6**

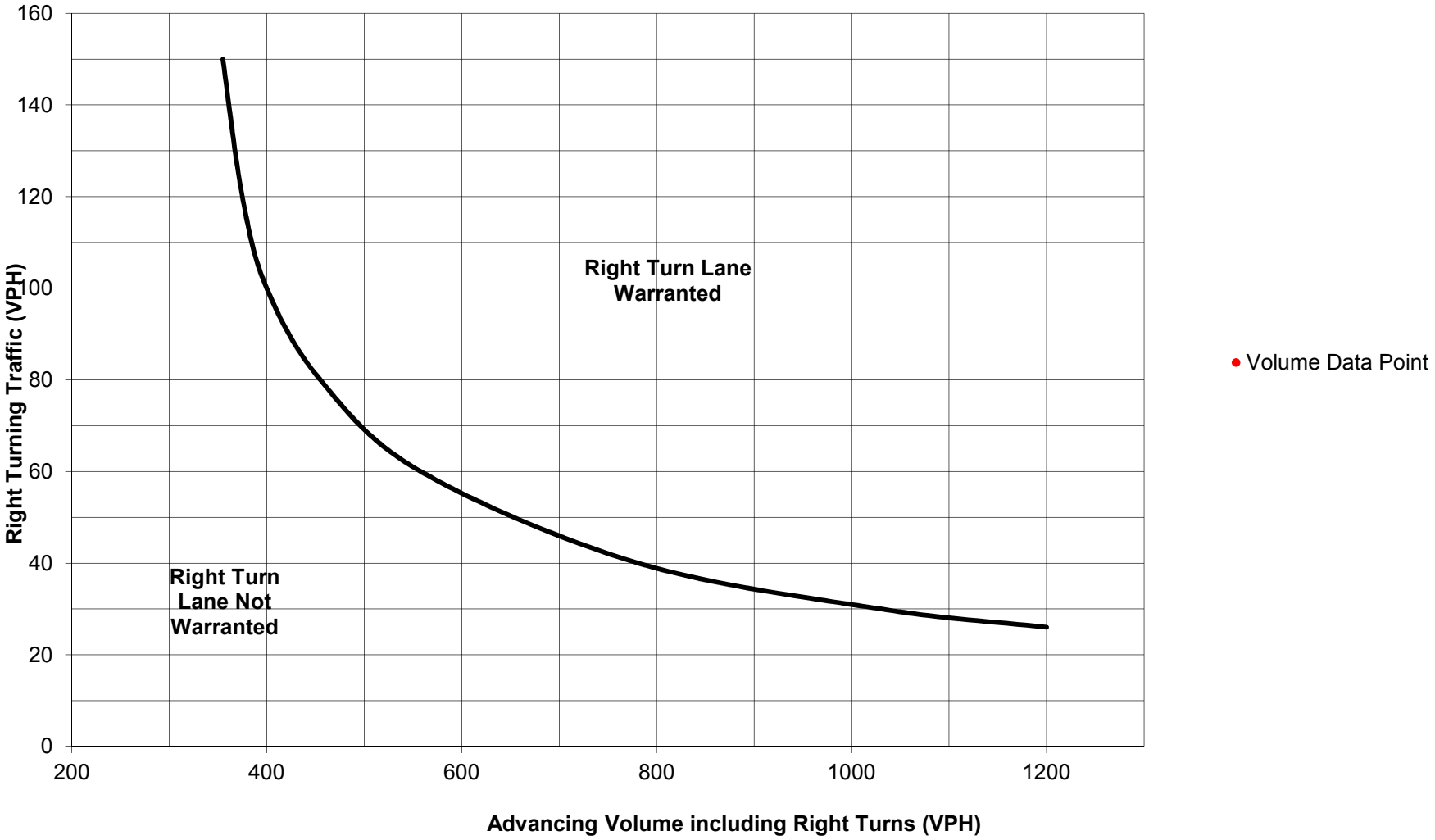
| Type of Traffic Control | Speed (MPH) | | | | | |
|---|---|---|---|---|---|---|
| | 25-35 | | 40-45 | | 50-60 | |
| | Turn Demand Volume | | | | | |
| | High | Low | High | Low | High | Low |
| Signalized | A | A | B or C | B or C | B or C | B or C |
| Unsignalized | A | A | C | B | B or C | B |

| | | |
|---|---|---|
| **Right Turn Lane Storage Length, Condition A:** | N/A | Feet |
| **Condition B:** | N/A | Feet |
| **Condition C:** | N/A | Feet |
| **Required Right Turn Lane Storage Length:** | N/A | Feet |

**Additional Findings:** N/A

**Additional Comments / Justifications:**

**Figure 9. Warrant for right turn lanes on two-lane roadways**
**(40 mph or lower speeds, unsignalized and signalized intersections)**



# *APPENDIX F:*

## *Signal Warrant Analysis*

# MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

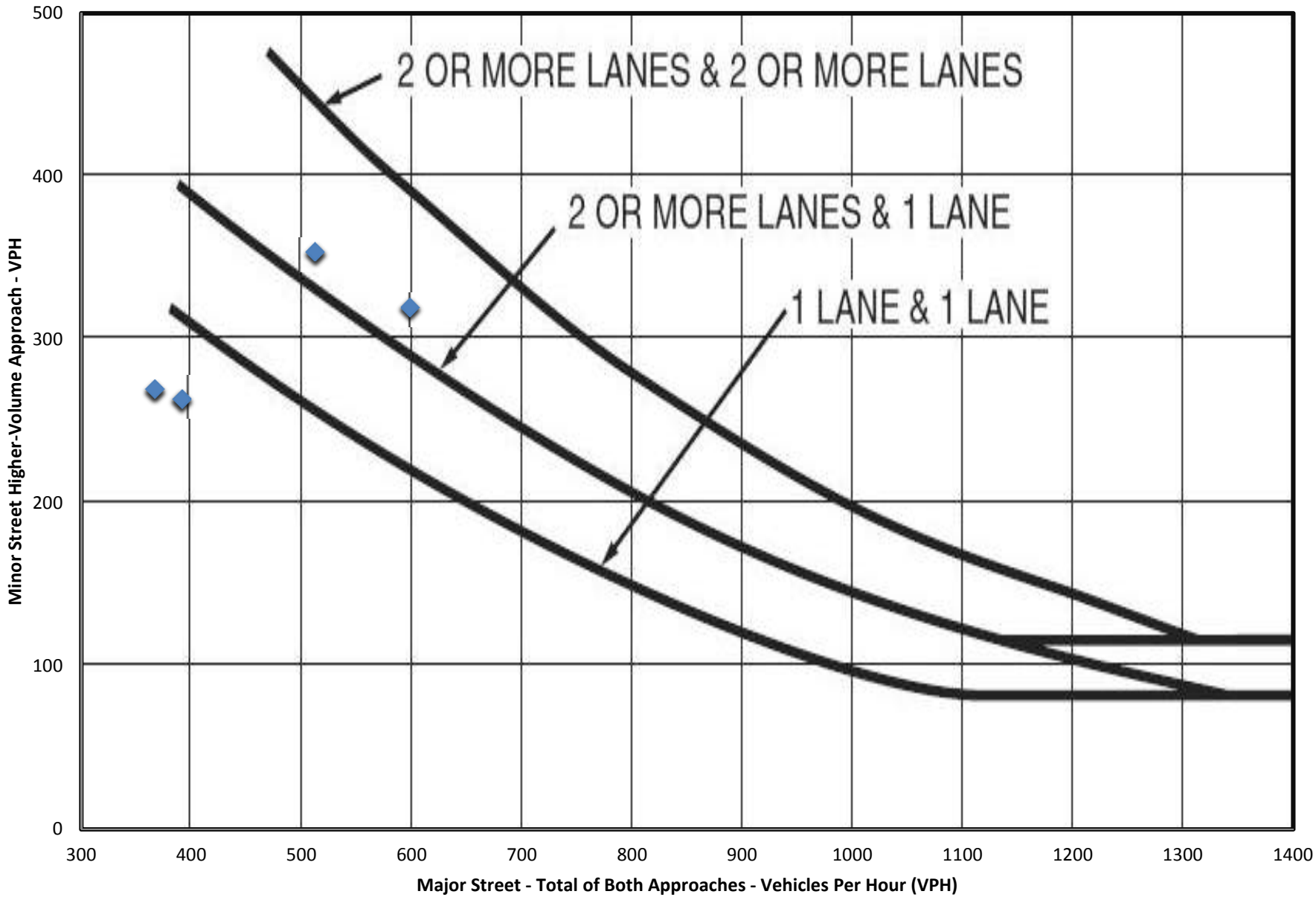
| Total Number of Unique Hours Met On Figure 4C-1 |
|---|
| 2 |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 0 | 0 | |
| 5:30 AM | 0 | 0 | |
| 5:45 AM | 0 | 0 | |
| 6:00 AM | 0 | 0 | |
| 6:15 AM | 367 | 270 | |
| 6:30 AM | 367 | 270 | |
| 6:45 AM | 367 | 270 | |
| 7:00 AM | 367 | 270 | |
| 7:15 AM | 598 | 320 | Met |
| 7:30 AM | 598 | 320 | Met |
| 7:45 AM | 598 | 320 | Met |
| 8:00 AM | 598 | 320 | Met |
| 8:15 AM | 0 | 0 | |
| 8:30 AM | 0 | 0 | |
| 8:45 AM | 0 | 0 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 0 | 0 | |
| 2:30 PM | 0 | 0 | |
| 2:45 PM | 0 | 0 | |
| 3:00 PM | 0 | 0 | |
| 3:15 PM | 391 | 264 | |
| 3:30 PM | 391 | 264 | |
| 3:45 PM | 391 | 264 | |
| 4:00 PM | 391 | 264 | |
| 4:15 PM | 0 | 0 | |
| 4:30 PM | 0 | 0 | |
| 4:45 PM | 0 | 0 | |
| 5:00 PM | 0 | 0 | |
| 5:15 PM | 512 | 354 | Met |
| 5:30 PM | 512 | 354 | Met |
| 5:45 PM | 512 | 354 | Met |
| 6:00 PM | 512 | 354 | Met |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

**MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume**



# MUTCD WARRANT 3, PEAK HOUR

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| | |
|---|---|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
| Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time? | No |

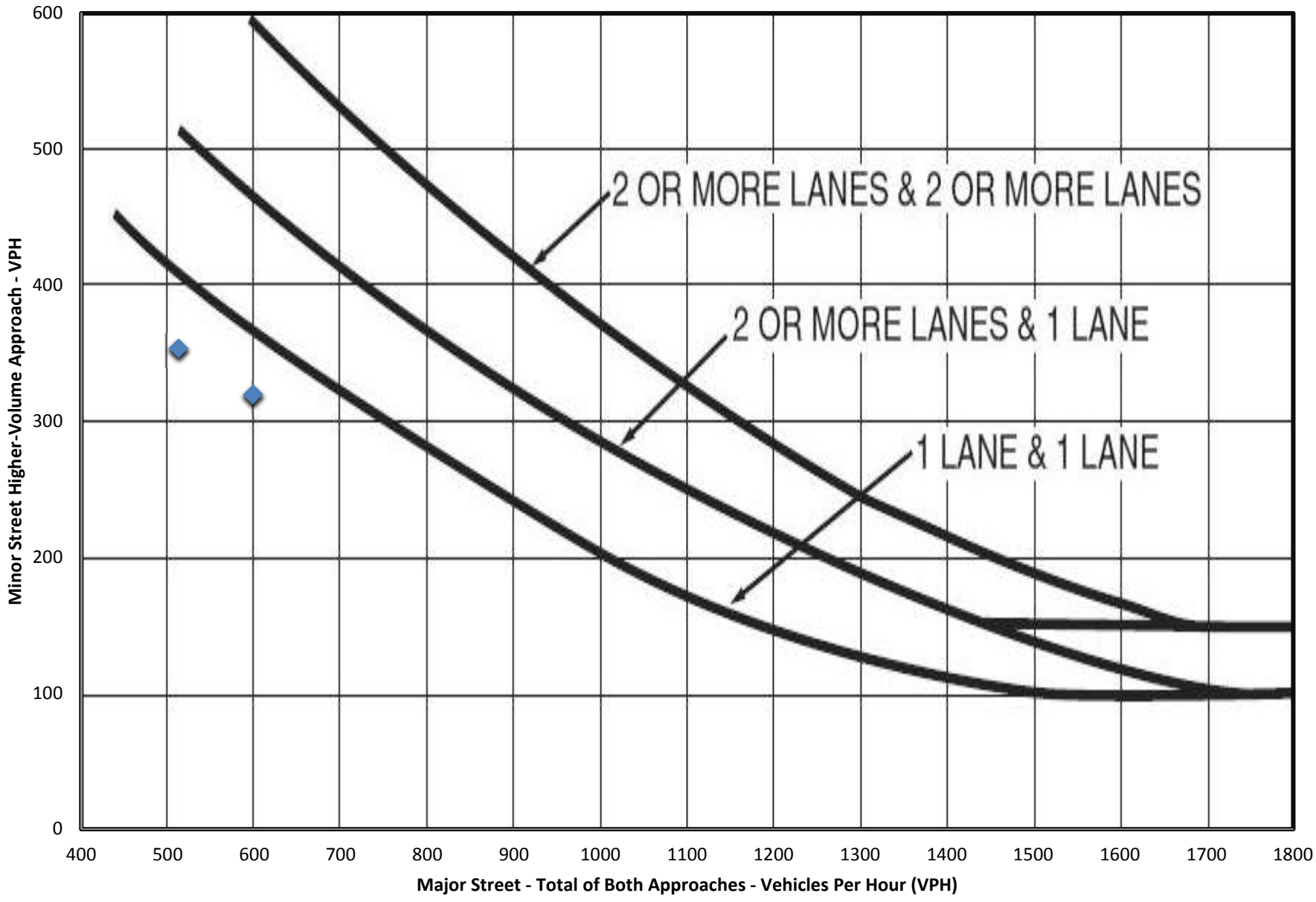
| Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present* | |
|---|---|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes? | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches? | N/A |
| **If applicable, attach all supporting calculations and documentation.* | |

| Total Number of Unique Hours Met On Figure 4C-3 |
|---|
| **0** |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 0 | 0 | |
| 5:30 AM | 0 | 0 | |
| 5:45 AM | 0 | 0 | |
| 6:00 AM | 0 | 0 | |
| 6:15 AM | 367 | 270 | |
| 6:30 AM | 367 | 270 | |
| 6:45 AM | 367 | 270 | |
| 7:00 AM | 367 | 270 | |
| 7:15 AM | 598 | 320 | |
| 7:30 AM | 598 | 320 | |
| 7:45 AM | 598 | 320 | |
| 8:00 AM | 598 | 320 | |
| 8:15 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:30 AM | 0 | 0 | |
| 8:45 AM | 0 | 0 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 0 | 0 | |
| 2:30 PM | 0 | 0 | |
| 2:45 PM | 0 | 0 | |
| 3:00 PM | 0 | 0 | |
| 3:15 PM | 391 | 264 | |
| 3:30 PM | 391 | 264 | |
| 3:45 PM | 391 | 264 | |
| 4:00 PM | 391 | 264 | |
| 4:15 PM | 0 | 0 | |
| 4:30 PM | 0 | 0 | |
| 4:45 PM | 0 | 0 | |
| 5:00 PM | 0 | 0 | |
| 5:15 PM | 512 | 354 | |
| 5:30 PM | 512 | 354 | |
| 5:45 PM | 512 | 354 | |
| 6:00 PM | 512 | 354 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-3. Warrant 3, Peak Hour



# MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

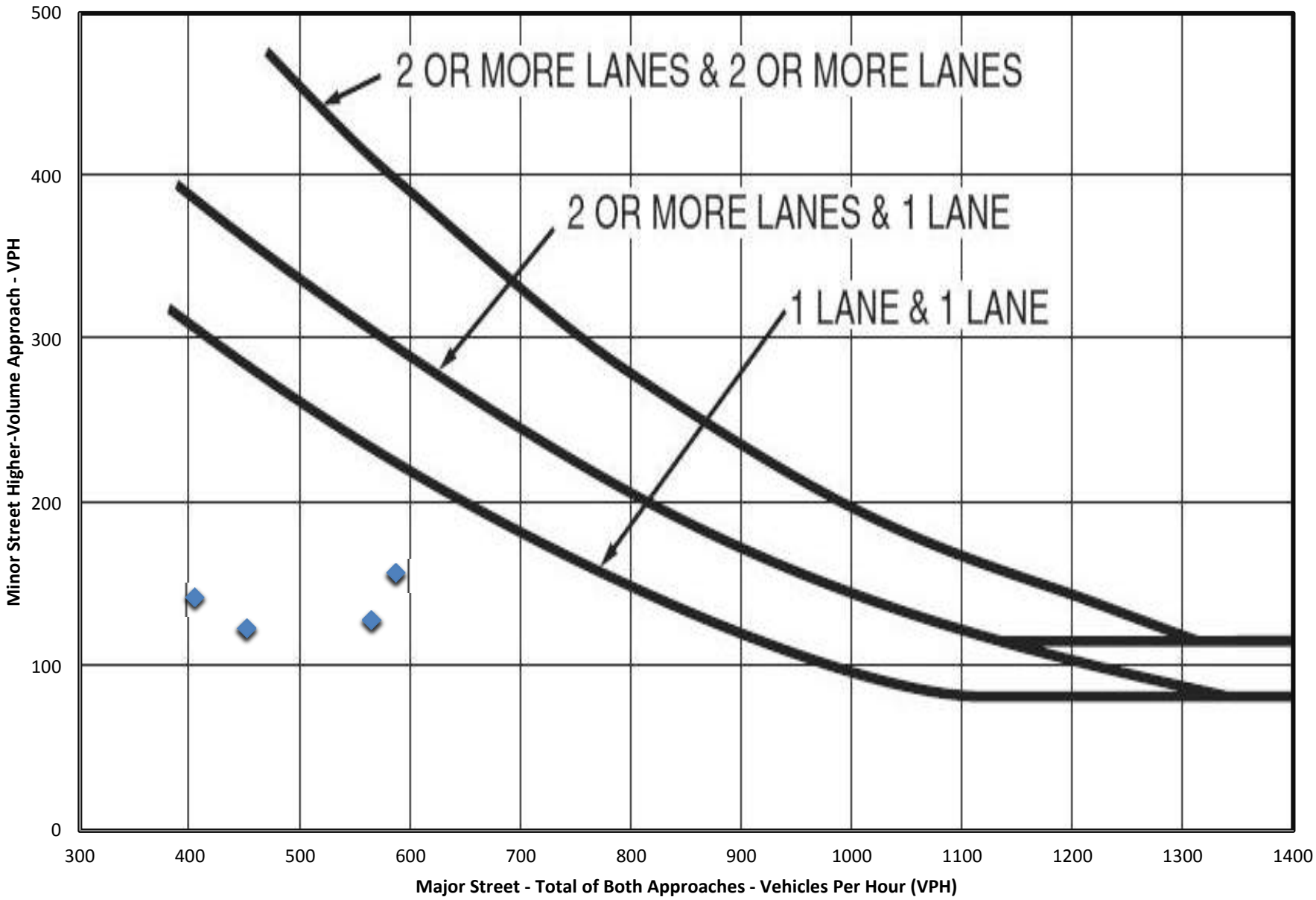
| Total Number of Unique Hours Met On Figure 4C-1 |
|---|
| 0 |

| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
|---|---|

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 0 | 0 | |
| 5:30 AM | 0 | 0 | |
| 5:45 AM | 0 | 0 | |
| 6:00 AM | 0 | 0 | |
| 6:15 AM | 404 | 143 | |
| 6:30 AM | 404 | 143 | |
| 6:45 AM | 404 | 143 | |
| 7:00 AM | 404 | 143 | |
| 7:15 AM | 564 | 129 | |
| 7:30 AM | 564 | 129 | |
| 7:45 AM | 564 | 129 | |
| 8:00 AM | 564 | 129 | |
| 8:15 AM | 0 | 0 | |
| 8:30 AM | 0 | 0 | |
| 8:45 AM | 0 | 0 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 0 | 0 | |
| 2:30 PM | 0 | 0 | |
| 2:45 PM | 0 | 0 | |
| 3:00 PM | 0 | 0 | |
| 3:15 PM | 451 | 124 | |
| 3:30 PM | 451 | 124 | |
| 3:45 PM | 451 | 124 | |
| 4:00 PM | 451 | 124 | |
| 4:15 PM | 586 | 158 | |
| 4:30 PM | 586 | 158 | |
| 4:45 PM | 586 | 158 | |
| 5:00 PM | 586 | 158 | |
| 5:15 PM | 0 | 0 | |
| 5:30 PM | 0 | 0 | |
| 5:45 PM | 0 | 0 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



# MUTCD WARRANT 3, PEAK HOUR

| Number of Lanes for Moving Traffic on Each Approach | |
|---|---|
| Major Street: | 1 Lane |
| Minor Street: | 1 Lane |

| | |
|---|---|
| Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street? | No |
| Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time? | No |

| Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present* | |
|---|---|
| Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach? | N/A |
| Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes? | N/A |
| Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches? | N/A |
| **If applicable, attach all supporting calculations and documentation.* | |

| Total Number of Unique Hours Met On Figure 4C-3 |
|---|
| **0** |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 12:00 AM | 0 | 0 | |
| 12:15 AM | 0 | 0 | |
| 12:30 AM | 0 | 0 | |
| 12:45 AM | 0 | 0 | |
| 1:00 AM | 0 | 0 | |
| 1:15 AM | 0 | 0 | |
| 1:30 AM | 0 | 0 | |
| 1:45 AM | 0 | 0 | |
| 2:00 AM | 0 | 0 | |
| 2:15 AM | 0 | 0 | |
| 2:30 AM | 0 | 0 | |
| 2:45 AM | 0 | 0 | |
| 3:00 AM | 0 | 0 | |
| 3:15 AM | 0 | 0 | |
| 3:30 AM | 0 | 0 | |
| 3:45 AM | 0 | 0 | |
| 4:00 AM | 0 | 0 | |
| 4:15 AM | 0 | 0 | |
| 4:30 AM | 0 | 0 | |
| 4:45 AM | 0 | 0 | |
| 5:00 AM | 0 | 0 | |
| 5:15 AM | 0 | 0 | |
| 5:30 AM | 0 | 0 | |
| 5:45 AM | 0 | 0 | |
| 6:00 AM | 0 | 0 | |
| 6:15 AM | 404 | 143 | |
| 6:30 AM | 404 | 143 | |
| 6:45 AM | 404 | 143 | |
| 7:00 AM | 404 | 143 | |
| 7:15 AM | 564 | 129 | |
| 7:30 AM | 564 | 129 | |
| 7:45 AM | 564 | 129 | |
| 8:00 AM | 564 | 129 | |
| 8:15 AM | 0 | 0 | |

| Hourly Vehicular Volume | | | |
|---|---|---|---|
| Hour Interval Beginning At | Major Street Combined Vehicles Per Hour (VPH) | Highest Minor Street Approach Vehicles Per Hour (VPH) | Hour Met? |
| 8:30 AM | 0 | 0 | |
| 8:45 AM | 0 | 0 | |
| 9:00 AM | 0 | 0 | |
| 9:15 AM | 0 | 0 | |
| 9:30 AM | 0 | 0 | |
| 9:45 AM | 0 | 0 | |
| 10:00 AM | 0 | 0 | |
| 10:15 AM | 0 | 0 | |
| 10:30 AM | 0 | 0 | |
| 10:45 AM | 0 | 0 | |
| 11:00 AM | 0 | 0 | |
| 11:15 AM | 0 | 0 | |
| 11:30 AM | 0 | 0 | |
| 11:45 AM | 0 | 0 | |
| 12:00 PM | 0 | 0 | |
| 12:15 PM | 0 | 0 | |
| 12:30 PM | 0 | 0 | |
| 12:45 PM | 0 | 0 | |
| 1:00 PM | 0 | 0 | |
| 1:15 PM | 0 | 0 | |
| 1:30 PM | 0 | 0 | |
| 1:45 PM | 0 | 0 | |
| 2:00 PM | 0 | 0 | |
| 2:15 PM | 0 | 0 | |
| 2:30 PM | 0 | 0 | |
| 2:45 PM | 0 | 0 | |
| 3:00 PM | 0 | 0 | |
| 3:15 PM | 451 | 124 | |
| 3:30 PM | 451 | 124 | |
| 3:45 PM | 451 | 124 | |
| 4:00 PM | 451 | 124 | |
| 4:15 PM | 586 | 158 | |
| 4:30 PM | 586 | 158 | |
| 4:45 PM | 586 | 158 | |
| 5:00 PM | 586 | 158 | |
| 5:15 PM | 0 | 0 | |
| 5:30 PM | 0 | 0 | |
| 5:45 PM | 0 | 0 | |
| 6:00 PM | 0 | 0 | |
| 6:15 PM | 0 | 0 | |
| 6:30 PM | 0 | 0 | |
| 6:45 PM | 0 | 0 | |
| 7:00 PM | 0 | 0 | |
| 7:15 PM | 0 | 0 | |
| 7:30 PM | 0 | 0 | |
| 7:45 PM | 0 | 0 | |
| 8:00 PM | 0 | 0 | |
| 8:15 PM | 0 | 0 | |
| 8:30 PM | 0 | 0 | |
| 8:45 PM | 0 | 0 | |
| 9:00 PM | 0 | 0 | |
| 9:15 PM | 0 | 0 | |
| 9:30 PM | 0 | 0 | |
| 9:45 PM | 0 | 0 | |
| 10:00 PM | 0 | 0 | |
| 10:15 PM | 0 | 0 | |
| 10:30 PM | 0 | 0 | |
| 10:45 PM | 0 | 0 | |
| 11:00 PM | 0 | 0 | |

## MUTCD Figure 4C-3. Warrant 3, Peak Hour