TRAFFIC IMPACT STUDY
for
THE GREENS

BLOCK 14801, LOT 12
MONROE TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

CES-2264-02

March 2020

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TABLE OF CONTENTS

APPENDICES:

1. INTRODUCTION

1.1 Scope of Study

Consulting Engineer Services (CES) has performed this traffic impact study for a proposed age-restricted residential development located along Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689) in Monroe Township, Gloucester County, New Jersey. The purpose of this analysis is to identify the existing traffic conditions in the area, determine what impacts the project will have on these conditions, and review possible improvements, if necessary, to mitigate these impacts. This study includes the following:

1. Site Inspection: A site inspection was conducted to identify all elements that may affect the flow of traffic, such as roadway features and geometry, land use, driveways, and traffic control devices.

2. Traffic Data Collection: Turning movement counts were obtained during weekday AM and PM peak periods at the intersection of Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689).

3. Trip Generation: The estimated number of vehicle trips that will be generated by the project were calculated based on standard ITE (Institute of Transportation Engineers) methodology.

4. Traffic Projection: Future traffic volumes were calculated using background growth rates, traffic from other proposed development, and anticipated trip generation for the proposed development.

5. Traffic Analysis: The collected peak hour data was utilized to determine the operational characteristics of the above noted existing intersection and the proposed site accesses upon completion of the project. The levels of service were determined to identify the traffic impacts at the noted locations. Analysis was performed in accordance with standard traffic engineering practice as contained in *Trip Generation, 10th Edition* (Institute of

Transportation Engineers, 2017), *Highway Capacity Manual* (Transportation Research Board, 2010), and corresponding *Highway Capacity Software* (HCS 7).

1.2 Project Description

The parcel of land for the project is 38.98± acres located in Monroe Township, Gloucester County, New Jersey, and is identified as Block 14801, Lot 12. The site is located near the intersection of Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689) behind the existing CVS pharmacy (see Appendix B, Figure 1 for a Location Map). The site is currently an undeveloped field. The site is zoned RA (Age-Restricted Residential). Existing land uses in the area are primarily residential, with some small commercial uses near the intersection of CR 655 and CR 689.

As shown on the Overall Plan (Figure 9), the proposed development includes 117 age-restricted multi-family units (39 triplex buildings) and a clubhouse / recreation area on 31.31± acres in the southwest portion of the tract. The remaining 7.67± acres are reserved for future commercial development. (A use variance was granted by the Monroe Township Zoning Board on 11/19/19 to permit commercial development within the RA zone. However, no commercial development is proposed as part of the subject application, therefore it is not included in this study.)

One (1) full movement access is proposed on Fries Mill Road (CR 655) aligned with Stirling Glen Drive, and one (1) full movement access is proposed on Glassboro-Cross Keys Road (CR 689) aligned with Appletree Lane.

Significant destinations from the site include major roadways such as Route US 322 to the south, Route NJ 42 to the north and east, and Route NJ 47 to the west, as well as several county collector and arterial roadways. Significant commercial/retail centers in the area include Glassboro, Washington Township, and Williamstown.

1.3 Project Background

It may be noted that development was previously proposed on the subject tract known as "Stirling Glen II" which included 117 age-restricted single-family dwellings. The project received use variance approval, bulk variance approvals, and preliminary major subdivision approval from the Monroe Township Zoning Board in 2002-2004. The project also received preliminary subdivision approval from the Gloucester County Planning Board in 2007. However, the project did not proceed to final approvals and construction.

A Traffic Impact Study was prepared by CES for the Stirling Glen II age-restricted single-family development dated 1/20/04. More recently, the Stirling Glen II site traffic was included in a Traffic Impact Study prepared for Stirling Glen I revised in March 2012. As noted on Table 1 below, the AM and PM peak hour traffic volumes for the proposed senior multi-family homes are significantly lower than the volumes from the traffic study for the previously approved senior single-family homes.

TABLE 1: Peak Hour Site Traffic Comparison

LAND USE	AM Peak Hour	PM Peak Hour
PREVIOUSLY APPROVED Senior Adult Housing-Detached (LUC 251) 117 Dwelling Units	43	81
PROPOSED Senior Adult Housing-Attached (LUC 252) 117 Dwelling Units	23	30
Percent Reduction in Site Traffic	**- 47%**	**- 63%**

It may also be noted that the current project maintains the same access locations and the same extent of County roadway improvements on Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689) that were previously reviewed and approved for the Stirling Glen II project. The proposed right-of-way and pavement widening are consistent with the Official Gloucester County Map, and the improvements are sufficient to accommodate the proposed site traffic as demonstrated within this study.

1.4 Existing Transportation System Inventory

The following are descriptions of the existing roadways included in this study. Data sources include the current 2019 New Jersey Department of Transportation (NJDOT) Straight Line Diagrams (included in Appendix A), field survey data, and available maps.

Fries Mill Road (CR 655)

Fries Mill Road (CR 655) is an undivided two-lane bituminous roadway in the vicinity of the site. The roadway is under county jurisdiction and is classified as an urban minor arterial. The roadway generally travels north and south, extending from Delsea Drive (Route NJ 47) in Franklin Township to the Black Horse Pike (NJ 42) in Washington Township. The speed limit on Fries Mill Road is 50 miles per hour (mph) in the vicinity of the site.

Glassboro-Cross Keys Road (CR 689)

Glassboro-Cross Keys Road (CR 689) is also an undivided two-lane bituminous roadway in the vicinity of the site. The roadway is under county jurisdiction and is classified as an urban principal arterial. The road generally travels east and west, extending from Delsea Drive (Route NJ 47) in Glassboro, along the Cross-Keys By-Pass alignment in the Cross Keys area of Washington Township/Monroe Township, and then extending to the Gloucester County line as Berlin-Cross Keys Road. The speed limit on Glassboro-Cross Keys Road is 45 miles per hour (mph) in both directions in the vicinity of the site.

Signalized Intersection of Glassboro-Cross Keys Rd (CR 689) & Fries Mill Rd (CR 655)

The intersection of Fries Mill Road and Glassboro-Cross Keys Road is signalized and is fully actuated with video image detection on all approaches. The signal operates with two phases and a variable cycle length, as shown on the existing timing schedule received from Gloucester County (included in Appendix A).

1.5 Intersection Capacity and Performance

The capacity of any roadway system is limited by physical restraints, fixed interruptions, or any other constraints that limit "the time of use that is available to various component movements of the traffic stream" (HCM). A traffic signal may be considered a fixed interruption, thereby requiring an analysis of the effect of its reduction in the normal capacity of the system. Unsignalized stop-controlled intersections are also considered interrupted flow facilities since stops signs are fixed elements that interrupt traffic flow, irrespective of how much traffic exists. These stop-controls, as well as conflicting turning movements, tend to limit capacity. Since the limitations to capacity may exist at intersections, the subject intersections have been analyzed for the purpose of determining capacity and assigning levels of service (LOS).

Unsignalized Intersections

At stop-controlled intersections, the capacity of the controlled approaches is based on the following three factors:

1. "The distribution of gaps in the major-street traffic stream,
2. Driver judgment in selecting gaps through which to execute their desired maneuvers, and
3. The follow-up time required by each driver in a queue" (HCM).

Critical gap and follow-up time are two primary variables in determining the capacity and average control delay experienced at an unsignalized intersection. Critical gap is defined as "the minimum time interval in the major-street traffic stream that allows intersection entry to one minor-street vehicle" (HCM), or the minimum gap that a typical driver would find acceptable. Follow-up time is "the time span between the departure of one vehicle from the minor street and the departure of the next vehicle using the same major-street gap [if available], under a condition of continuous queuing on the minor street" (HCM).

The level of service for a stop-controlled intersection is dependent on the control delay for each minor movement. Control delay is the delay caused for the motorist due to the traffic control device, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Level-of-service is classified by letter designations "a" through "f". Appendix A, Table 1

contains a correlation between the delay and the LOS designations for unsignalized intersections.

Signalized Intersections

The capacity of each lane group at a signalized intersection is defined as the maximum rate of flow (vehicles per hour, VPH) that may pass through the intersection under prevailing conditions. Capacity is affected by the geometric characteristics of the facility, traffic composition, as well as time allocation.

The level of service for a signalized intersection is also based on the average control delay per vehicle for various movements within the intersection. The level of service for signalized intersections is also classified by letter designations "A" through "F". Appendix A, Table 2 contains a correlation between the control delay and the LOS designations for signalized intersections.

1.6 Analysis Periods

Residential land uses typically have the most significant impact on traffic operations during the weekday AM and PM commuter peak periods. Therefore, the AM and PM peak hours are utilized in the analysis for this project.

2. 2019 EXISTING TRAFFIC

2.1 Existing Traffic Volumes

Intersection turning movement counts were collected by Tri-State Traffic Data utilizing state-of-the-art video data collection units on Thursday, September 26, 2019. Counts were completed from 6:00 to 10:00 AM and 4:00 to 7:00 PM at the intersection of Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689) and at the adjacent CVS driveways. The data was collected in 15-minute intervals and is available for review in Appendix C. It may be noted that the peaks at the intersection occurred from 7:15 – 8:15 AM and 4:45 – 5:45 PM.

Additionally, since the proposed site access on CR 689 (Prestwick Drive) is proposed to be directly

opposite Appletree Lane, AM and PM peak hour traffic volumes were calculated for Appletree Lane using the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* (September 2017). Trip generation and distribution calculations for Appletree Lane are provided in Appendix D. The existing peak hour volumes are illustrated in Appendix B, Figure 2.

In addition to the intersection counts noted above, traffic count data available from NJDOT and the Delaware Valley Regional Planning Commission (DVRPC) was also reviewed for the study area to confirm the validity of the turning movement counts. A comparison of the project data with the DVRPC data confirmed that the volumes obtained for this project are a reasonable representation of typical weekday conditions; therefore, the project data may be used for the analysis. The DVRPC data sheets are included in Appendix C, and the following table summarizes the average daily traffic (ADT) volumes from the DVRPC data in vehicles per day (vpd):

TABLE 2: Average Daily Traffic (ADT)

Location	ADT
CR 689 west of CR 655 (DVRPC, Jan 2020)	15,700± vpd
CR 689 east of CR 655 (DVRPC, Jan 2019)	15,000± vpd
CR 655 south of CR 689 (DVRPC, Dec 2018)	14,300± vpd
CR 655 north of CR 689 (DVRPC, Jan 2017)	13,300± vpd

2.2 Existing Traffic Analysis

The existing level of service for each movement was calculated utilizing the field obtained peak traffic volumes and peak hour factors (PHF). No significant activities of pedestrians, bus stops, or parking maneuvers were observed in close proximity to the studied intersections. Therefore, these factors are not expected to create noticeable delay for motorists and are not included in the operational analyses of the intersections. Appropriate default values were used in the analyses for other factors that are not affected by the type or layout of the project. The HCS reports are provided in Appendix E for reference.

Figure 3 shows the levels of service for the studied intersections under existing conditions. As shown on the figure, all movements operate at good levels of service (LOS A to LOS C), except for the Appletree Lane approach exhibiting LOS E during the PM peak hour. The overall level of service for the traffic signal is LOS B during the AM and PM peak hours.

3. 2026 FUTURE BASE TRAFFIC

3.1 Background Growth

In order to analyze future traffic impacts, the existing peak hour traffic volumes were projected to the year 2026. This projection was chosen based on the anticipated time to complete design, approval, and construction of the project. The projection was accomplished by increasing the existing 2019 volumes by 1.00% per year to account for background growth. This growth rate was selected based on the current NJDOT Annual Background Growth Rate Table (April 2019); the table is included in Appendix A for reference. Although the NJDOT background growth rates are generally applicable to short-term growth (1-3 years), the NJDOT rate was utilized for a 7-year projection for this project for a conservative analysis.

3.2 Additional Future Development

In addition to background growth, traffic from other future development was considered in order to assess the relative impact of the project on future traffic conditions, and to evaluate the levels of service provided upon full build-out. In accordance with the Gloucester County Specification Manual, CES contacted the Gloucester County Engineer's Office to determine whether there are any other projects in the vicinity of the site that are planned for completion in the near future, in order to include any additional future traffic volumes in the analysis for this project. The following projects were identified.

Steven Smith Subdivision

The "Steven Smith Subdivision" also known as "Smithfield" is a proposed development on the southwest corner of Glassboro-Cross Keys Road (CR 689) and Pitman-Downer Road (CR 658). The

project includes 273 single-family homes. A Traffic Impact Study was prepared by Horner & Canter Associates (HCA) for the project dated 3/30/01. Based on our correspondence with the developer, no additional traffic studies have been completed since 2001. Although the project has been proposed for many years and it has not yet gone to construction, and it is unlikely that it would be fully constructed and occupied by 2026, the County Engineering Staff requested that it be included in this study. Peak hour site traffic volumes and distribution from the HCA report are included in Appendix D for reference.

Stirling Glen I

"Stirling Glen I" is located on the east side of Fries Mill Road (CR 655) opposite the subject project. The development includes 195 age-restricted single-family homes and a clubhouse / recreation area. As shown on the Overall Plan for the subject project, Queensferry Drive is proposed to be directly opposite Stirling Glen Drive. As of the time of the traffic counts, 82 units had been constructed in Stirling Glen I with access to CR 655 via Castlebay Drive. Stirling Glen Drive had been constructed out to CR 655 but was not yet open to traffic. As the clubhouse and remaining 113 units are constructed, Stirling Glen Drive will be opened to traffic. Therefore, AM and PM peak hour traffic volumes were calculated for Stirling Glen Drive for the 2026 future base condition using ITE *Trip Generation*. Trip generation and distribution calculations for Stirling Glen Drive are provided in Appendix D.

3.3 Future Base Traffic Volumes

The background growth and traffic from other future development noted above was added to the existing intersection volumes to calculate the future base volumes. Calculation tables are included in Appendix A, and the future base peak hour volumes are shown graphically on Figure 4. Based on recognized growth patterns in the region, peak hour factors for the projected 2026 conditions were assumed to be equivalent to the existing conditions at the counted intersections, while a default PHF of 0.92 was utilized for intersections with estimated future traffic volumes.

3.4 Future Base Traffic Analysis

Figure 5 shows the calculated levels of service for the studied intersections under the future base conditions. As shown on the figure, all levels of service remain at LOS A to LOS C, except for Appletree Lane at LOS D/LOS F during the AM and PM peak hours due to the relatively high through volumes on CR 689.

4. 2026 BUILD-OUT TRAFFIC

4.1 Trip Generation and Distribution

The vehicle trips generated by the proposed development were determined using the methodology of the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* (September 2017). The ITE land use category "Senior Adult Housing - Attached" was used for the proposed age-restricted multi-family units. See Appendix D for *Trip Generation* data sheets and calculations. The following table provides a summary of total trips generated by the project for typical AM and PM hours.

TABLE 3: Peak Hour Site Traffic Volumes

Weekday AM Peak Hour		
Total Number of Trips:	23	vph
Enter =	8	
Exit =	15	
Weekday PM Peak Hour		
Total Number of Trips:	30	vph
Enter =	17	
Exit =	13	

The vehicle trips noted above were distributed between various turning movements at the studied intersections based on existing traffic patterns, surrounding roadway locations, developed areas, and commercial centers in the region. The distributed volumes are illustrated in Appendix B, Figure 6.

4.2 Build-Out Traffic Volumes

The estimated site trips were added to the 2026 base volumes in order to evaluate the levels of service provided under the 2026 build-out condition. Figure 7 shows the 2020 total build-out AM and PM peak hour volumes. Peak hour factors for future build-out traffic at the existing intersections were assumed to be equivalent to those for the existing conditions, while a default PHF of 0.92 was utilized for new intersections.

4.3 Build-Out Traffic Analysis

As shown on the project plans, pavement widening is proposed on Fries Mill Road (CR 655) and Glassboro-Cross Keys Road (CR 689) in accordance with Gloucester County standards and prior approvals for the site. As on the previously approved project, the following auxiliary lanes are proposed and included in the build-out analysis for this project:

- Northbound left turn lane entering the site on CR 655
- Southbound right turn lane entering the site on CR 655
- Westbound left-turn lane entering the site on CR 689
- Eastbound left turn lane entering Appletree Lane on CR 689

Figure 8 shows the levels of service for the studied intersections under the build-out condition. As shown on the figure, all levels of service remain at LOS A to LOS C for the existing movements, except for the Appletree Lane approach at LOS E / LOS F during the AM and PM peak hours. The overall level of service for the traffic signal at CR 655 and CR 689 remains at LOS B during both peak hours, and the site traffic equates to 0.54% and 0.56% of the AM and PM peak hour build-out volumes at the intersection, respectively.

For Appletree Lane, the delay on the minor stop-controlled approach is generally expected and considered acceptable due to the relatively high through volumes on the adjacent principal arterial (CR 689). Although the delay is significant, we note that the average queues on Appletree Lane are calculated to be minimal during the AM and PM peak hours (less than 2 vehicles, with 95% probability) since the approach volumes are relatively low.

It may also be noted that the proposed site accesses (Prestwick Drive and Queensferry Drive) operate with good levels of service during the AM and PM peak hours, with LOS A for left-turns entering the site, and LOS C / LOS D for the stop-controlled movements exiting the site with minimal queues (less than 1 vehicle, with 95% probability).

5. CONCLUSIONS

This study has shown that the relatively low peak hour traffic volumes generated by the proposed residential development will not create significant adverse impacts on the adjacent roadways and intersections, and all approaches are expected to operate at acceptable levels of service during the worst-case peak hour periods. Left turn lanes are proposed on CR 655 and CR 689 to provide protection for the left turn movements and to maintain safe and efficient flow of through traffic on the county roadways. In addition, the proposed site accesses are expected to operate with good levels of service with minimal queues. Therefore, no additional improvements are required to safely and efficiently accommodate the traffic generated by the proposed development.

Appendix A

TABLES

TABLE 1:
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Delay Range (sec/veh)
a	≤10
b	>10 and ≤15
c	>15 and ≤25
d	>25 and ≤35
e	>35 and ≤50
f	>50

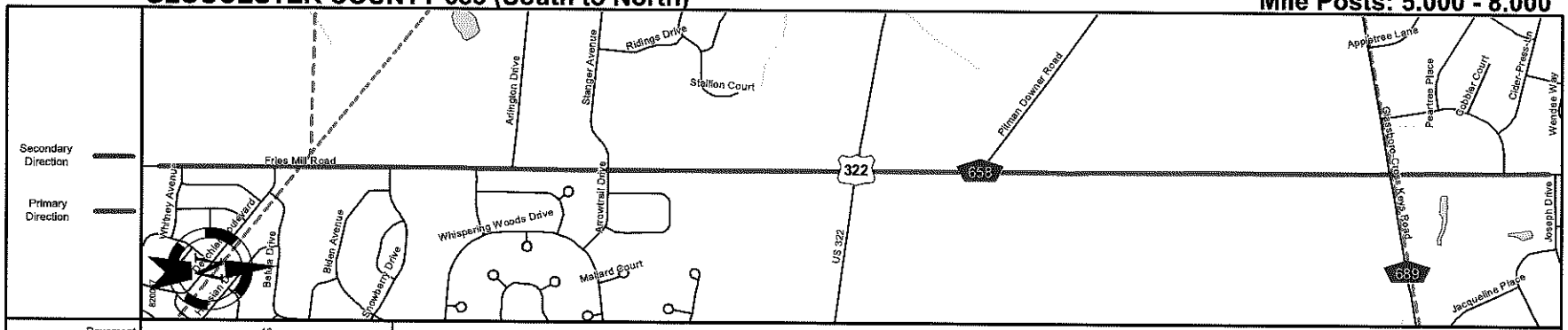
TABLE 2:

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

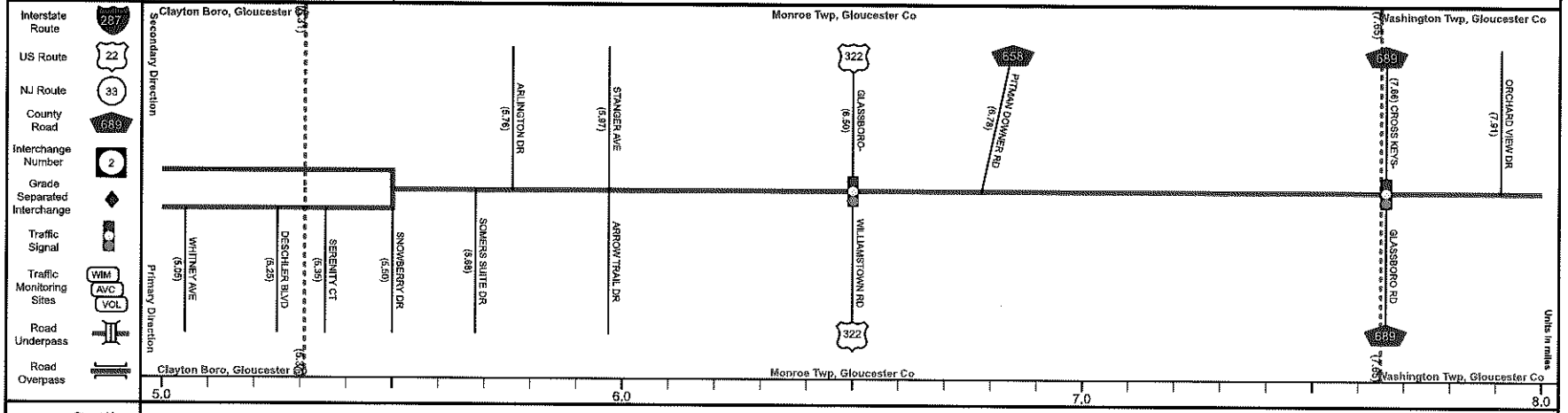
LEVEL OF SERVICE	CRITERIA
A	***Level of Service A*** describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to delay.
B	***Level of Service B*** describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	***Level of Service C*** describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	***Level of Service D*** describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	***Level of Service E*** describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	***Level of Service F*** describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

GLOUCESTER COUNTY 655 (South to North)

Mile Posts: 5.000 - 8.000



Pavement	10
Shoulder	8
Number of Lanes	1
Speed Limit	50
Street Name	Fries Mill Road



Street Name	Fries Mill Road
Jurisdiction	County
Functional Class	Urban Minor Arterial
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	50
Number of Lanes	1 | 2
Med. Type	Painted/Unprotected | None
Med. Width	12 | 0
Pavement	10 | 22 | 32 | 22 | 48 | 60
Shoulder	8 | 14 | 6 | 16 | 4 | 1 | 18 | 4 | 2 | 12
Traffic Volume	12,306 (2018)
Traffic Sta. ID	120813
Structure No.	
Enlarged Views	

SRI = 08000655__

Date last inventoried: May 2011

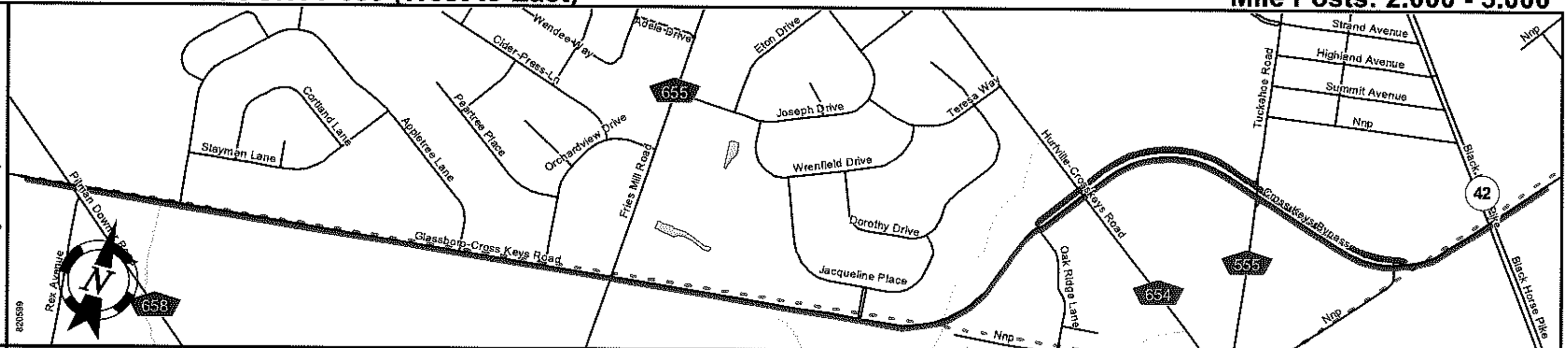
Page Created: March, 2019

GLOUCESTER COUNTY 689 (West to East)

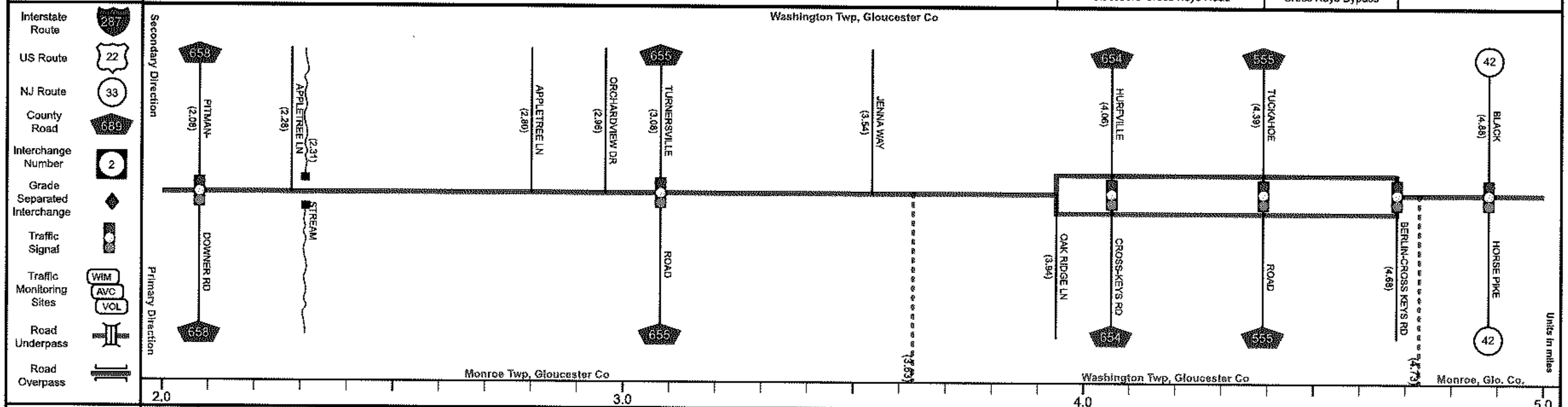
Mile Posts: 2.000 - 5.000

Secondary Direction

Primary Direction



Pavement	24
Shoulder	1; 10
Number of Lanes	2
Speed Limit	45
Street Name	Glassboro-Cross Keys Road; Cross Keys Bypass



Street Name	New Street; Glassboro-Cross Keys Road; Cross Keys Bypass
Jurisdiction	County; Municipal; County; Municipal; County
Functional Class	Urban Principal Arterial
Federal Aid - NHS Sy	NHS
Control Section	
Speed Limit	45
Number of Lanes	2; 4
Med. Type	None; Curbed; None
Med. Width	0; VAR; 0
Pavement	22; 32; 22; 24; 60
Shoulder	6; 2; 4; 2; 4; 12; 1; 10; 2
Traffic Volume	15,417 (2017)
Traffic Sta. ID	110886
Structure No.	
Enlarged Views	

SRI = 08000689__

Date last inventoried: May 2011

Page Created: March, 2019

Timing Schedule
Fries Mill Road (CR655) and Glassboro-Cross Keys Road (CR689)
Monroe Township, Gloucester County

90 second and variable cycle
Normal Operation

Phase	1 - 8	9-16	X- CR 689 17 - 20	X-CR 655 21 - 24	Time (Seconds)
Ø2 Fries Mill Rd. ROW	G	R	H	H	15 - 40
Change	Y	R	H	H	4
Clearance	R	R	H	H	2
Ø4 Glassboro-Cross Keys Rd. ROW	R	G	H	H	15 – 38
Change	R	Y	H	H	4
Clearance	R	R	H	H	2
Emergency Flash	Y	R	DARK	DARK	-------

Notes:
1. The controller shall rest at the end of the Ø2 Green Fries Mill Road ROW
2. The manual control is to be disconnected
3. The memory circuit is to be off

Timing Schedule
Fries Mill Road (CR655) and Glassboro-Cross Keys Road (CR689)
Monroe Township, Gloucester County

90 second cycle
Pedestrian Actuation

Phase	1 - 8	9-16	X- CR 655 17 - 20	X-CR 689 21 - 24	Time (Seconds)
Ø2 Fries Rd. ROW	G	R	WM	H	10
Pedestrian Clearance	G	R	FH	H	22
Vehicle Extension	G	R	H	H	0 – 8
Change	Y	R	H	H	4
Clearance	R	R	H	H	2
Ø4 Glassboro-Cross Keys Rd. ROW	R	G	H	WM	11
Pedestrian Clearance	R	G	H	FH	17
Change	R	Y	H	H	4
Clearance	R	R	H	H	2
Emergency Flash	Y	R	DARK	DARK	

Notes:
1. The controller shall rest at the end of the Ø2 Green Fries Mill Road ROW
2. The manual control is to be disconnected
3. The memory circuit is to be off

NJDOT ACCESS PERMIT
ANNUAL BACKGROUND GROWTH RATE TABLE
Valid for NJDOT Access Permits submitted April 2019 - April 2021

	Functional Classification											
	RURAL						URBAN					
COUNTY	Interstate	Other Principal Arterial	Minor Arterial	Major Collector	Minor Collector	Local	Interstate	Freeway	Principal Arterial	Minor Arterial	Collector	Local
ATLANTIC	N/A	1.00%	1.50%	1.00%	1.00%	2.75%	N/A	1.00%	1.00%	1.00%	1.75%	1.00%
BERGEN	N/A	N/A	N/A	N/A	N/A	N/A	2.50%	2.00%	1.50%	2.50%	1.00%	1.00%
BURLINGTON	1.50%	1.75%	1.00%	1.25%	1.00%	1.25%	2.00%	2.00%	1.00%	1.50%	1.50%	1.00%
CAMDEN	1.50%	1.25%	1.00%	1.25%	1.00%	1.00%	2.25%	1.75%	1.00%	1.00%	2.25%	1.00%
CAPE MAY	N/A	1.50%	2.25%	1.00%	2.25%	1.25%	N/A	1.00%	1.00%	1.00%	1.00%	1.00%
CUMBERLAND	N/A	1.00%	1.00%	1.00%	1.00%	2.00%	N/A	1.00%	1.00%	1.25%	1.25%	1.00%
ESSEX	N/A	N/A	N/A	N/A	N/A	N/A	2.00%	3.00%	1.00%	2.00%	1.00%	1.50%
GLOUCESTER	1.50%	1.25%	1.00%	1.25%	1.75%	1.00%	2.50%	1.75%	1.00%	1.00%	2.25%	1.50%
HUDSON	N/A	N/A	N/A	N/A	N/A	N/A	1.00%	1.00%	1.00%	1.00%	1.00%	1.50%
HUNTERDON	1.00%	1.00%	1.00%	2.00%	1.00%	1.00%	2.25%	2.00%	1.25%	1.00%	2.50%	1.00%
MERCER	1.50%	1.00%	1.75%	1.50%	1.00%	1.00%	1.50%	2.50%	1.00%	1.00%	1.00%	1.00%
MIDDLESEX	1.00%	1.00%	1.75%	1.25%	1.00%	1.00%	1.50%	2.00%	1.00%	1.00%	1.00%	1.00%
MONMOUTH	1.50%	2.25%	1.00%	1.00%	1.00%	1.75%	1.00%	1.75%	1.25%	1.00%	2.50%	1.00%
MORRIS	1.25%	3.00%	1.00%	1.25%	2.50%	1.25%	1.50%	1.00%	1.00%	1.50%	1.00%	1.00%
OCEAN	1.00%	1.00%	1.00%	1.75%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.50%
PASSAIC	N/A	N/A	N/A	N/A	N/A	N/A	1.00%	1.00%	1.00%	1.00%	2.00%	1.00%
SALEM	1.50%	1.00%	1.00%	1.00%	1.50%	3.00%	2.00%	1.50%	1.25%	1.00%	1.00%	2.00%
SOMERSET	2.00%	1.00%	1.75%	1.00%	1.50%	1.00%	1.75%	2.25%	1.25%	1.00%	1.75%	1.00%
SUSSEX	1.00%	1.00%	1.75%	1.50%	1.50%	1.25%	1.00%	1.00%	1.00%	1.50%	1.50%	1.75%
UNION	N/A	N/A	N/A	N/A	N/A	N/A	1.25%	1.50%	1.00%	1.00%	1.00%	1.00%
WARREN	1.00%	1.00%	1.00%	1.00%	1.00%	1.25%	2.25%	1.00%	1.00%	1.00%	1.00%	1.00%

NOTE: For use in short term (within 1-3 years) background growth ONLY.

Example: Assume existing condition is 1,500 peak hour trips and the applicable growth rate is 2%. The multiplication factor for 2% compounded for 3 years is 1.0612. The three-year peak hour forecast is 1,591.8, or 1,592 peak hour trips. [1592 = 1500(1+ 0.02)^3 = 1500(1.0612)]

Future Growth (compounded) = Present Growth * (1+Growth Rate) $^{\#\ of\ years}$

A8

Weekday AM Peak Hour Volumes

x (years) = 7
% per year = 1.00% *(CR 655 Urban Minor Arterial, CR 689 Urban Principal Arterial)*
0.00% *(Stirling Glen Dr, Appletree Ln - since using trip gen for volumes for build-out)*

Roadway Approach	Lane Group	2019 Existing	Stirling Glen I	Smithfield	2026 Base	Site Traffic	2026 Build-Out
CR 655 & CR 689							
CR 655 - NB	Left	11	4	3	19		19
	Through	399	5		433	2	435
	Right	152	4		167	2	169
CR 655 - SB	Left	6			6		6
	Through	212	3		230	1	231
	Right	107		16	131	1	132
CR 689 - EB	Left	70		53	128	2	130
	Through	332		21	377	2	379
	Right	18	2	8	29		29
CR 689 - WB	Left	110	2		120	1	121
	Through	507		7	551	1	552
	Right	10			11		11
CR 655 & Stirling Glen Drive / Queensferry Drive							
CR 655 - NB	Left					2	2
	Through	569		3	613		613
	Right		2		2		2
CR 655 - SB	Left		7		7		7
	Through	338		8	370		370
	Right					2	2
Queensferry Dr - EB	Left					4	4
	Through						0
	Right					4	4
Stirling Glen Dr - WB	Left		4		4		4
	Through						0
	Right		13		13		13
CR 689 & Appletree Lane / Prestwick Drive							
Prestwick Dr - NB	Left					3	3
	Through					0	0
	Right					4	4
Appletree Ln - SB	Left	46			46		46
	Through						0
	Right	11			11		11
CR 689 - EB	Left	4			4		4
	Through	380	2	82	491		491
	Right					2	2
CR 689 - WB	Left					2	2
	Through	619	4	26	694		694
	Right	15			15		15

Weekday PM Peak Hour Volumes

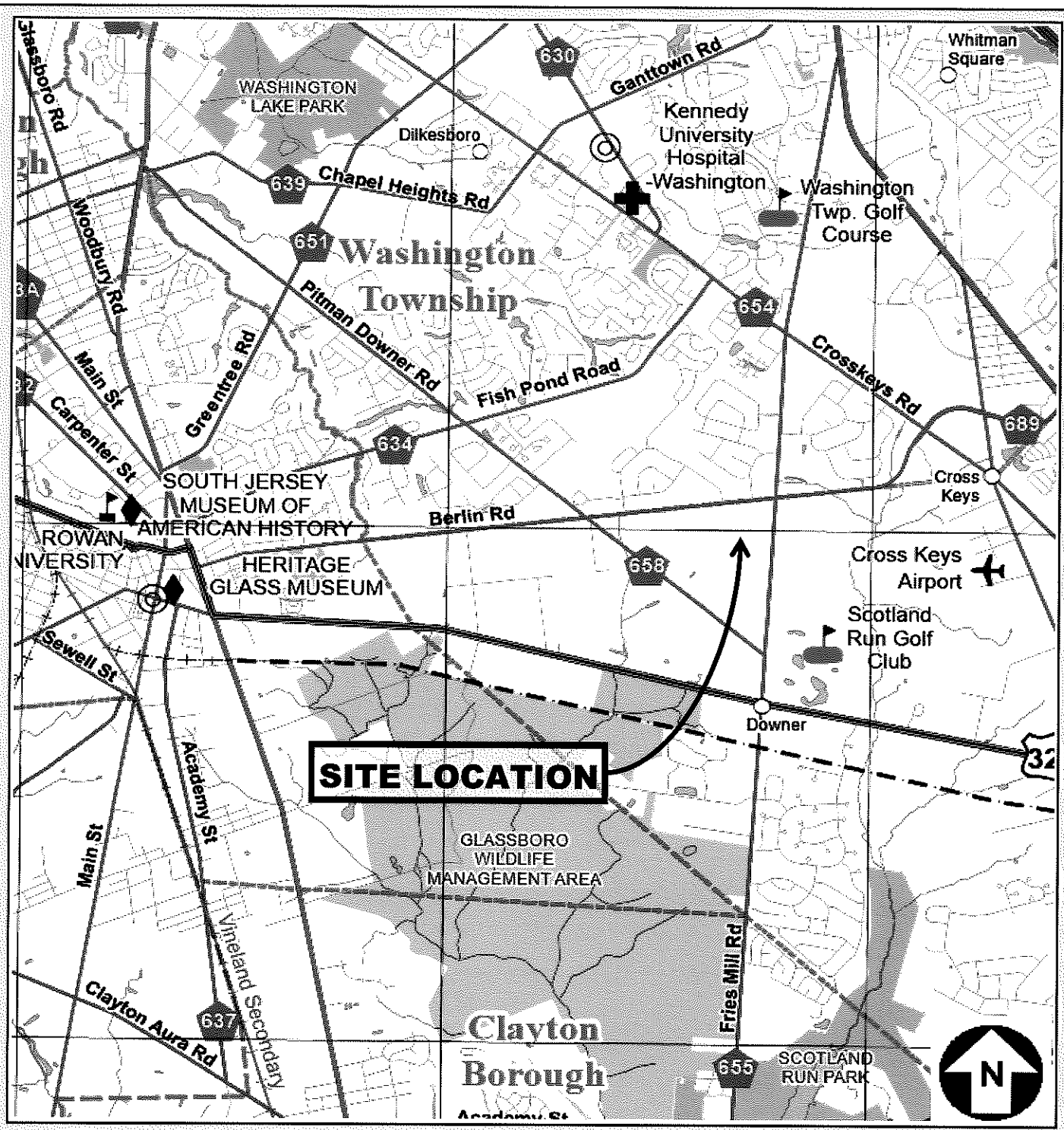
x (years) = 7
% per year = 1.00% *(CR 655 Urban Minor Arterial, CR 689 Urban Principal Arterial)*
0.00% *(Stirling Glen Dr, Appletree Ln - since using trip gen for volumes for build-out)*

Roadway Approach	Lane Group	2019 Existing	Stirling Glen I	Smithfield	2026 Base	Site Traffic	2026 Build-Out
CR 655 & CR 689							
CR 655 - NB	Left	25	2	9	38		38
	Through	377	4		408	2	410
	Right	148	3		162	1	163
CR 655 - SB	Left	11			12		12
	Through	447	6		485	2	487
	Right	155		61	227	3	230
CR 689 - EB	Left	118		35	162	2	164
	Through	501		13	550	2	552
	Right	13	3	5	22		22
CR 689 - WB	Left	135	5		150	2	152
	Through	535		23	597	2	599
	Right	8			9		9
CR 655 & Stirling Glen Drive / Queensferry Drive							
CR 655 - NB	Left					4	4
	Through	558		9	607		607
	Right		5		5		5
CR 655 - SB	Left		14		14		14
	Through	611		5	660		660
	Right					4	4
Queensferry Dr - EB	Left					3	3
	Through						0
	Right					3	3
Stirling Glen Dr - WB	Left		3		3		3
	Through						0
	Right		9		9		9
CR 689 & Appletree Lane / Prestwick Drive							
Prestwick Dr - NB	Left					3	3
	Through					0	0
	Right					4	4
Appletree Ln - SB	Left	30			30		30
	Through						0
	Right	8			8		8
CR 689 - EB	Left	13			13		13
	Through	582	3	53	680		680
	Right					4	4
CR 689 - WB	Left					5	5
	Through	687	2	93	832		832
	Right	51			51		51

PM
#2264-02
4/2/2020

Appendix B

FIGURES



Location Map

Source: http://www.state.nj.us/transportation/gis/map.shtm

The Greens Subdivision

Monroe Township, Gloucester County, New Jersey

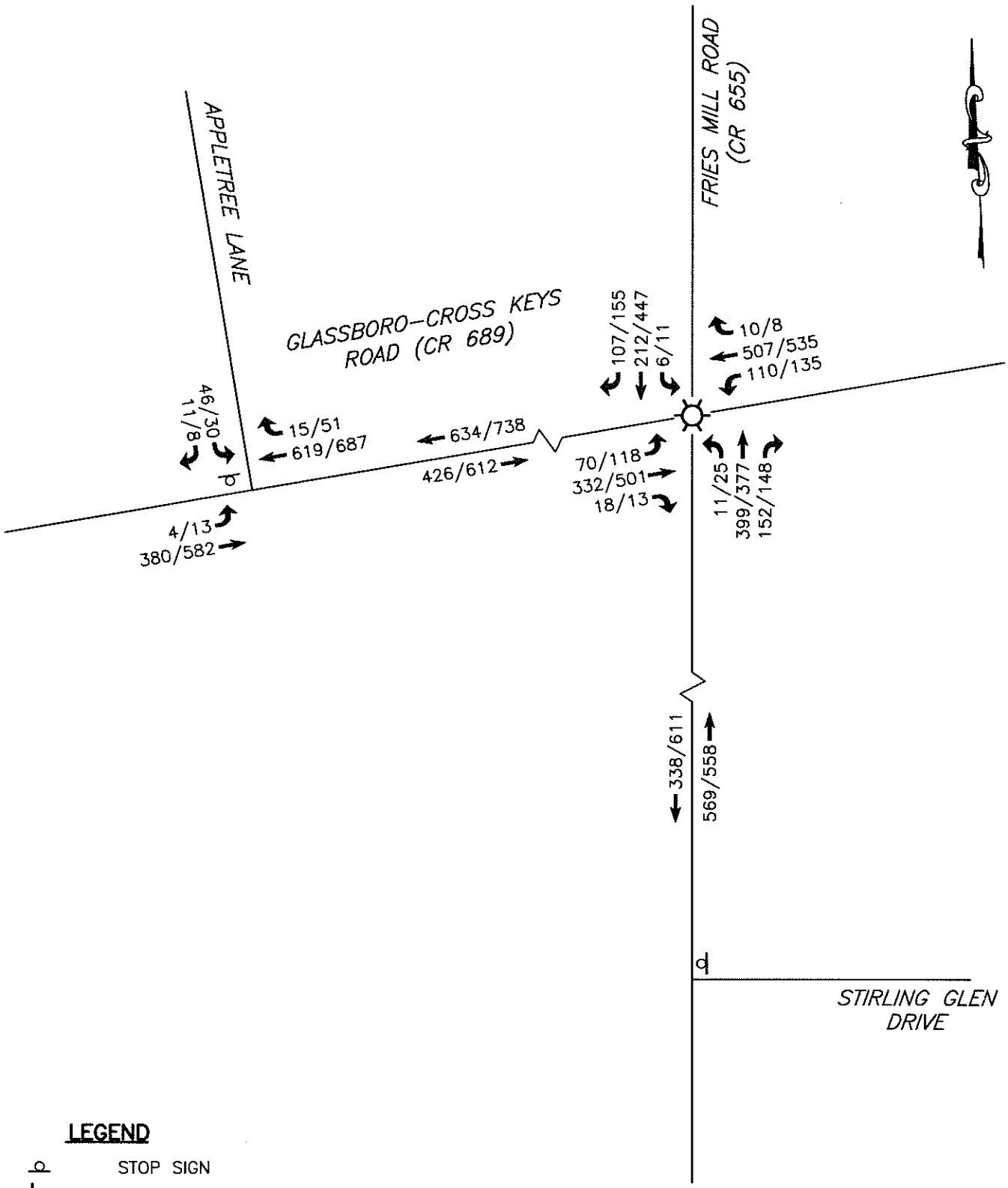
CONSULTING ENGINEER SERVICES

PROFESSIONAL ENGINEERS, PLANNERS & LAND SURVEYORS

645 BERLIN-CROSS KEYS ROAD, SUITE 1, SICKLERVILLE, NJ 08081

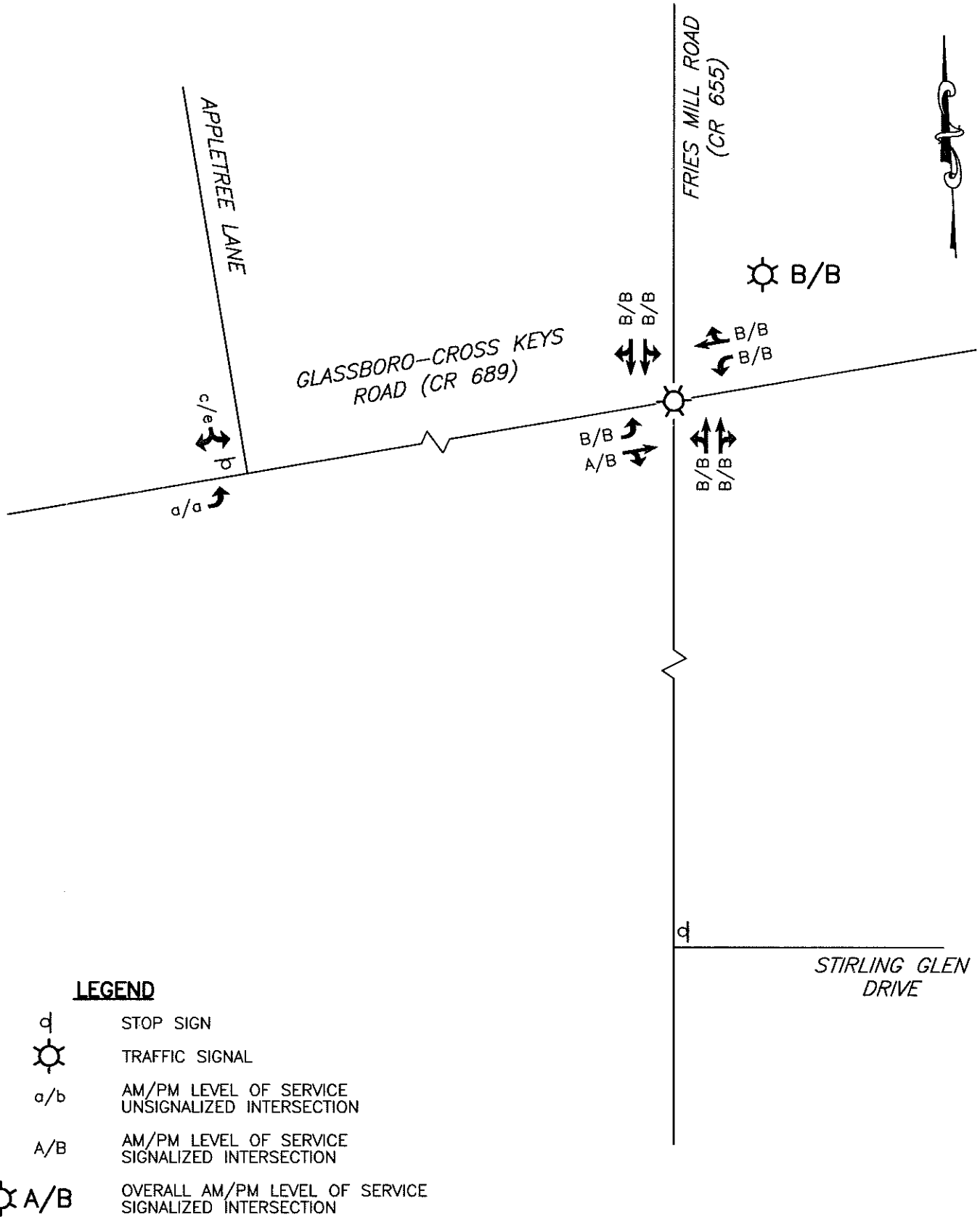
TELEPHONE: (856) 228-2200 FAX: (856) 232-2346 E-MAIL: design @ces-1.com

DWG. #	1
SCALE:	N.T.S.
DATE:	Mar-20
C.E.S. #	2264-02



PROJECT: THE GREENS TRAFFIC IMPACT STUDY MONROE TOWNSHIP GLOUCESTER COUNTY, NEW JERSEY		FIG. No. 2	TITLE: 2019 EXISTING AM/PM PEAK VOLUMES
CONSULTING ENGINEER SERVICES PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS 645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200		DATE: MAR 2020	B3 PROJ #2264-02

P:\Projects\2264-02\1reports\traffic\TIS 3-20\Fig 8.5x11-2264-02.dwg, 2, 4/7/2020 8:29:05 AM, clark, 1:1



LEGEND

d	STOP SIGN
☼	TRAFFIC SIGNAL
a/b	AM/PM LEVEL OF SERVICE UNSIGNALIZED INTERSECTION
A/B	AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION
☼ A/B	OVERALL AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION

PROJECT

THE GREENS
TRAFFIC IMPACT STUDY
MONROE TOWNSHIP
GLOUCESTER COUNTY, NEW JERSEY

FIG. No. 3

TITLE

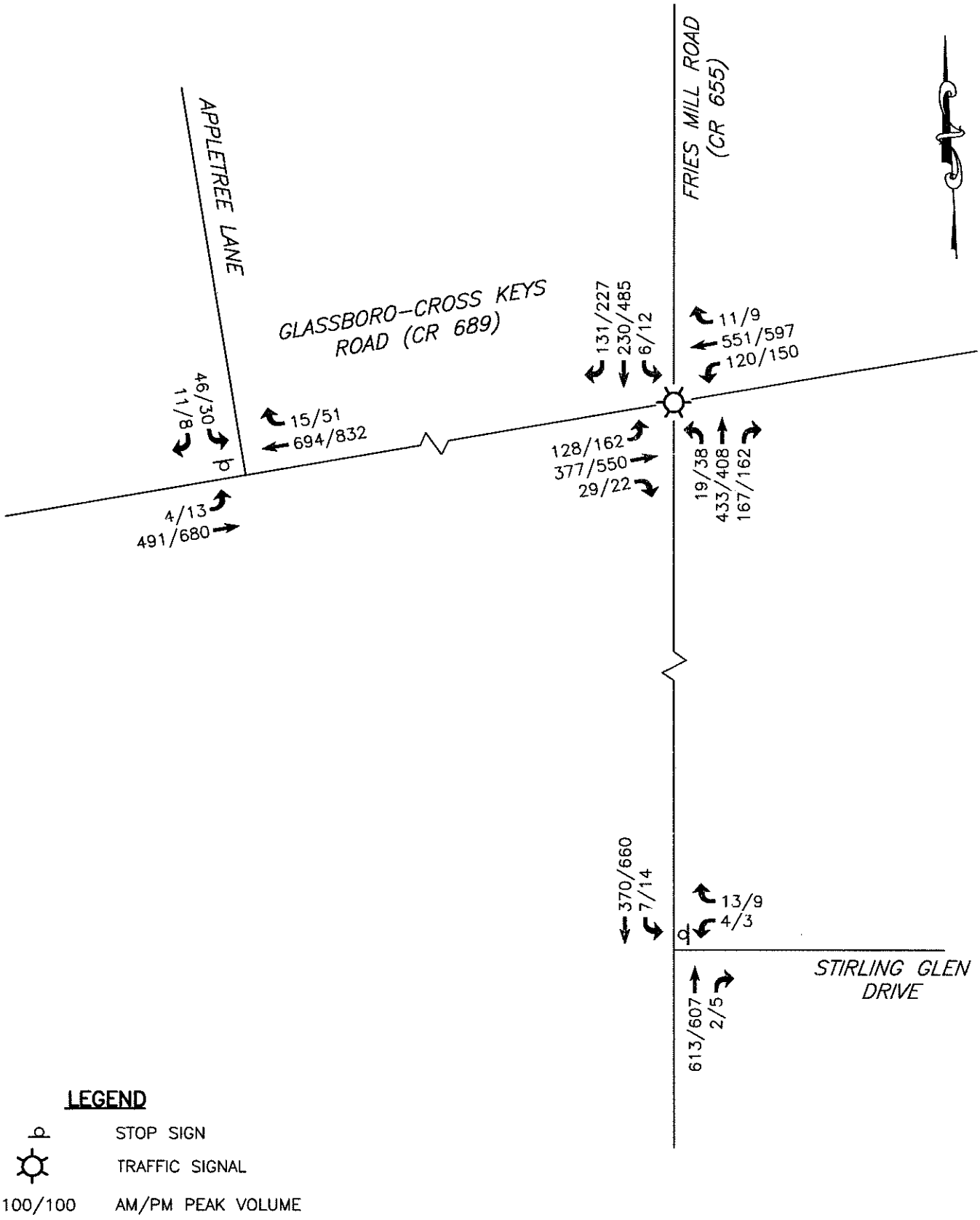
2019 EXISTING AM/PM PEAK LEVEL OF SERVICE

CONSULTING ENGINEER SERVICES
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200

DATE
MAR 2020

B4

PROJ #2264-02

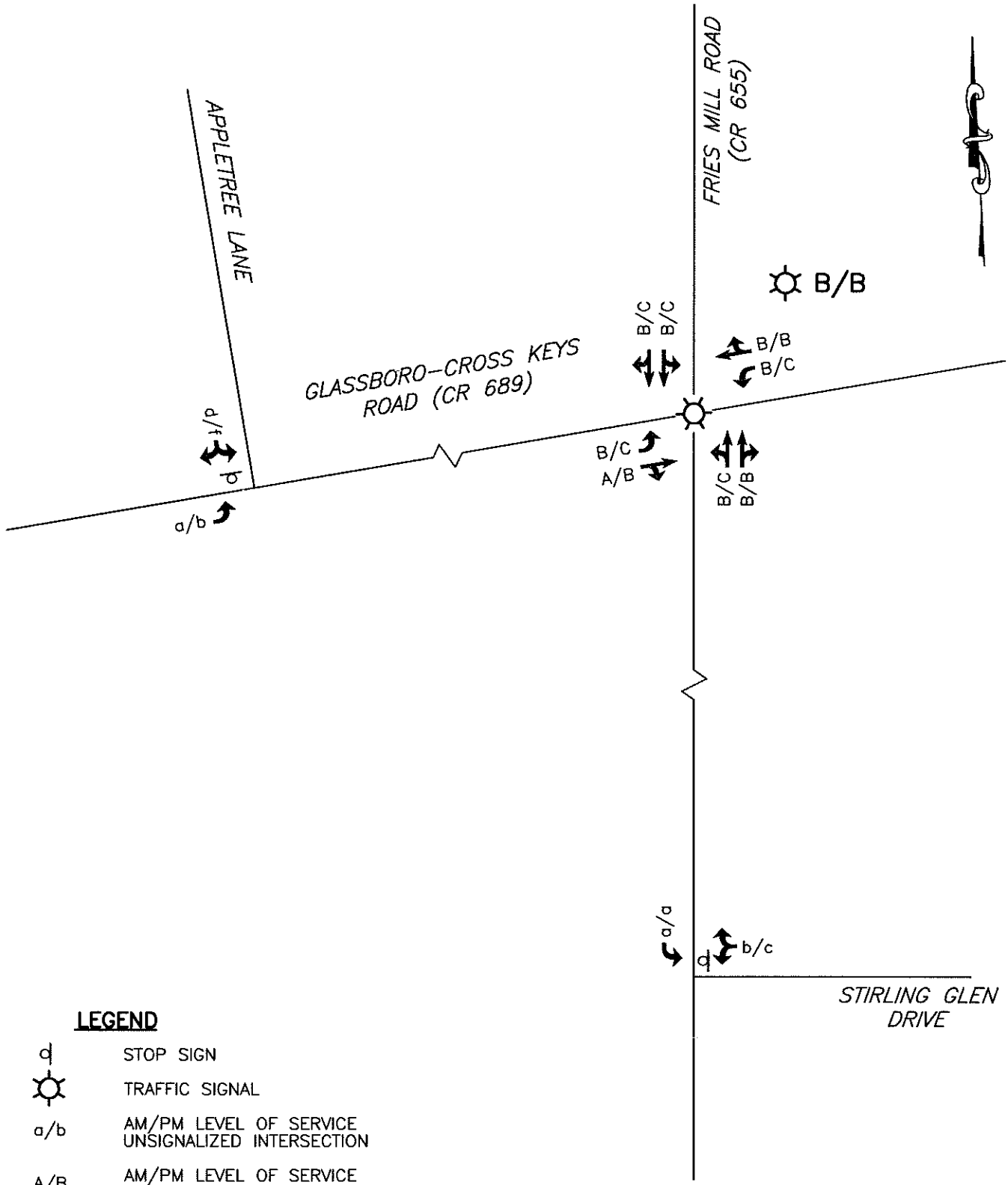


LEGEND

d	STOP SIGN
☼	TRAFFIC SIGNAL
100/100	AM/PM PEAK VOLUME

PROJECT: THE GREENS TRAFFIC IMPACT STUDY, MONROE TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY	FIG. No. 4	TITLE: 2026 FUTURE BASE AM/PM PEAK VOLUMES	
CONSULTING ENGINEER SERVICES, PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS, 645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200	DATE: MAR 2020	BS	PROJ #2264-02

P:\Projects\2264-02\1reports\traffic\TIS 3-20\Fig 8.5x11-2264-02.dwg, 4, 4/7/2020 8:29:13 AM, clark, 1:1



LEGEND

d	STOP SIGN
☼	TRAFFIC SIGNAL
a/b	AM/PM LEVEL OF SERVICE UNSIGNALIZED INTERSECTION
A/B	AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION
☼ A/B	OVERALL AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION

PROJECT

THE GREENS
TRAFFIC IMPACT STUDY
MONROE TOWNSHIP
GLOUCESTER COUNTY, NEW JERSEY

FIG. No.

5

TITLE

2026 FUTURE BASE
AM/PM PEAK
LEVEL OF SERVICE

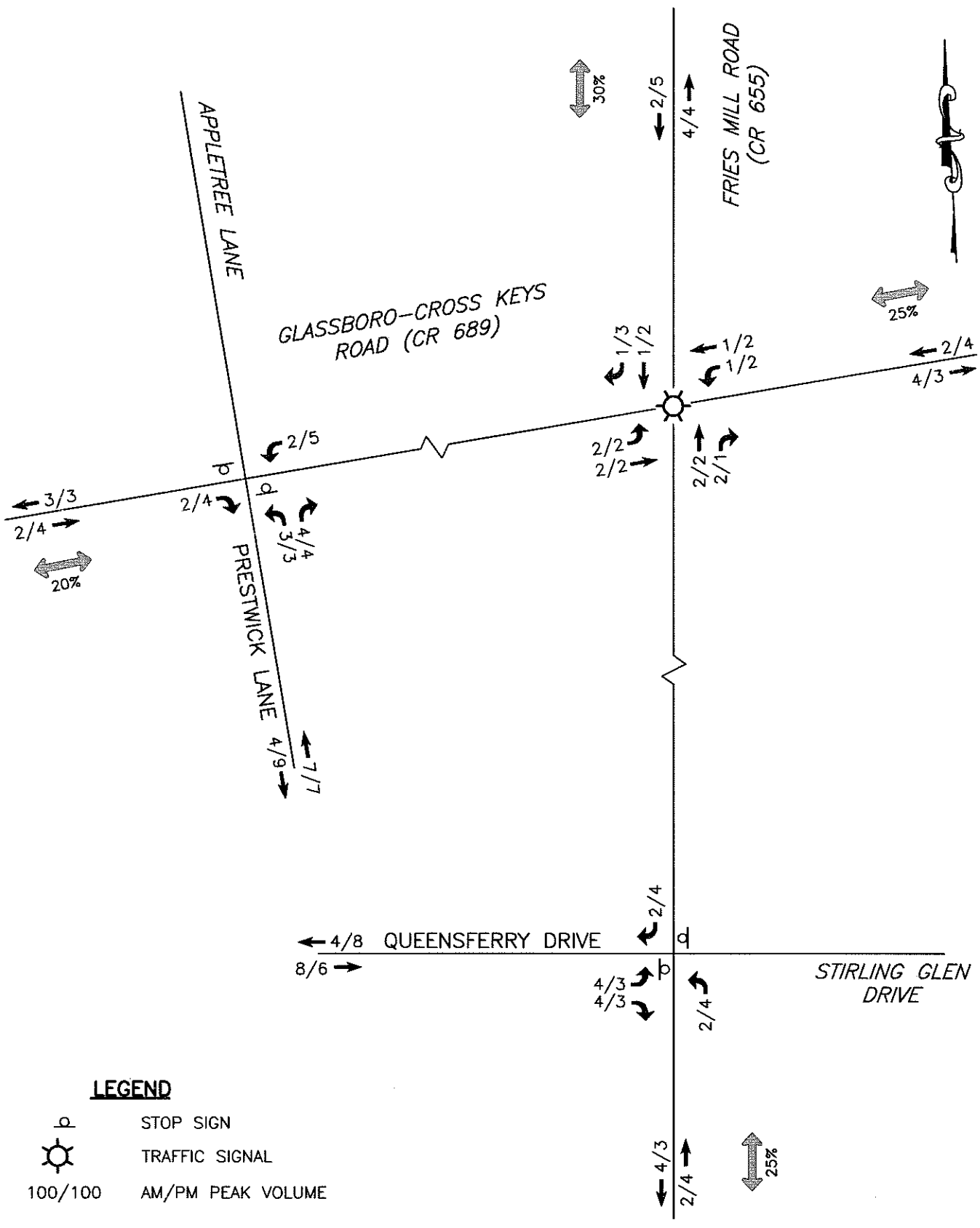
CONSULTING ENGINEER SERVICES
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200

DATE

MAR 2020

B6

PROJ #2264-02



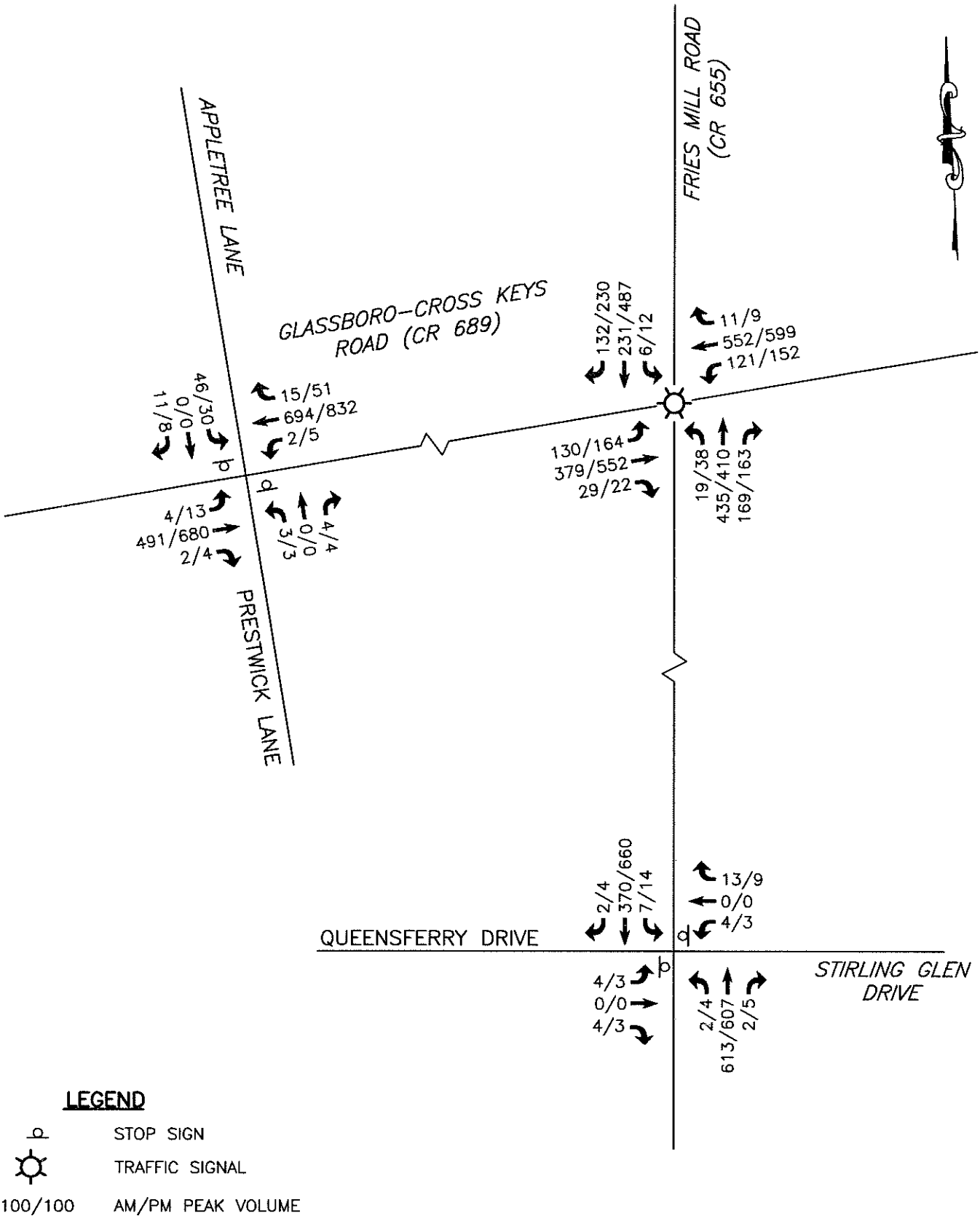
PROJECT	FIG. No.	TITLE
THE GREENS TRAFFIC IMPACT STUDY MONROE TOWNSHIP GLOUCESTER COUNTY, NEW JERSEY	6	SITE TRAFFIC AM/PM PEAK VOLUMES

CONSULTING ENGINEER SERVICES
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200

DATE
MAR 2020

B7

PROJ #2264-02



LEGEND

- STOP SIGN
- TRAFFIC SIGNAL
- 100/100 AM/PM PEAK VOLUME

PROJECT	FIG. No.	TITLE
THE GREENS TRAFFIC IMPACT STUDY MONROE TOWNSHIP GLOUCESTER COUNTY, NEW JERSEY	7	2026 BUILD-OUT AM/PM PEAK VOLUMES

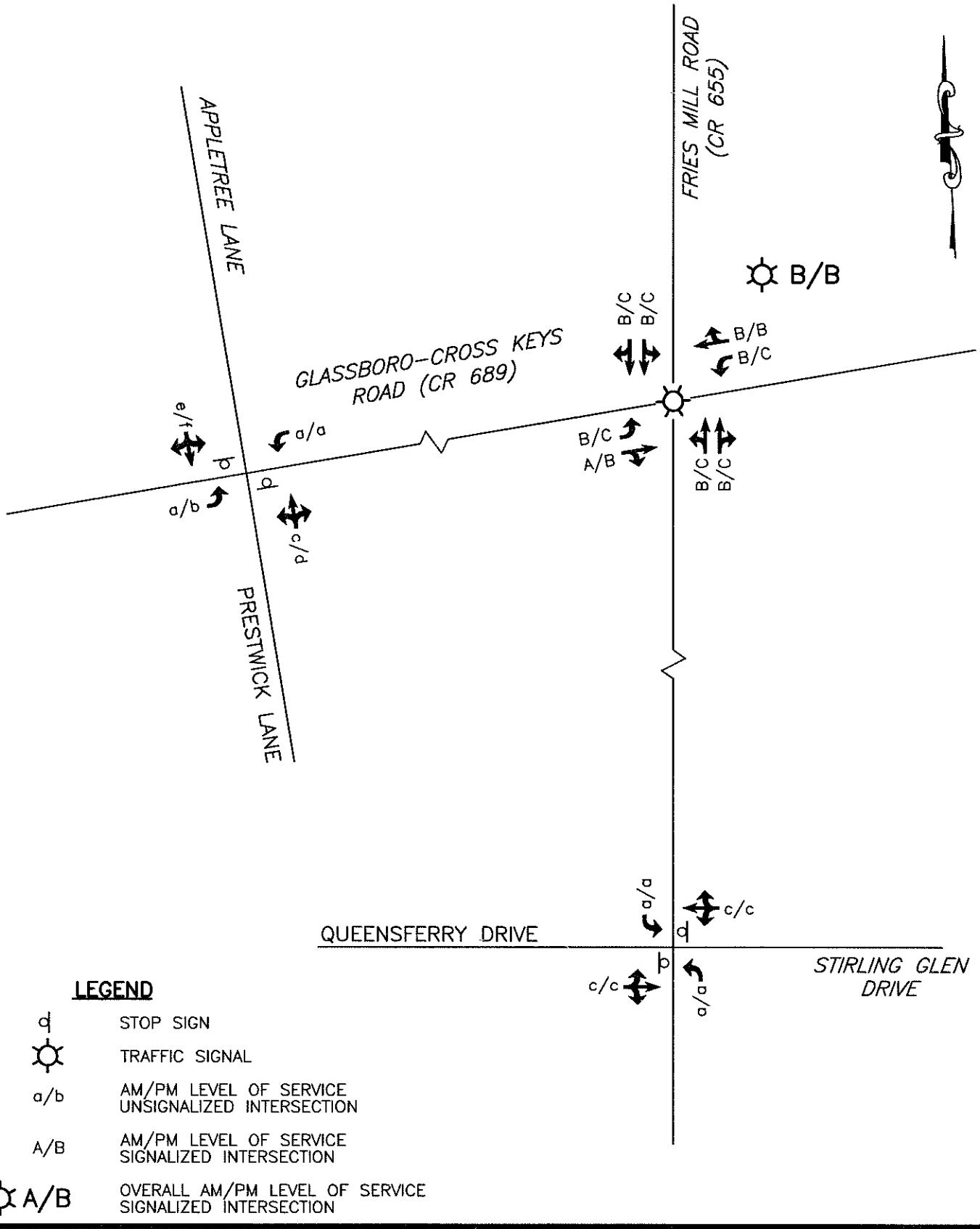
CONSULTING ENGINEER SERVICES
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200

DATE: MAR 2020

BB

PROJ #2264-02

P:\Projects\2264-02\1reports\traffic\TIS 3-20\Fig 8.5x11-2264-02.dwg, 7, 4/7/2020 8:29:28 AM, clark, 1:1



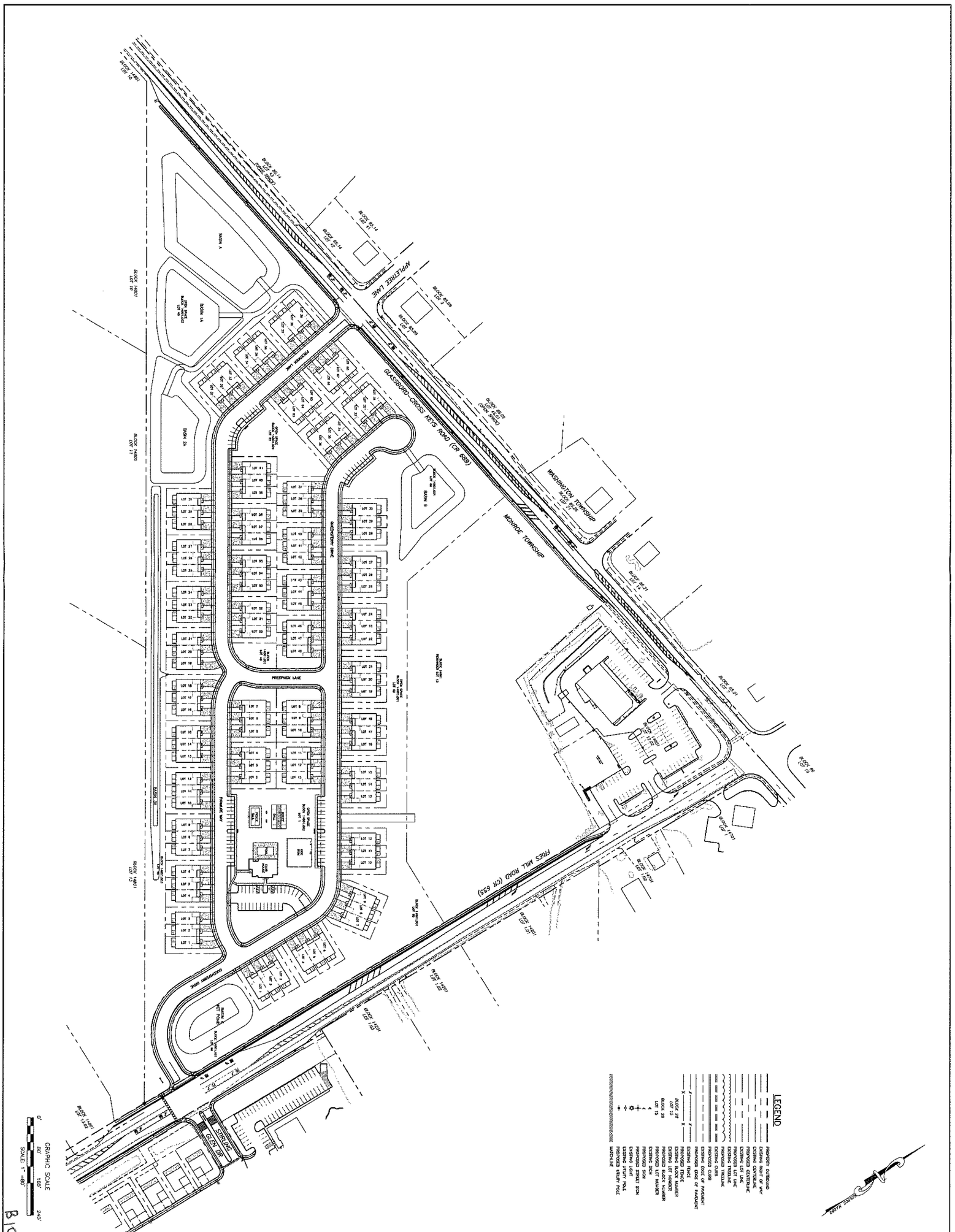
LEGEND

d	STOP SIGN
☼	TRAFFIC SIGNAL
a/b	AM/PM LEVEL OF SERVICE UNSIGNALIZED INTERSECTION
A/B	AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION
☼ A/B	OVERALL AM/PM LEVEL OF SERVICE SIGNALIZED INTERSECTION

PROJECT THE GREENS TRAFFIC IMPACT STUDY MONROE TOWNSHIP GLOUCESTER COUNTY, NEW JERSEY		FIG. No. 8	TITLE 2026 BUILD-OUT AM/PM PEAK LEVEL OF SERVICE
CONSULTING ENGINEER SERVICES PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS 645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200		DATE MAR 2020	B9 PROJ #2264-02

P:\Projects\2264-02\1reports\traffic\TIS 3-20\Fig 8.5x11-2264-02.dwg, 8, 4/7/2020 8:29:33 AM, clark, 1:1

P:\Projects\2264-02\1reports\traffic\TIS 3-20\overall.dwg, OVERALL, 4/7/2020 9:42:23 AM, clark, 1:2.84882



PREPARED BY
CONSULTING ENGINEER SERVICES
PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS
645 BERLIN-CROSS KEYS ROAD, SUITE 1, SICKLERVILLE, NEW JERSEY 08081
PHONE (856) 228-2200 – FAX (856) 232-3346 – EMAIL design@cse-1.com
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27957700

SHT. No. 1 OF 31 DATE: 03/27/20 SCALE: 1"=80' CES No. 2264-02 FILE No. 2264-02-OVERALL DRAWN BY: MRR

OVERALL PLAN

THE GREENS
PLATE 148, BLOCK 14801, LOT 12
MONROE TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

DRWN	DATE	REVISIONS

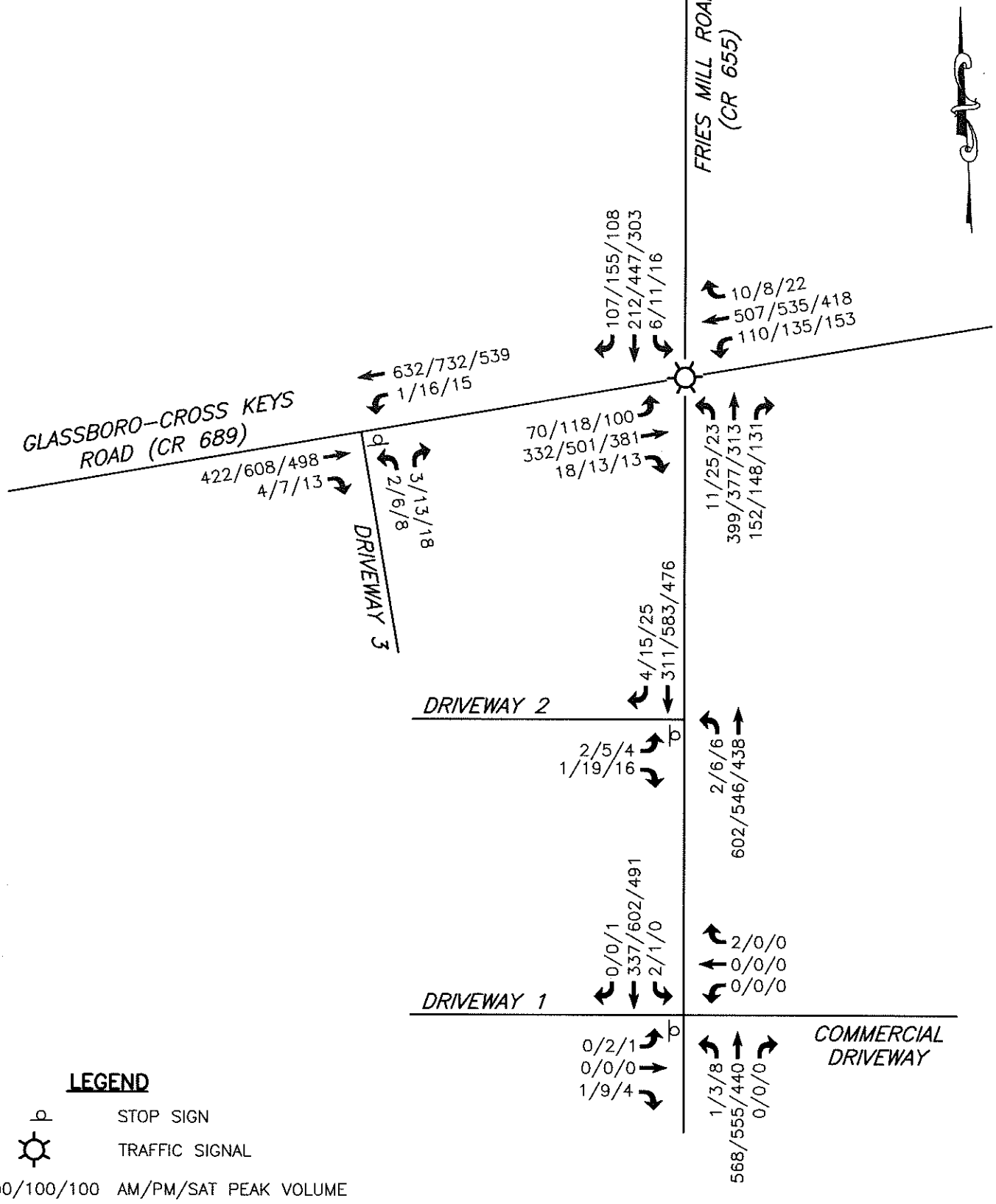
THIS PLAN IS A REPRODUCTION OF THE ORIGINAL PLAN. UNLESS THIS PLAN HAS BEEN SIGNED NOW BY THE LICENSED PROFESSIONAL RESPONSIBLE FOR THE PLAN, IT SHALL NOT BE REPRODUCED OR AUTHORIZED DISCLOSURE. ANY REUSE WITHOUT WRITTEN AUTHORIZATION OR ADAPTATION BY CES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT USER'S SOLE RISK AND WITHOUT LIABILITY TO CES.

PAUL A. WITTHOHN DATE
PROFESSIONAL ENGINEER, NEW JERSEY LIC. NO. 24GE04749300

FIGURE 9

Appendix C

TRAFFIC COUNT DATA



PROJECT: MONROE EQUITIES, LLC TRAFFIC IMPACT STUDY MONROE TOWNSHIP GLOUCESTER COUNTY, NEW JERSEY		FIG. No. 2	TITLE 2019 EXISTING AM/PM/SAT PEAK VOLUMES
CONSULTING ENGINEER SERVICES PROFESSIONAL ENGINEERS, PLANNERS, & LAND SURVEYORS 645 BERLIN CROSS KEYS RD, SICKLERVILLE, NJ 08081 856-228-2200		DATE MAR 2020	C2 PROJ #1888-04

P:\Projects\1888-04\1reports\traffic\TIS 3-20\Fig 8.5x11-1888-04.dwg, 2, 3/31/2020 1:55:50 PM, brown, 1:1

TRI-STATE TRAFFIC DATA

Williamstown, NJ
Fries Mill Rd & Glassboro Cross Keys Rd
Thursday, September 26, 2019
Location: 39.711403, -75.051098

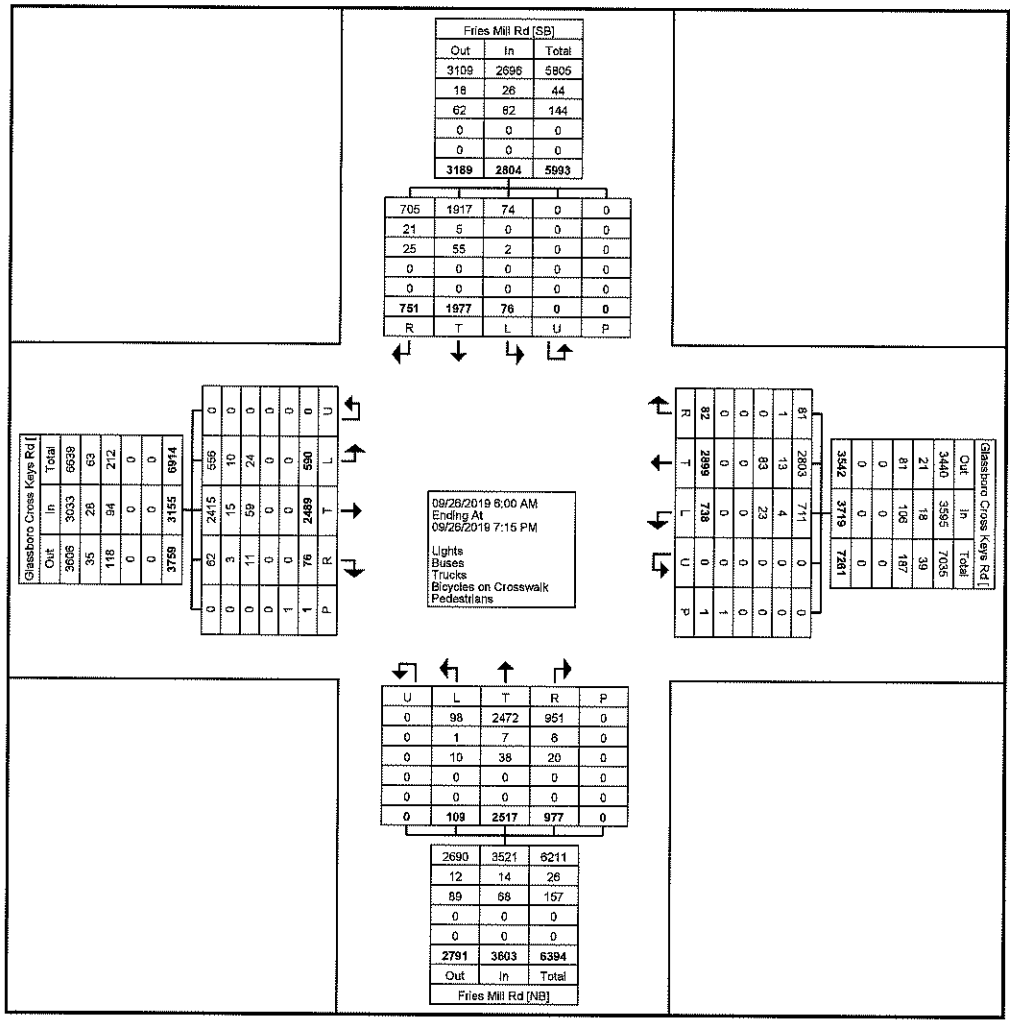
www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Glassboro Cross Keys Rd/Fries Mill Rd
Site Code:
Start Date: 09/26/2019
Page No: 1

Turning Movement Data

Start Time	Glassboro Cross Keys Rd Eastbound							Glassboro Cross Keys Rd Westbound							Fries Mill Rd Northbound							Fries Mill Rd Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
6:00 AM	15	52	0	0	0	0	67	11	39	1	1	0	0	52	0	83	9	3	0	0	95	0	27	5	0	0	0	32	246
6:15 AM	15	56	0	0	0	0	71	16	50	0	2	0	0	68	5	77	16	9	0	0	107	0	30	10	0	0	0	40	286
6:30 AM	14	64	2	1	0	0	81	16	75	0	1	0	0	92	1	105	24	6	0	0	136	0	23	6	1	0	0	30	339
6:45 AM	18	74	3	0	0	0	95	27	73	3	0	0	0	103	2	107	24	1	0	0	134	1	50	22	3	0	0	76	408
Hourly Total	62	246	5	1	0	0	314	70	237	4	4	0	0	315	8	372	73	19	0	0	472	1	130	43	4	0	0	178	1279
7:00 AM	21	72	0	1	0	0	94	22	68	2	2	0	0	94	3	98	22	5	0	0	128	3	53	12	9	0	0	77	393
7:15 AM	8	82	3	0	0	0	93	19	121	4	0	0	0	144	3	95	32	4	0	0	134	4	58	24	1	0	0	87	458
7:30 AM	15	73	4	2	0	0	94	34	168	1	1	0	0	204	3	89	21	6	0	0	119	1	60	35	5	0	0	101	518
7:45 AM	22	77	5	2	0	0	106	33	130	1	1	0	0	165	2	117	50	10	0	0	179	0	52	23	4	0	0	79	529
Hourly Total	66	304	12	5	0	0	387	108	487	8	4	0	0	607	11	399	125	25	0	0	560	8	223	94	19	0	0	344	1898
8:00 AM	25	100	2	0	0	0	127	24	88	1	1	0	0	114	3	98	27	2	0	0	130	1	42	13	2	0	0	58	429
8:15 AM	24	65	4	2	0	1	95	19	85	5	1	0	0	110	6	98	29	5	0	0	138	2	54	13	1	0	0	70	413
8:30 AM	19	53	2	0	0	0	74	23	78	4	0	0	0	105	3	105	26	7	0	0	141	3	47	15	3	0	0	68	388
8:45 AM	24	87	1	1	0	0	113	21	101	3	0	0	0	125	5	110	29	7	0	0	151	6	38	21	2	0	0	67	456
Hourly Total	92	305	9	3	0	1	409	87	352	13	2	0	0	454	17	411	111	21	0	0	560	12	181	62	8	0	0	263	1686
9:00 AM	25	60	2	0	0	0	87	18	106	3	2	0	1	129	3	74	25	8	0	0	110	5	46	27	5	0	0	83	409
9:15 AM	22	76	2	0	0	0	100	22	80	3	0	0	0	105	4	82	26	4	0	0	116	2	46	15	2	0	0	65	386
9:30 AM	23	81	1	0	0	0	105	24	64	1	0	0	0	89	6	99	27	6	0	0	138	5	49	28	7	0	0	89	421
9:45 AM	25	66	2	1	0	0	94	12	64	1	0	0	0	77	1	69	20	7	0	0	97	5	63	18	5	0	0	91	359
Hourly Total	95	283	7	1	0	0	386	76	314	8	2	0	1	400	14	324	98	25	0	0	461	17	204	88	19	0	0	328	1575
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
4:00 PM	21	90	1	1	0	0	113	40	126	6	0	0	0	172	8	62	34	7	0	0	111	3	130	33	4	0	0	170	566
4:15 PM	26	119	2	0	0	0	147	30	120	3	0	0	0	153	3	84	42	7	0	0	136	7	108	34	1	0	0	150	586
4:30 PM	26	92	4	1	0	0	123	34	155	4	0	0	0	193	8	91	40	1	0	0	140	2	98	40	8	0	0	148	604
4:45 PM	28	117	1	0	0	0	146	34	133	1	0	0	0	168	7	103	24	4	0	0	138	6	115	51	5	0	0	177	629
Hourly Total	101	418	8	2	0	0	529	138	534	14	0	0	0	686	26	340	140	19	0	0	525	18	451	158	18	0	0	645	2385
5:00 PM	39	135	4	1	0	0	179	29	120	1	0	0	0	150	2	92	37	2	0	0	133	2	129	29	6	0	0	166	628
5:15 PM	32	132	2	0	0	0	166	27	136	3	0	0	0	166	12	87	39	2	0	0	140	0	105	33	1	0	0	139	611
5:30 PM	19	117	4	1	0	0	141	45	146	1	2	0	0	194	4	95	36	4	0	0	139	3	98	27	3	0	0	131	605
5:45 PM	20	139	2	2	0	0	163	34	139	5	1	0	0	179	3	104	39	3	0	0	149	8	91	20	3	0	0	122	613
Hourly Total	110	523	12	4	0	0	649	135	541	10	3	0	0	689	21	378	151	11	0	0	561	13	423	109	13	0	0	558	2457
6:00 PM	15	85	2	1	0	0	103	33	123	4	0	0	0	160	3	70	31	11	0	0	115	3	99	26	1	0	0	129	507
6:15 PM	16	92	0	0	0	0	108	24	116	4	0	0	0	144	3	77	47	9	0	0	136	1	93	31	2	0	0	127	515
6:30 PM	19	125	2	0	0	0	146	36	110	0	1	0	0	147	4	84	22	5	0	0	115	3	91	25	1	0	0	120	528
6:45 PM	14	108	1	0	0	0	123	31	85	1	0	0	0	117	2	61	26	8	0	0	97	0	82	28	1	0	0	111	448
Hourly Total	64	410	5	1	0	0	480	124	434	9	1	0	0	568	12	292	126	33	0	0	463	7	365	110	5	0	0	487	1998
7:00 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Grand Total	590	2489	58	18	0	1	3155	738	2899	66	16	0	1	3719	109	2517	824	153	0	0	3603	76	1977	665	86	0	0	2804	13281
Approach %	18.7	78.9	1.8	0.6	0.0	-	-	19.8	78.0	1.8	0.4	0.0	-	-	3.0	69.9	22.9	4.2	0.0	-	-	2.7	70.5	23.7	3.1	0.0	-	-	-
Total %	4.4	18.7	0.4	0.1	0.0	-	23.8	5.6	21.8	0.5	0.1	0.0	-	28.0	0.8	19.0	6.2	1.2	0.0	-	27.1	0.6	14.9	5.0	0.6	0.0	-	21.1	-
Lights	556	2415	47	15	0	-	3033	711	2803	66	15	0	-	3595	98	2472	803	148	0	-	3521	74	1917	622	83	0	-	2696	12845
% Lights	94.2	97.0	81.0	83.3	-	-	96.1	96.3	96.7	100.0	93.8	-	-	96.7	89.9	98.2	97.5	96.7	-	-	97.7	97.4	97.0	93.5	96.5	-	-	96.1	96.7
Buses	10	15	3	0	0	-	28	4	13	0	1	0	-	18	1	7	5	1	0	-	14	0	5	20	1	0	-	26	86
% Buses	1.7	0.6	5.2	0.0	-	-	0.9	0.5	0.4	0.0	6.3	-	-	0.5	0.9	0.3	0.6	0.7	-	-	0.4	0.0	0.3	3.0	1.2	-	-	0.9	0.6
Trucks	24	59	8	3	0	-	94	23	83	0	0	0	-	106	10	38	16	4	0	-	68	2	55	23	2	0	-	82	350
% Trucks	4.1	2.4	13.8	16.7	-	-	3.0	3.1	2.9	0.0	0.0	-	-	2.9	9.2	1.5	1.9	2.6	-	-	1.9	2.6	2.8	3.5	2.3	-	-	2.9	2.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Data Plot

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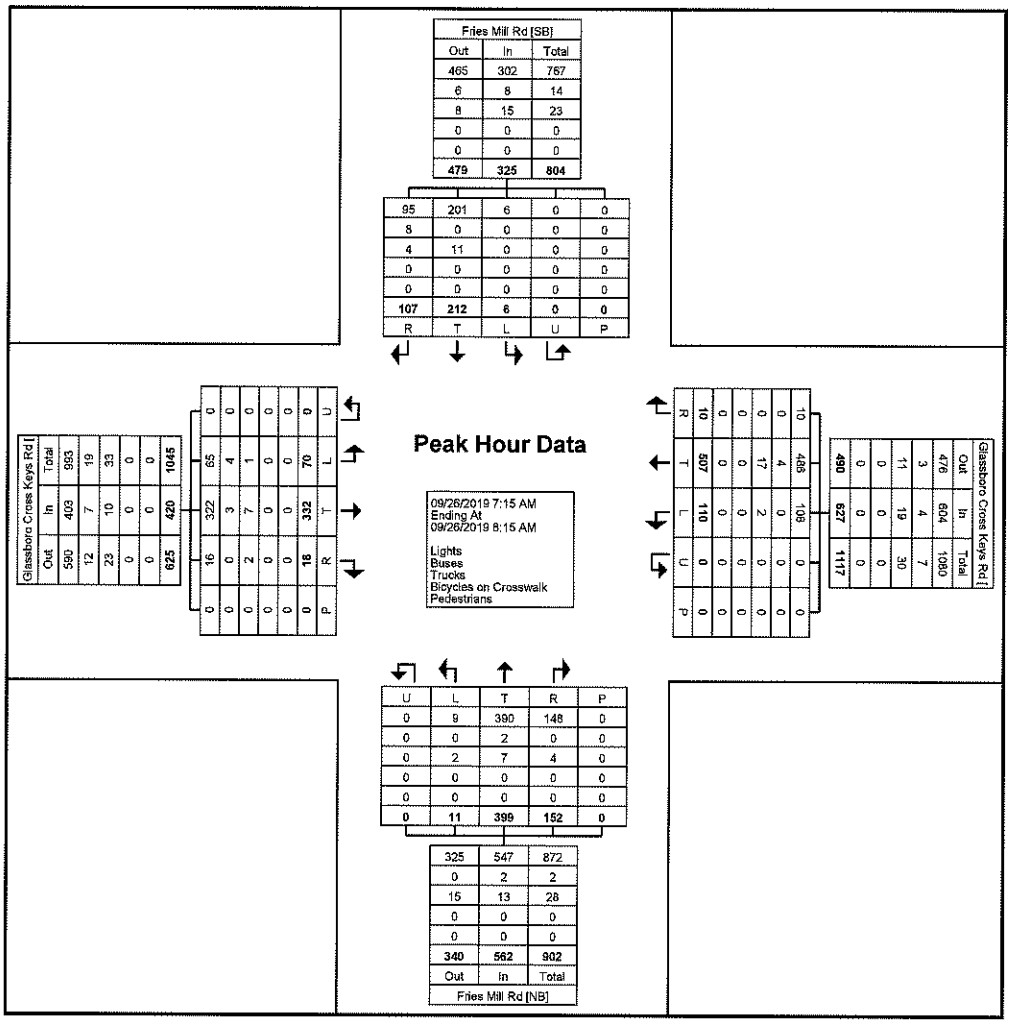
Williamstown, NJ
Fries Mill Rd & Glassboro Cross Keys Rd
Thursday, September 26, 2019
Location: 39.711403, -75.051098

Count Name: Glassboro Cross Keys Rd/Fries Mill Rd
Site Code:
Start Date: 09/26/2019
Page No: 3

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Glassboro Cross Keys Rd Eastbound							Glassboro Cross Keys Rd Westbound							Fries Mill Rd Northbound							Fries Mill Rd Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:15 AM	8	82	3	0	0	0	93	19	121	4	0	0	0	144	3	95	32	4	0	0	134	4	58	24	1	0	0	87	458
7:30 AM	15	73	4	2	0	0	94	34	166	1	1	0	0	204	3	89	21	6	0	0	119	1	60	35	5	0	0	101	518
7:45 AM	22	77	5	2	0	0	106	33	130	1	1	0	0	165	2	117	50	10	0	0	179	0	52	23	4	0	0	79	529
8:00 AM	25	100	2	0	0	0	127	24	88	1	1	0	0	114	3	98	27	2	0	0	130	1	42	13	2	0	0	58	429
Total	70	332	14	4	0	0	420	110	507	7	3	0	0	627	11	399	130	22	0	0	562	6	212	95	12	0	0	325	1934
Approach %	16.7	79.0	3.3	1.0	0.0	-	-	17.5	80.9	1.1	0.5	0.0	-	-	2.0	71.0	23.1	3.9	0.0	-	-	1.8	65.2	29.2	3.7	0.0	-	-	-
Total %	3.6	17.2	0.7	0.2	0.0	-	21.7	5.7	26.2	0.4	0.2	0.0	-	32.4	0.6	20.6	6.7	1.1	0.0	-	29.1	0.3	11.0	4.9	0.6	0.0	-	16.8	-
PHF	0.700	0.830	0.700	0.500	0.000	-	0.827	0.809	0.754	0.438	0.750	0.000	-	0.768	0.917	0.853	0.650	0.550	0.000	-	0.785	0.375	0.883	0.679	0.600	0.000	-	0.804	0.914
Lights	65	322	13	3	0	-	403	108	486	7	3	0	-	604	9	390	126	22	0	-	547	6	201	84	11	0	-	302	1856
% Lights	92.9	97.0	92.9	75.0	-	-	96.0	98.2	95.9	100.0	100.0	-	-	96.3	81.8	97.7	96.9	100.0	-	-	97.3	100.0	94.8	88.4	91.7	-	-	92.9	96.0
Buses	4	3	0	0	0	-	7	0	4	0	0	0	-	4	0	2	0	0	0	-	2	0	0	7	1	0	-	8	21
% Buses	5.7	0.9	0.0	0.0	-	-	1.7	0.0	0.8	0.0	0.0	-	-	0.6	0.0	0.5	0.0	0.0	-	-	0.4	0.0	0.0	7.4	8.3	-	-	2.5	1.1
Trucks	1	7	1	1	0	-	10	2	17	0	0	0	-	19	2	7	4	0	0	-	13	0	11	4	0	0	-	15	57
% Trucks	1.4	2.1	7.1	25.0	-	-	2.4	1.8	3.4	0.0	0.0	-	-	3.0	18.2	1.8	3.1	0.0	-	-	2.3	0.0	5.2	4.2	0.0	-	-	4.6	2.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

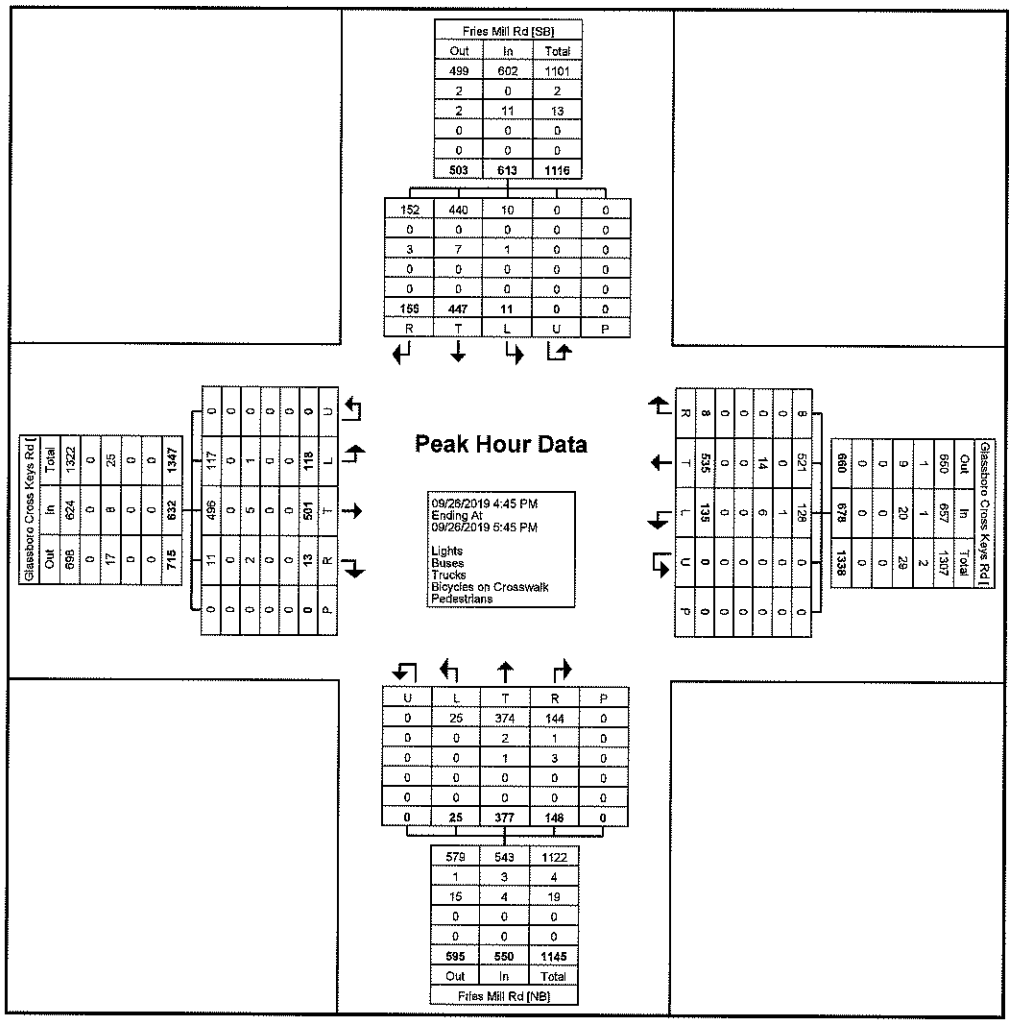
C5



Turning Movement Peak Hour Data Plot (7:15 AM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Glassboro Cross Keys Rd Eastbound							Glassboro Cross Keys Rd Westbound							Fries Mill Rd Northbound							Fries Mill Rd Southbound							
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Int. Total
4:45 PM	28	117	1	0	0	0	146	34	133	1	0	0	0	168	7	103	24	4	0	0	138	6	115	51	5	0	0	177	629
5:00 PM	39	135	4	1	0	0	179	29	120	1	0	0	0	150	2	92	37	2	0	0	133	2	129	29	6	0	0	166	628
5:15 PM	32	132	2	0	0	0	166	27	136	3	0	0	0	166	12	87	39	2	0	0	140	0	105	33	1	0	0	139	611
5:30 PM	19	117	4	1	0	0	141	45	146	1	2	0	0	194	4	95	36	4	0	0	139	3	98	27	3	0	0	131	605
Total	118	501	11	2	0	0	632	135	535	6	2	0	0	678	25	377	136	12	0	0	550	11	447	140	15	0	0	613	2473
Approach %	18.7	79.3	1.7	0.3	0.0	-	-	19.9	78.9	0.9	0.3	0.0	-	-	4.5	68.5	24.7	2.2	0.0	-	-	1.8	72.9	22.8	2.4	0.0	-	-	-
Total %	4.8	20.3	0.4	0.1	0.0	-	25.6	5.5	21.6	0.2	0.1	0.0	-	27.4	1.0	15.2	5.5	0.5	0.0	-	22.2	0.4	18.1	5.7	0.6	0.0	-	24.8	-
PHF	0.756	0.928	0.688	0.500	0.000	-	0.883	0.750	0.916	0.500	0.250	0.000	-	0.874	0.521	0.916	0.672	0.750	0.000	-	0.982	0.458	0.866	0.686	0.625	0.000	-	0.866	0.983
Lights	117	496	9	2	0	-	624	128	521	6	2	0	-	657	25	374	133	11	0	-	543	10	440	138	14	0	-	602	2426
% Lights	99.2	99.0	81.8	100.0	-	-	98.7	94.8	97.4	100.0	100.0	-	-	96.9	100.0	99.2	97.8	91.7	-	-	98.7	90.9	98.4	98.6	93.3	-	-	98.2	98.1
Buses	0	0	0	0	0	-	0	1	0	0	0	0	-	1	0	2	1	0	0	-	3	0	0	0	0	0	-	0	4
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.7	0.0	0.0	0.0	-	-	0.1	0.0	0.5	0.7	0.0	-	-	0.5	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Trucks	1	5	2	0	0	-	8	6	14	0	0	0	-	20	0	1	2	1	0	-	4	1	7	2	1	0	-	11	43
% Trucks	0.8	1.0	18.2	0.0	-	-	1.3	4.4	2.6	0.0	0.0	-	-	2.9	0.0	0.3	1.5	8.3	-	-	0.7	9.1	1.6	1.4	6.7	-	-	1.8	1.7
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:45 PM)

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Williamstown, NJ
Fries Mill Rd & North Driveway
Thursday, September 26, 2019
Location: 39.710756, -75.05115

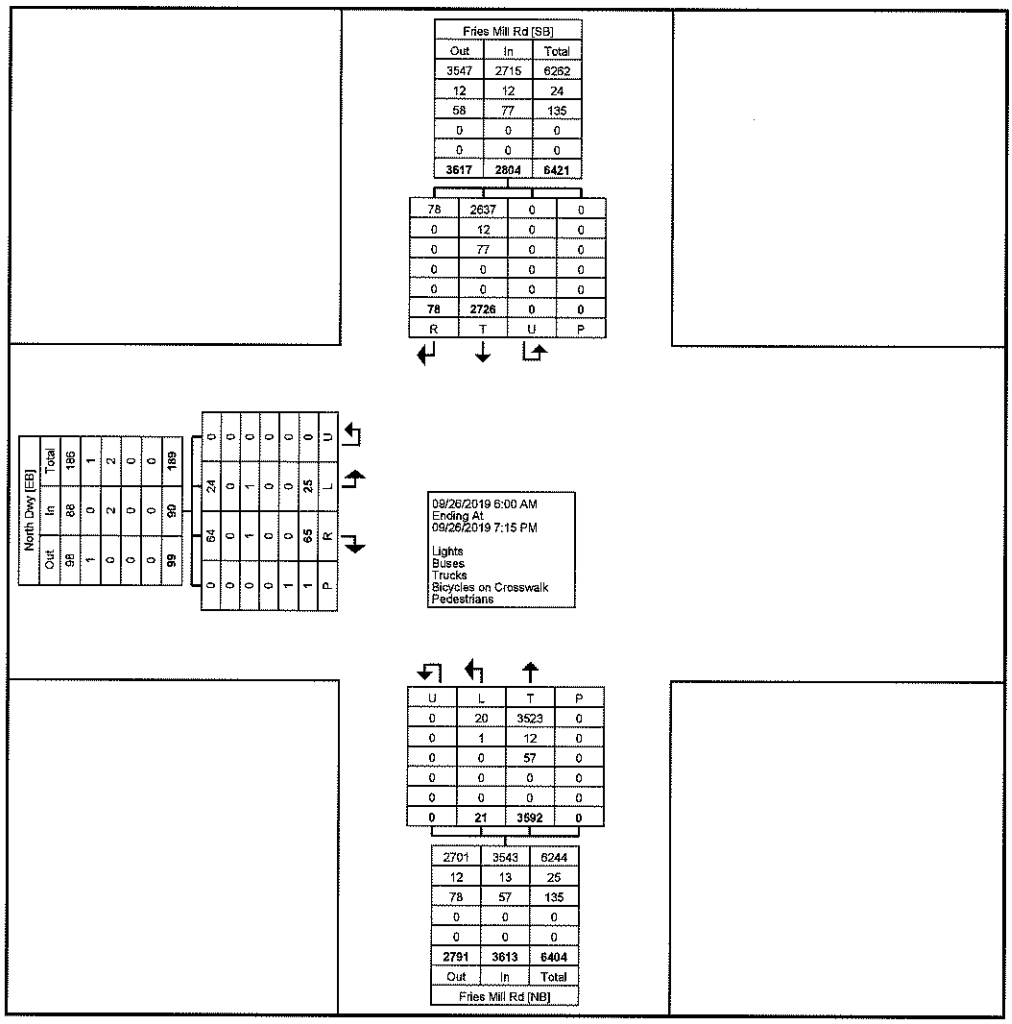
Count Name: Fries Mill Rd/North Dwy
Site Code:
Start Date: 09/26/2019

Turning Movement Data

Start Time	North Dwy Eastbound					Fries Mill Rd Northbound					Fries Mill Rd Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	0	0	0	0	0	0	94	0	0	94	38	0	0	0	38	132
6:15 AM	0	0	0	0	0	0	109	0	0	109	46	0	0	0	46	155
6:30 AM	0	0	0	0	0	0	145	0	0	145	44	0	0	0	44	189
6:45 AM	1	0	0	0	1	0	129	0	0	129	82	0	0	0	82	212
Hourly Total	1	0	0	0	1	0	477	0	0	477	210	0	0	0	210	688
7:00 AM	0	0	0	0	0	0	129	0	0	129	77	1	0	0	78	207
7:15 AM	0	0	0	0	0	0	135	0	0	135	76	1	0	0	77	212
7:30 AM	0	0	0	0	0	1	113	0	0	114	98	1	0	0	99	213
7:45 AM	0	0	0	0	0	0	183	0	0	183	91	1	0	0	92	275
Hourly Total	0	0	0	0	0	1	560	0	0	561	342	4	0	0	346	907
8:00 AM	0	0	0	0	0	0	133	0	0	133	70	2	0	0	72	205
8:15 AM	1	1	0	1	2	0	141	0	0	141	78	1	0	0	79	222
8:30 AM	1	0	0	0	1	2	145	0	0	147	72	0	0	0	72	220
8:45 AM	1	1	0	0	2	1	147	0	0	148	59	2	0	0	61	211
Hourly Total	3	2	0	1	5	3	566	0	0	569	279	5	0	0	284	858
9:00 AM	2	2	0	0	4	1	111	0	0	112	66	2	0	0	68	184
9:15 AM	1	0	0	0	1	0	112	0	0	112	68	1	0	0	69	182
9:30 AM	0	1	0	0	1	0	139	0	0	139	70	4	0	0	74	214
9:45 AM	2	2	0	0	4	1	95	0	0	96	77	2	0	0	79	179
Hourly Total	5	5	0	0	10	2	457	0	0	459	281	9	0	0	290	759
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	2	0	0	3	2	107	0	0	109	169	3	0	0	172	284
4:15 PM	0	3	0	0	3	0	138	0	0	138	137	5	0	0	142	283
4:30 PM	0	7	0	0	7	0	136	0	0	136	131	7	0	0	138	281
4:45 PM	0	5	0	0	5	1	142	0	0	143	151	0	0	0	151	299
Hourly Total	1	17	0	0	18	3	523	0	0	526	588	15	0	0	603	1147
5:00 PM	1	1	0	0	2	1	135	0	0	136	156	6	0	0	162	300
5:15 PM	1	8	0	0	9	1	134	0	0	135	129	6	0	0	135	279
5:30 PM	3	5	0	0	8	3	135	0	0	138	147	3	0	0	150	296
5:45 PM	2	3	0	0	5	1	143	0	0	144	120	6	0	0	126	275
Hourly Total	7	17	0	0	24	6	547	0	0	553	552	21	0	0	573	1150
6:00 PM	2	7	0	0	9	0	115	0	0	115	132	4	0	0	136	260
6:15 PM	2	4	0	0	6	0	129	0	0	129	112	7	0	0	119	254
6:30 PM	2	5	0	0	7	4	116	0	0	120	122	7	0	0	129	256
6:45 PM	2	8	0	0	10	2	101	0	0	103	108	6	0	0	114	227
Hourly Total	8	24	0	0	32	6	461	0	0	467	474	24	0	0	498	997
7:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	25	65	0	1	90	21	3592	0	0	3613	2726	78	0	0	2804	6507
Approach %	27.8	72.2	0.0	-	-	0.6	99.4	0.0	-	-	97.2	2.8	0.0	-	-	-
Total %	0.4	1.0	0.0	-	1.4	0.3	55.2	0.0	-	55.5	41.9	1.2	0.0	-	43.1	-
Lights	24	64	0	-	88	20	3523	0	-	3543	2637	78	0	-	2715	6346
% Lights	96.0	98.5	-	-	97.8	95.2	98.1	-	-	98.1	96.7	100.0	-	-	96.8	97.5
Buses	0	0	0	-	0	1	12	0	-	13	12	0	0	-	12	25
% Buses	0.0	0.0	-	-	0.0	4.8	0.3	-	-	0.4	0.4	0.0	-	-	0.4	0.4
Trucks	1	1	0	-	2	0	57	0	-	57	77	0	0	-	77	136
% Trucks	4.0	1.5	-	-	2.2	0.0	1.6	-	-	1.6	2.8	0.0	-	-	2.7	2.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Williamstown, NJ
Fries Mill Rd & North Driveway
Thursday, September 26, 2019
Location: 39.710756, -75.05115

Count Name: Fries Mill Rd/North Dwy
Site Code:
Start Date: 09/26/2019



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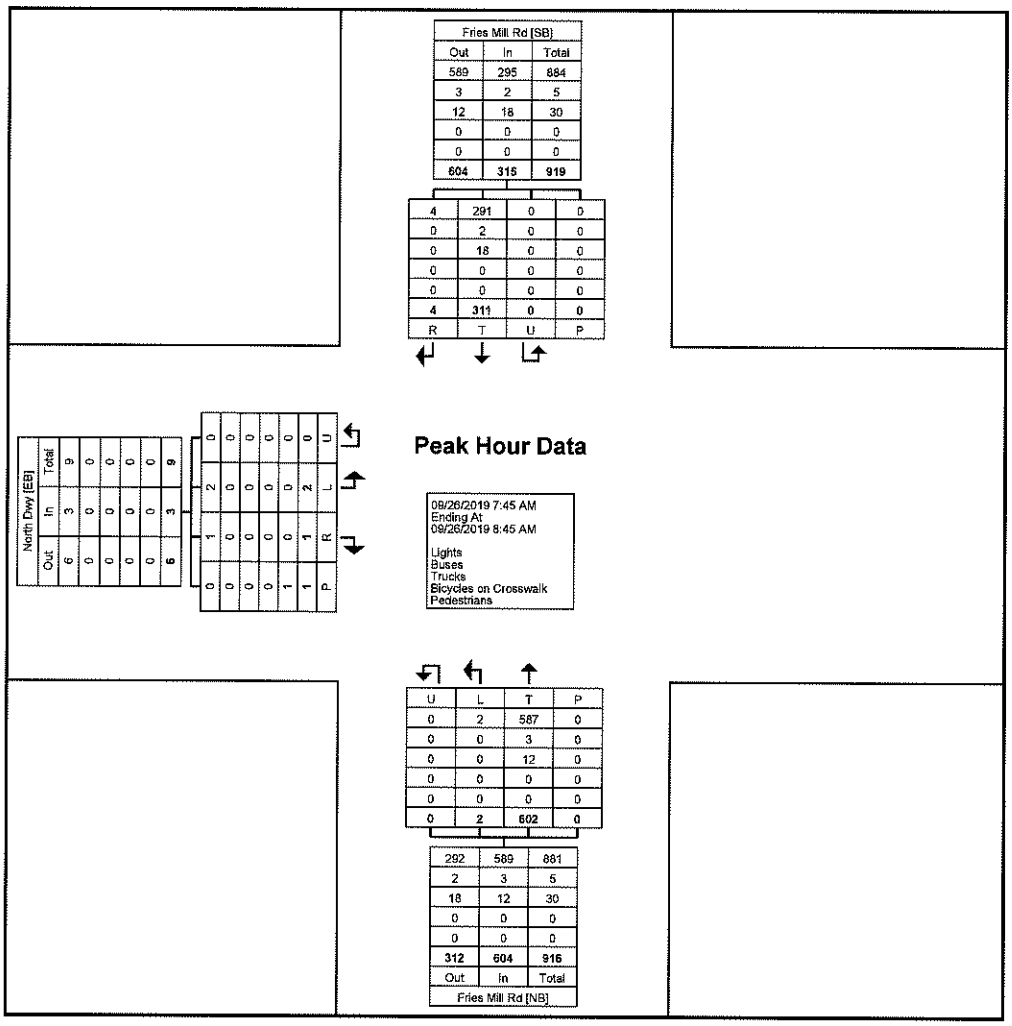
Williamstown, NJ
Fries Mill Rd & North Driveway
Thursday, September 26, 2019
Location: 39.710756, -75.05115

Count Name: Fries Mill Rd/North Dwy
Site Code:
Start Date: 09/26/2019

Turning Movement Peak Hour Data (7:45 AM)

Start Time	North Dwy Eastbound					Fries Mill Rd Northbound					Fries Mill Rd Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	0	0	0	0	0	0	183	0	0	183	91	1	0	0	92	275
8:00 AM	0	0	0	0	0	0	133	0	0	133	70	2	0	0	72	205
8:15 AM	1	1	0	1	2	0	141	0	0	141	78	1	0	0	79	222
8:30 AM	1	0	0	0	1	2	145	0	0	147	72	0	0	0	72	220
Total	2	1	0	1	3	2	602	0	0	604	311	4	0	0	315	922
Approach %	66.7	33.3	0.0	-	-	0.3	99.7	0.0	-	-	98.7	1.3	0.0	-	-	-
Total %	0.2	0.1	0.0	-	0.3	0.2	65.3	0.0	-	65.5	33.7	0.4	0.0	-	34.2	-
PHF	0.500	0.250	0.000	-	0.375	0.250	0.822	0.000	-	0.825	0.854	0.500	0.000	-	0.856	0.838
Lights	2	1	0	-	3	2	587	0	-	589	291	4	0	-	295	887
% Lights	100.0	100.0	-	-	100.0	100.0	97.5	-	-	97.5	93.6	100.0	-	-	93.7	96.2
Buses	0	0	0	-	0	0	3	0	-	3	2	0	0	-	2	5
% Buses	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.5	0.6	0.0	-	-	0.6	0.5
Trucks	0	0	0	-	0	0	12	0	-	12	18	0	0	-	18	30
% Trucks	0.0	0.0	-	-	0.0	0.0	2.0	-	-	2.0	5.8	0.0	-	-	5.7	3.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)

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Williamstown, NJ
Fries Mill Rd & North Driveway
Thursday, September 26, 2019
Location: 39.710756, -75.05115

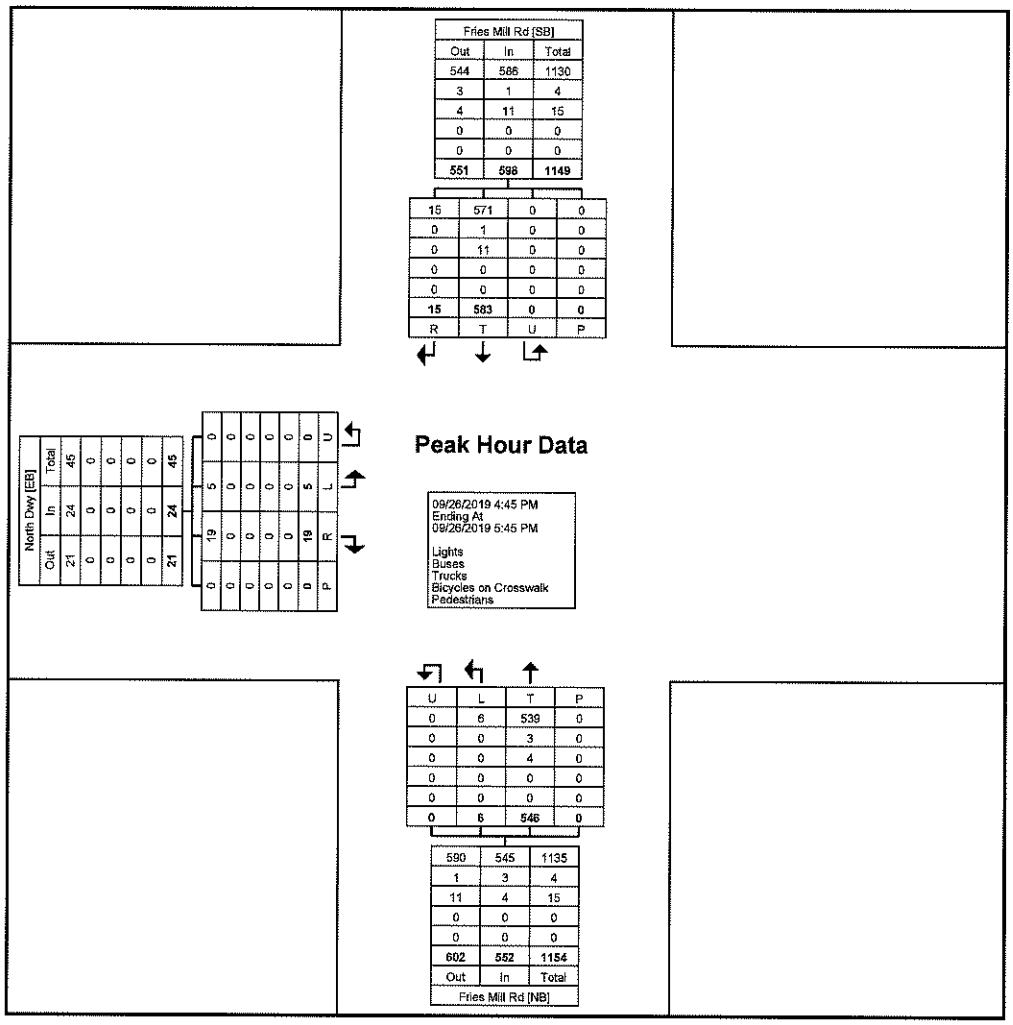
Count Name: Fries Mill Rd/North Dwy
Site Code:
Start Date: 09/26/2019

Turning Movement Peak Hour Data (4:45 PM)

Start Time	North Dwy Eastbound					Fries Mill Rd Northbound					Fries Mill Rd Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	0	5	0	0	5	1	142	0	0	143	151	0	0	0	151	299
5:00 PM	1	1	0	0	2	1	135	0	0	136	156	6	0	0	162	300
5:15 PM	1	8	0	0	9	1	134	0	0	135	129	6	0	0	135	279
5:30 PM	3	5	0	0	8	3	135	0	0	138	147	3	0	0	150	296
Total	5	19	0	0	24	6	546	0	0	552	583	15	0	0	598	1174
Approach %	20.8	79.2	0.0	-	-	1.1	98.9	0.0	-	-	97.5	2.5	0.0	-	-	-
Total %	0.4	1.6	0.0	-	2.0	0.5	46.5	0.0	-	47.0	49.7	1.3	0.0	-	50.9	-
PHF	0.417	0.594	0.000	-	0.667	0.500	0.961	0.000	-	0.965	0.934	0.625	0.000	-	0.923	0.978
Lights	5	19	0	-	24	6	539	0	-	545	571	15	0	-	586	1155
% Lights	100.0	100.0	-	-	100.0	100.0	98.7	-	-	98.7	97.9	100.0	-	-	98.0	98.4
Buses	0	0	0	-	0	0	3	0	-	3	1	0	0	-	1	4
% Buses	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.5	0.2	0.0	-	-	0.2	0.3
Trucks	0	0	0	-	0	0	4	0	-	4	11	0	0	-	11	15
% Trucks	0.0	0.0	-	-	0.0	0.0	0.7	-	-	0.7	1.9	0.0	-	-	1.8	1.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Williamstown, NJ
Fries Mill Rd & North Driveway
Thursday, September 26, 2019
Location: 39.710756, -75.05115

Count Name: Fries Mill Rd/North Dwy
Site Code:
Start Date: 09/26/2019
Page No: 6



Turning Movement Peak Hour Data Plot (4:45 PM)

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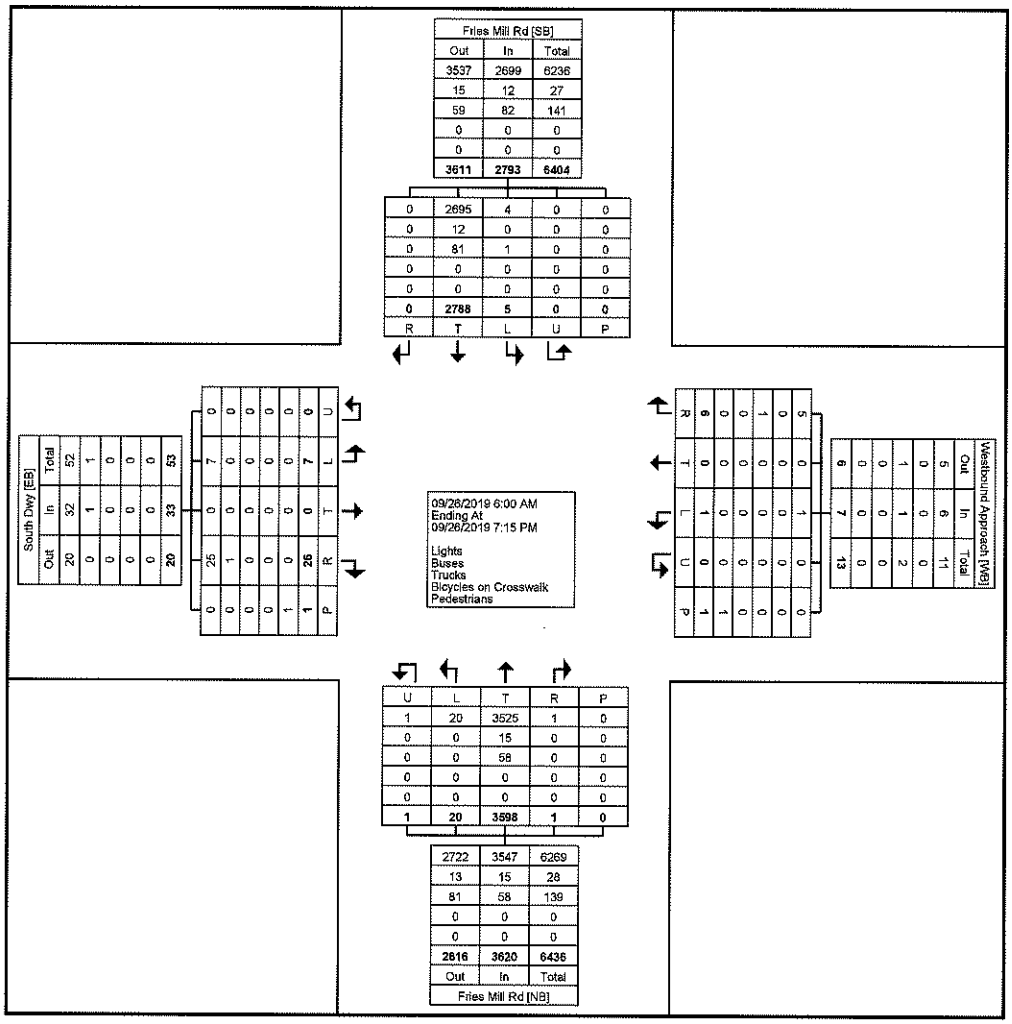
Williamstown, NJ
Fries Mill Rd & South Driveway
Thursday, September 26, 2019
Location: 39.710408, -75.051182

Count Name: Fries Mill Rd/South Dwy
Site Code:
Start Date: 09/26/2019
Page No: 1

Turning Movement Data

Start Time	South Dwy Eastbound						Westbound Approach Westbound						Fries Mill Rd Northbound						Fries Mill Rd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	95	0	0	0	95	0	38	0	0	0	38	133
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	109	0	0	0	109	0	46	0	0	0	46	155
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	140	0	0	0	141	0	43	0	0	0	43	184
6:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	131	0	0	0	132	1	82	0	0	0	83	216
Hourly Total	0	0	1	0	0	1	0	0	0	0	0	0	2	475	0	0	0	477	1	209	0	0	0	210	688
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	127	0	0	0	128	0	75	0	0	0	75	203
7:15 AM	1	0	1	0	0	2	0	0	0	0	0	0	0	130	1	0	0	131	0	78	0	0	0	78	211
7:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	1	116	0	0	0	117	0	101	0	0	0	101	220
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	0	180	1	89	0	0	0	90	270
Hourly Total	1	0	2	0	0	3	0	0	1	0	0	1	2	553	1	0	0	556	1	343	0	0	0	344	904
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	133	0	0	0	133	1	68	0	0	0	69	202
8:15 AM	0	0	0	0	1	0	0	0	1	0	0	1	0	139	0	0	0	139	0	79	0	0	0	79	219
8:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	145	0	0	0	145	0	73	0	0	0	73	219
8:45 AM	0	0	1	0	0	1	0	0	1	0	0	1	1	150	0	1	0	152	0	60	0	0	0	60	214
Hourly Total	0	0	2	0	1	2	0	0	2	0	0	2	1	567	0	1	0	569	1	280	0	0	0	281	854
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	111	0	0	0	112	0	67	0	0	0	67	179
9:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	113	0	0	0	114	0	69	0	0	0	69	184
9:30 AM	2	0	2	0	0	4	0	0	0	0	0	0	4	139	0	0	0	143	1	71	0	0	0	72	219
9:45 AM	0	0	1	0	0	1	0	0	1	0	0	1	0	96	0	0	0	96	0	76	0	0	0	76	174
Hourly Total	2	0	4	0	0	6	0	0	1	0	0	1	6	459	0	0	0	465	1	283	0	0	0	284	756
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	109	0	0	0	109	0	173	0	0	0	173	282
4:15 PM	0	0	4	0	0	4	0	0	0	0	0	0	1	138	0	0	0	139	0	138	0	0	0	138	281
4:30 PM	2	0	0	0	0	2	0	0	2	0	0	2	1	131	0	0	0	132	0	138	0	0	0	138	274
4:45 PM	2	0	2	0	0	4	0	0	0	0	0	0	2	138	0	0	0	140	1	155	0	0	0	156	300
Hourly Total	4	0	6	0	0	10	0	0	2	0	0	2	4	516	0	0	0	520	1	604	0	0	0	605	1137
5:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	136	0	0	0	136	0	159	0	0	0	159	297
5:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	139	0	0	0	139	0	137	0	0	0	137	278
5:30 PM	0	0	3	0	0	3	0	0	0	0	1	0	1	142	0	0	0	143	0	151	0	0	0	151	297
5:45 PM	0	0	2	0	0	2	1	0	0	0	0	1	0	146	0	0	0	146	0	125	0	0	0	125	274
Hourly Total	0	0	9	0	0	9	1	0	0	0	1	1	1	563	0	0	0	564	0	572	0	0	0	572	1146
6:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	115	0	0	0	116	0	139	0	0	0	139	256
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	129	0	0	0	130	0	113	0	0	0	113	243
6:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	121	0	0	0	122	0	129	0	0	0	129	252
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	100	0	0	0	101	0	116	0	0	0	116	217
Hourly Total	0	0	2	0	0	2	0	0	0	0	0	0	4	465	0	0	0	469	0	497	0	0	0	497	968
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	7	0	26	0	1	33	1	0	6	0	1	7	20	3598	1	1	0	3620	5	2788	0	0	0	2793	6453
Approach %	21.2	0.0	78.8	0.0	-	-	14.3	0.0	85.7	0.0	-	-	0.6	99.4	0.0	0.0	-	-	0.2	99.8	0.0	0.0	-	-	-
Total %	0.1	0.0	0.4	0.0	-	0.5	0.0	0.0	0.1	0.0	-	0.1	0.3	55.8	0.0	0.0	-	56.1	0.1	43.2	0.0	0.0	-	43.3	-
Lights	7	0	25	0	-	32	1	0	5	0	-	6	20	3525	1	1	-	3547	4	2695	0	0	-	2699	6284
% Lights	100.0	-	96.2	-	-	97.0	100.0	-	83.3	-	-	85.7	100.0	98.0	100.0	100.0	-	98.0	80.0	96.7	-	-	-	96.6	97.4
Buses	0	0	1	0	-	1	0	0	0	0	-	0	0	15	0	0	-	15	0	12	0	0	-	12	28
% Buses	0.0	-	3.8	-	-	3.0	0.0	-	0.0	-	-	0.0	0.0	0.4	0.0	0.0	-	0.4	0.0	0.4	-	-	-	0.4	0.4
Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	58	0	0	-	58	1	81	0	0	-	82	141
% Trucks	0.0	-	0.0	-	-	0.0	0.0	-	16.7	-	-	14.3	0.0	1.6	0.0	0.0	-	1.6	20.0	2.9	-	-	-	2.9	2.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

C15



Turning Movement Data Plot

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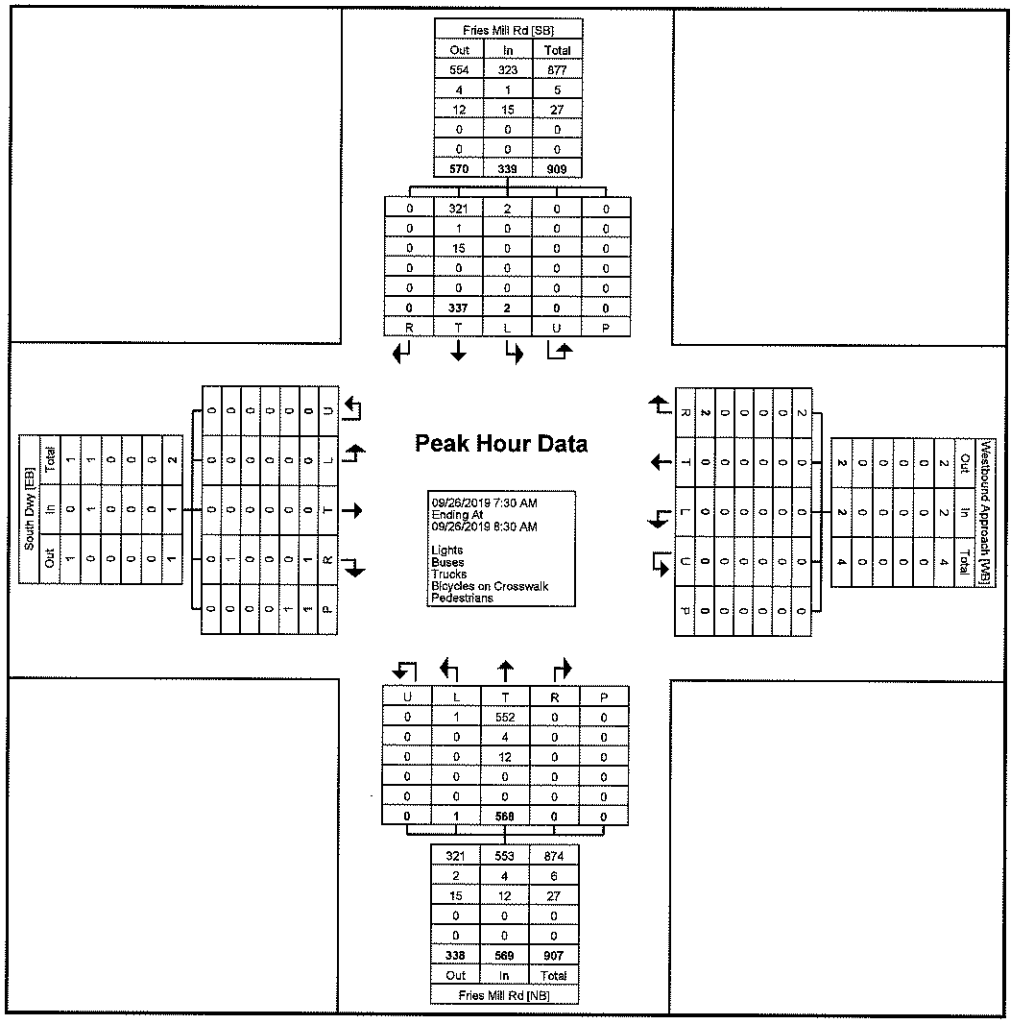
Williamstown, NJ
Fries Mill Rd & South Driveway
Thursday, September 26, 2019
Location: 39.710408, -75.051182

Count Name: Fries Mill Rd/South Dwy
Site Code:
Start Date: 09/26/2019
Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	South Dwy Eastbound						Westbound Approach Westbound						Fries Mill Rd Northbound						Fries Mill Rd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	0	1	0	0	1	0	0	1	0	0	1	1	116	0	0	0	117	0	101	0	0	0	101	220
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	180	0	0	0	180	1	89	0	0	0	90	270
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	133	0	0	0	133	1	68	0	0	0	69	202
8:15 AM	0	0	0	0	1	0	0	0	1	0	0	1	0	139	0	0	0	139	0	79	0	0	0	79	219
Total	0	0	1	0	1	1	0	0	2	0	0	2	1	568	0	0	0	569	2	337	0	0	0	339	911
Approach %	0.0	0.0	100.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.2	99.8	0.0	0.0	-	-	0.6	99.4	0.0	0.0	-	-	-
Total %	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.2	0.0	-	0.2	0.1	62.3	0.0	0.0	-	62.5	0.2	37.0	0.0	0.0	-	37.2	-
PHF	0.000	0.000	0.250	0.000	-	0.250	0.000	0.000	0.500	0.000	-	0.500	0.250	0.789	0.000	0.000	-	0.790	0.500	0.834	0.000	0.000	-	0.839	0.844
Lights	0	0	0	0	-	0	0	0	2	0	-	2	1	552	0	0	-	553	2	321	0	0	-	323	878
% Lights	-	-	0.0	-	-	0.0	-	-	100.0	-	-	100.0	100.0	97.2	-	-	-	97.2	100.0	95.3	-	-	-	95.3	96.4
Buses	0	0	1	0	-	1	0	0	0	0	-	0	0	4	0	0	-	4	0	1	0	0	-	1	6
% Buses	-	-	100.0	-	-	100.0	-	-	0.0	-	-	0.0	0.0	0.7	-	-	-	0.7	0.0	0.3	-	-	-	0.3	0.7
Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	12	0	0	-	12	0	15	0	0	-	15	27
% Trucks	-	-	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	2.1	-	-	-	2.1	0.0	4.5	-	-	-	4.4	3.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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

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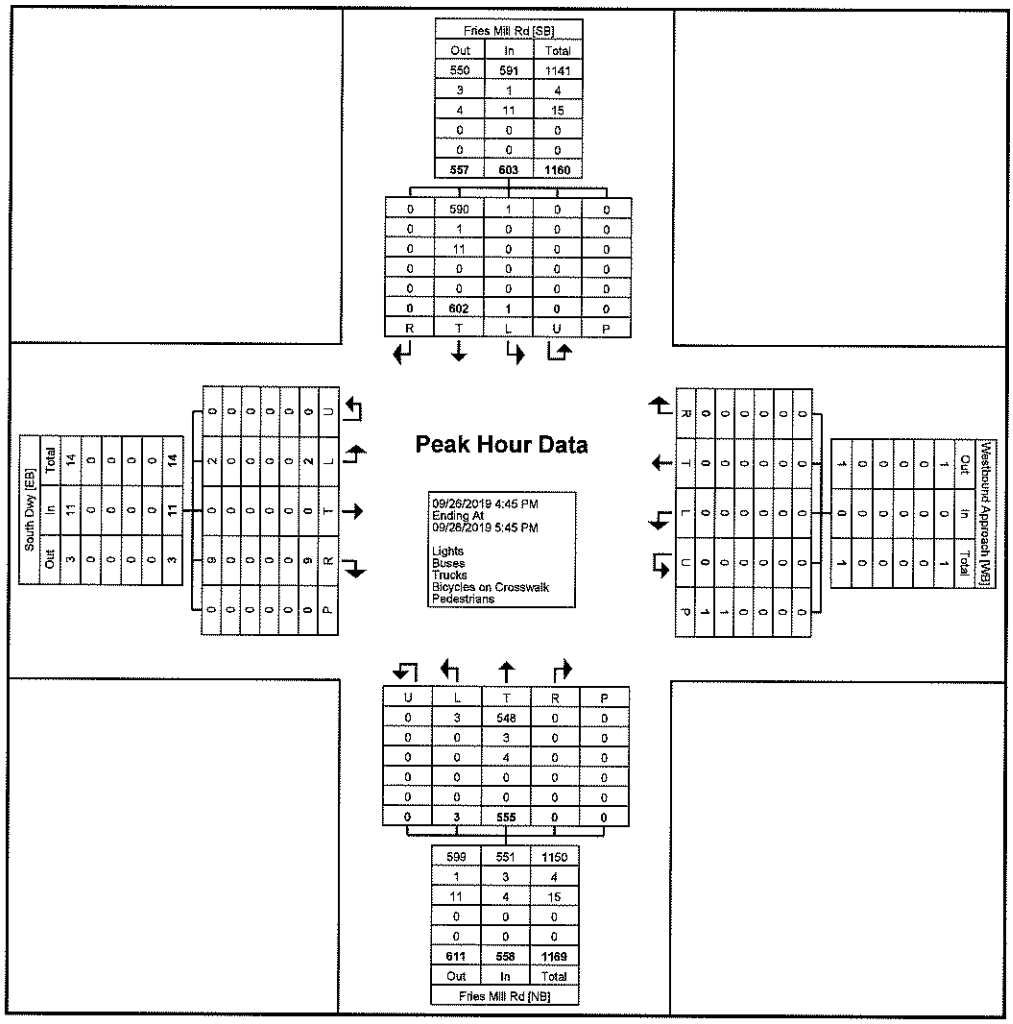
Williamstown, NJ
Fries Mill Rd & South Driveway
Thursday, September 26, 2019
Location: 39.710408, -75.051182

Count Name: Fries Mill Rd/South Dwy
Site Code:
Start Date: 09/26/2019
Page No: 5

Turning Movement Peak Hour Data (4:45 PM)

Start Time	South Dwy Eastbound						Westbound Approach Westbound						Fries Mill Rd Northbound						Fries Mill Rd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	2	0	2	0	0	4	0	0	0	0	0	0	2	138	0	0	0	140	1	155	0	0	0	156	300
5:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	136	0	0	0	136	0	159	0	0	0	159	297
5:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	139	0	0	0	139	0	137	0	0	0	137	278
5:30 PM	0	0	3	0	0	3	0	0	0	0	1	0	1	142	0	0	0	143	0	151	0	0	0	151	297
Total	2	0	9	0	0	11	0	0	0	0	1	0	3	555	0	0	0	558	1	602	0	0	0	603	1172
Approach %	18.2	0.0	81.8	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.5	99.5	0.0	0.0	-	-	0.2	99.8	0.0	0.0	-	-	-
Total %	0.2	0.0	0.8	0.0	-	0.9	0.0	0.0	0.0	0.0	-	0.0	0.3	47.4	0.0	0.0	-	47.6	0.1	51.4	0.0	0.0	-	51.5	-
PHF	0.250	0.000	0.750	0.000	-	0.688	0.000	0.000	0.000	0.000	-	0.000	0.375	0.977	0.000	0.000	-	0.976	0.250	0.947	0.000	0.000	-	0.948	0.977
Lights	2	0	9	0	-	11	0	0	0	0	-	0	3	548	0	0	-	551	1	590	0	0	-	591	1153
% Lights	100.0	-	100.0	-	-	100.0	-	-	-	-	-	-	100.0	98.7	-	-	-	98.7	100.0	98.0	-	-	-	98.0	98.4
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	1	0	0	-	1	4
% Buses	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	0.0	0.5	-	-	-	0.5	0.0	0.2	-	-	-	0.2	0.3
Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	0	11	0	0	-	11	15
% Trucks	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	0.0	0.7	-	-	-	0.7	0.0	1.8	-	-	-	1.8	1.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (4:45 PM)

TRI-STATE TRAFFIC DATA

Williamstown, NJ
Glassboro Cross Keys Rd &
Driveway
Thursday, September 26, 2019
Location: 39.711336, -
75.052061

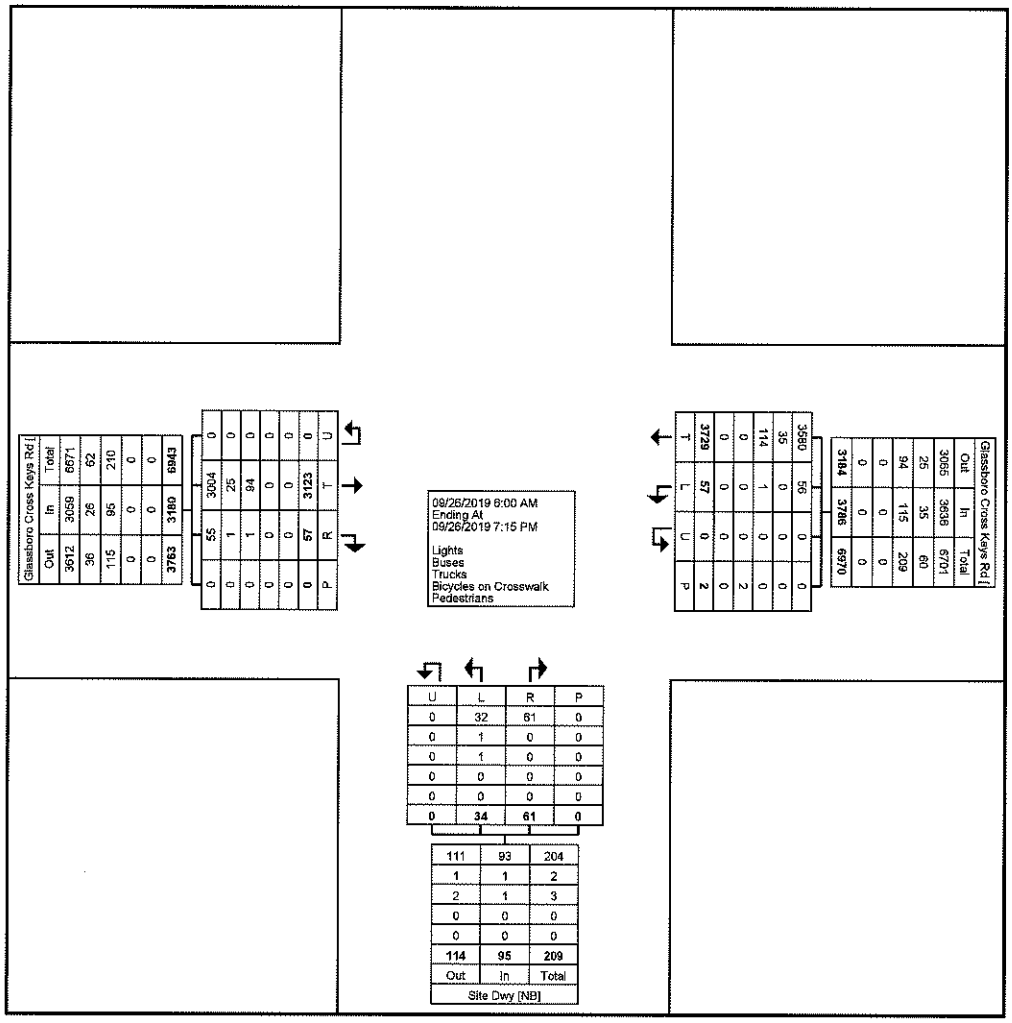
www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Glassboro Cross Keys Rd/Site Dwy
Site Code:
Start Date: 09/26/2019
Page No: 1

Turning Movement Data

Start Time	Glassboro Cross Keys Rd Eastbound					Glassboro Cross Keys Rd Westbound					Site Dwy Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
6:00 AM	70	0	0	0	70	0	43	0	0	43	0	0	0	0	0	113
6:15 AM	69	0	0	0	69	0	67	0	0	67	0	0	0	0	0	136
6:30 AM	84	1	0	0	85	0	90	0	0	90	1	0	0	0	1	176
6:45 AM	94	0	0	0	94	0	106	0	0	106	0	0	0	0	0	200
Hourly Total	317	1	0	0	318	0	306	0	0	306	1	0	0	0	1	625
7:00 AM	94	0	0	0	94	0	95	0	0	95	1	0	0	0	1	190
7:15 AM	98	0	0	0	98	0	147	0	0	147	0	0	0	0	0	245
7:30 AM	88	0	0	0	88	0	216	0	0	216	1	0	0	0	1	305
7:45 AM	107	2	0	0	109	0	164	0	0	164	0	0	0	0	0	273
Hourly Total	387	2	0	0	389	0	622	0	0	622	2	0	0	0	2	1013
8:00 AM	129	2	0	0	131	1	105	0	0	106	1	3	0	0	4	241
8:15 AM	94	2	0	0	96	1	106	0	0	107	1	1	0	0	2	205
8:30 AM	72	1	0	0	73	1	99	0	0	100	0	0	0	0	0	173
8:45 AM	110	0	0	0	110	2	122	0	0	124	0	3	0	0	3	237
Hourly Total	405	5	0	0	410	5	432	0	0	437	2	7	0	0	9	856
9:00 AM	85	2	0	0	87	1	138	0	0	139	1	1	0	0	2	228
9:15 AM	95	2	0	0	97	3	102	0	0	105	1	5	0	0	6	208
9:30 AM	102	1	0	0	103	3	100	0	0	103	2	4	0	0	6	212
9:45 AM	93	4	0	0	97	2	88	0	0	90	0	3	0	0	3	190
Hourly Total	375	9	0	0	384	9	428	0	0	437	4	13	0	0	17	838
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	113	4	0	0	117	1	166	0	0	167	2	4	0	0	6	290
4:15 PM	142	3	0	0	145	5	159	0	0	164	3	4	0	0	7	316
4:30 PM	131	3	0	0	134	6	206	0	0	212	3	3	0	0	6	352
4:45 PM	139	1	0	0	140	5	195	0	0	200	2	4	0	0	6	346
Hourly Total	525	11	0	0	536	17	726	0	0	743	10	15	0	0	25	1304
5:00 PM	174	2	0	0	176	0	153	0	2	153	1	2	0	0	3	332
5:15 PM	164	1	0	0	165	5	178	0	0	183	0	4	0	0	4	352
5:30 PM	140	5	0	0	145	7	179	0	0	186	0	2	0	0	2	333
5:45 PM	155	4	0	0	159	1	160	0	0	161	1	4	0	0	5	325
Hourly Total	633	12	0	0	645	13	670	0	2	683	2	12	0	0	14	1342
6:00 PM	109	2	0	0	111	2	149	0	0	151	3	5	0	0	8	270
6:15 PM	115	2	0	0	117	3	148	0	0	151	2	1	0	0	3	271
6:30 PM	142	6	0	0	148	4	137	0	0	141	5	3	0	0	8	297
6:45 PM	115	7	0	0	122	4	111	0	0	115	2	5	0	0	7	244
Hourly Total	481	17	0	0	498	13	545	0	0	558	12	14	0	0	26	1082
7:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Grand Total	3123	57	0	0	3180	57	3729	0	2	3786	34	61	0	0	95	7061
Approach %	98.2	1.8	0.0	-	-	1.5	98.5	0.0	-	-	35.8	64.2	0.0	-	-	-
Total %	44.2	0.8	0.0	-	45.0	0.8	52.8	0.0	-	53.6	0.5	0.9	0.0	-	1.3	-
Lights	3004	55	0	-	3059	56	3580	0	-	3636	32	61	0	-	93	6788
% Lights	96.2	96.5	-	-	96.2	98.2	96.0	-	-	96.0	94.1	100.0	-	-	97.9	96.1
Buses	25	1	0	-	26	0	35	0	-	35	1	0	0	-	1	62
% Buses	0.8	1.8	-	-	0.8	0.0	0.9	-	-	0.9	2.9	0.0	-	-	1.1	0.9
Trucks	94	1	0	-	95	1	114	0	-	115	1	0	0	-	1	211
% Trucks	3.0	1.8	-	-	3.0	1.8	3.1	-	-	3.0	2.9	0.0	-	-	1.1	3.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-



Glassboro Cross Keys Rd		
Out	In	Total
3612	3059	6671
36	26	62
115	95	210
0	0	0
0	0	0
3763	3180	6943

U	T	R	P
0	3004	55	0
0	25	1	0
0	94	1	0
0	0	0	0
0	0	0	0
0	3123	57	0

T	L	U	P
3729	57	0	2
0	0	0	0
114	1	0	0
35	0	0	0
3580	56	0	0

Glassboro Cross Keys Rd		
Out	In	Total
3055	3638	6701
25	35	60
94	115	209
0	0	0
0	0	0
3184	3786	6970

U	L	R	P
0	32	61	0
0	1	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	34	61	0

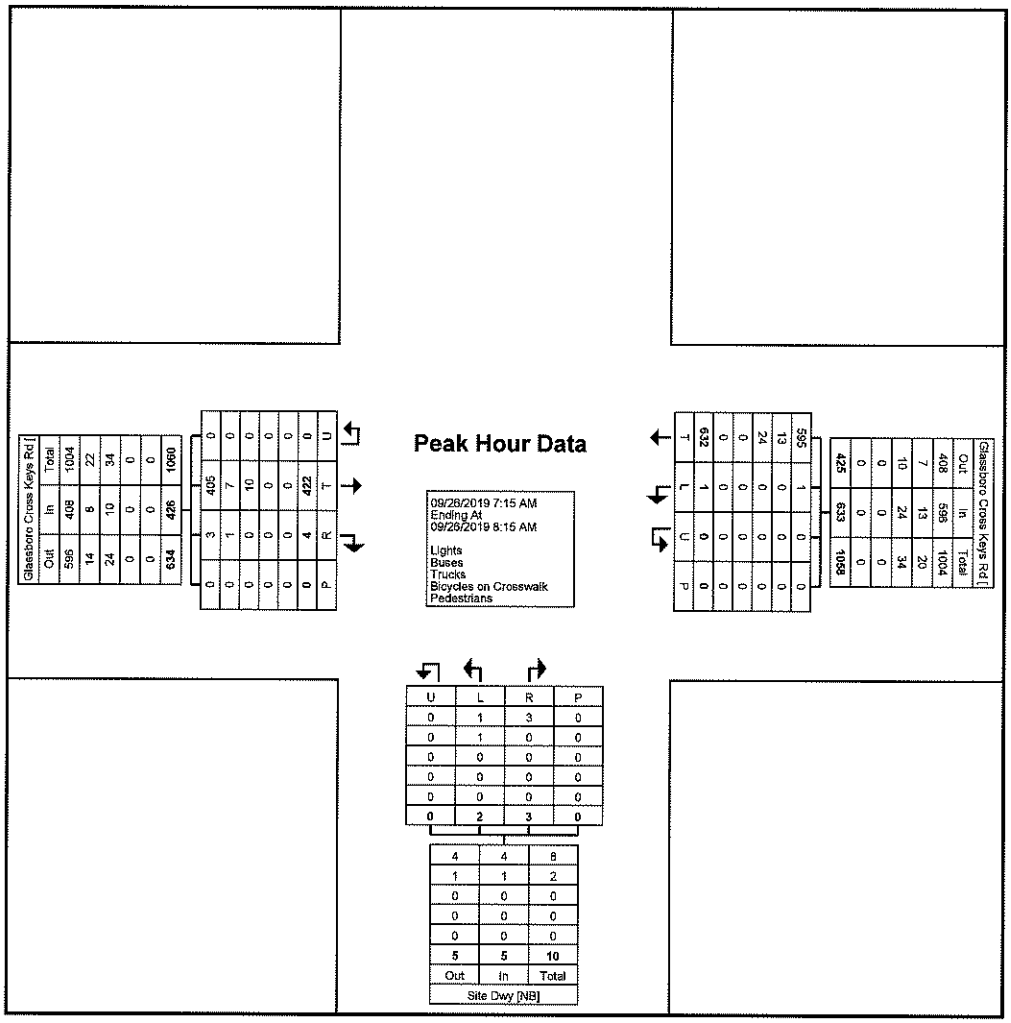
111	93	204
1	1	2
2	1	3
0	0	0
0	0	0
114	95	209
Out	In	Total
Site Dwy [NB]		

Turning Movement Data Plot

C22

Turning Movement Peak Hour Data (7:15 AM)

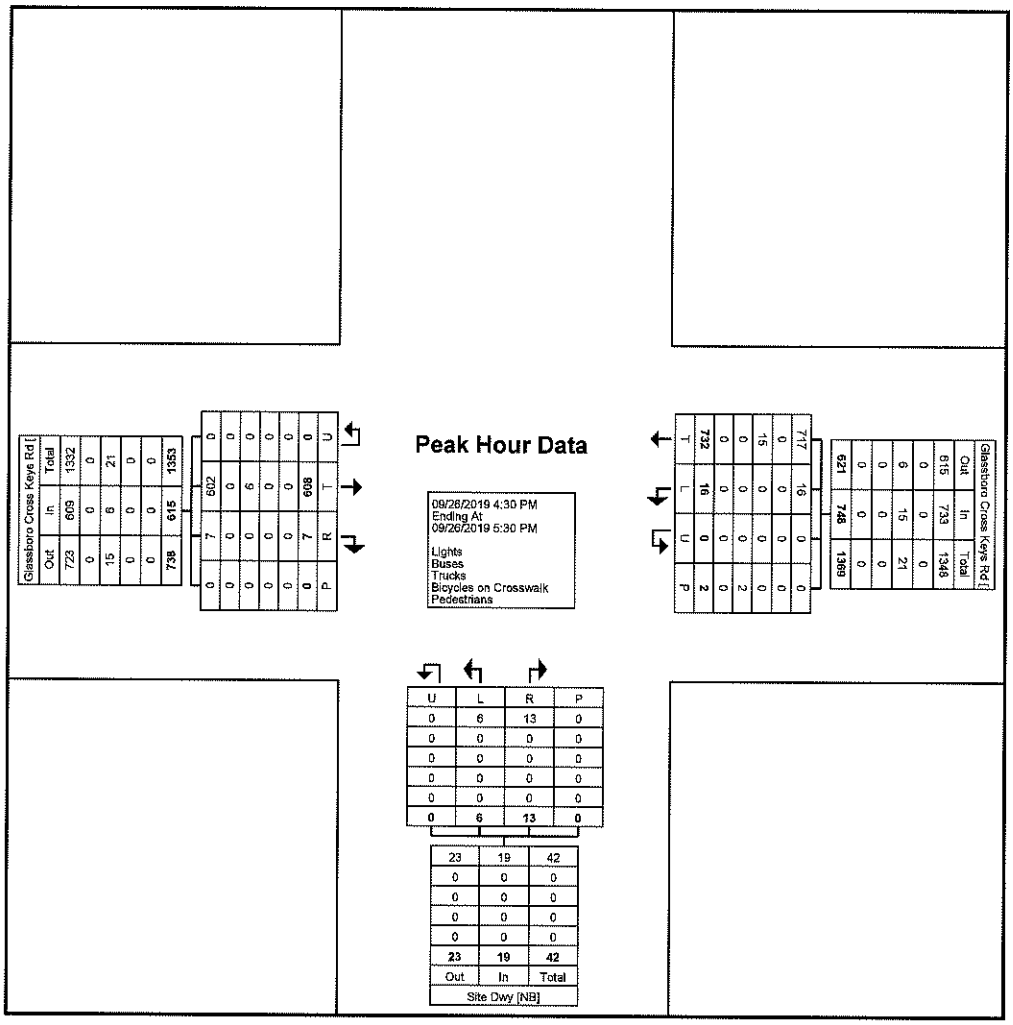
Start Time	Glassboro Cross Keys Rd Eastbound					Glassboro Cross Keys Rd Westbound					Site Dwy Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:15 AM	98	0	0	0	98	0	147	0	0	147	0	0	0	0	0	245
7:30 AM	88	0	0	0	88	0	216	0	0	216	1	0	0	0	1	305
7:45 AM	107	2	0	0	109	0	164	0	0	164	0	0	0	0	0	273
8:00 AM	129	2	0	0	131	1	105	0	0	106	1	3	0	0	4	241
Total	422	4	0	0	426	1	632	0	0	633	2	3	0	0	5	1064
Approach %	99.1	0.9	0.0	-	-	0.2	99.8	0.0	-	-	40.0	60.0	0.0	-	-	-
Total %	39.7	0.4	0.0	-	40.0	0.1	59.4	0.0	-	59.5	0.2	0.3	0.0	-	0.5	-
PHF	0.818	0.500	0.000	-	0.813	0.250	0.731	0.000	-	0.733	0.500	0.250	0.000	-	0.313	0.872
Lights	405	3	0	-	408	1	595	0	-	596	1	3	0	-	4	1008
% Lights	96.0	75.0	-	-	95.8	100.0	94.1	-	-	94.2	50.0	100.0	-	-	80.0	94.7
Buses	7	1	0	-	8	0	13	0	-	13	1	0	0	-	1	22
% Buses	1.7	25.0	-	-	1.9	0.0	2.1	-	-	2.1	50.0	0.0	-	-	20.0	2.1
Trucks	10	0	0	-	10	0	24	0	-	24	0	0	0	-	0	34
% Trucks	2.4	0.0	-	-	2.3	0.0	3.8	-	-	3.8	0.0	0.0	-	-	0.0	3.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:15 AM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Glassboro Cross Keys Rd Eastbound					Glassboro Cross Keys Rd Westbound					Site Dwy Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
4:30 PM	131	3	0	0	134	6	206	0	0	212	3	3	0	0	6	352
4:45 PM	139	1	0	0	140	5	195	0	0	200	2	4	0	0	6	346
5:00 PM	174	2	0	0	176	0	153	0	2	153	1	2	0	0	3	332
5:15 PM	164	1	0	0	165	5	178	0	0	183	0	4	0	0	4	352
Total	608	7	0	0	615	16	732	0	2	748	6	13	0	0	19	1382
Approach %	98.9	1.1	0.0	-	-	2.1	97.9	0.0	-	-	31.6	68.4	0.0	-	-	-
Total %	44.0	0.5	0.0	-	44.5	1.2	53.0	0.0	-	54.1	0.4	0.9	0.0	-	1.4	-
PHF	0.874	0.583	0.000	-	0.874	0.667	0.888	0.000	-	0.882	0.500	0.813	0.000	-	0.792	0.982
Lights	602	7	0	-	609	16	717	0	-	733	6	13	0	-	19	1361
% Lights	99.0	100.0	-	-	99.0	100.0	98.0	-	-	98.0	100.0	100.0	-	-	100.0	98.5
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	6	0	0	-	6	0	15	0	-	15	0	0	0	-	0	21
% Trucks	1.0	0.0	-	-	1.0	0.0	2.0	-	-	2.0	0.0	0.0	-	-	0.0	1.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-

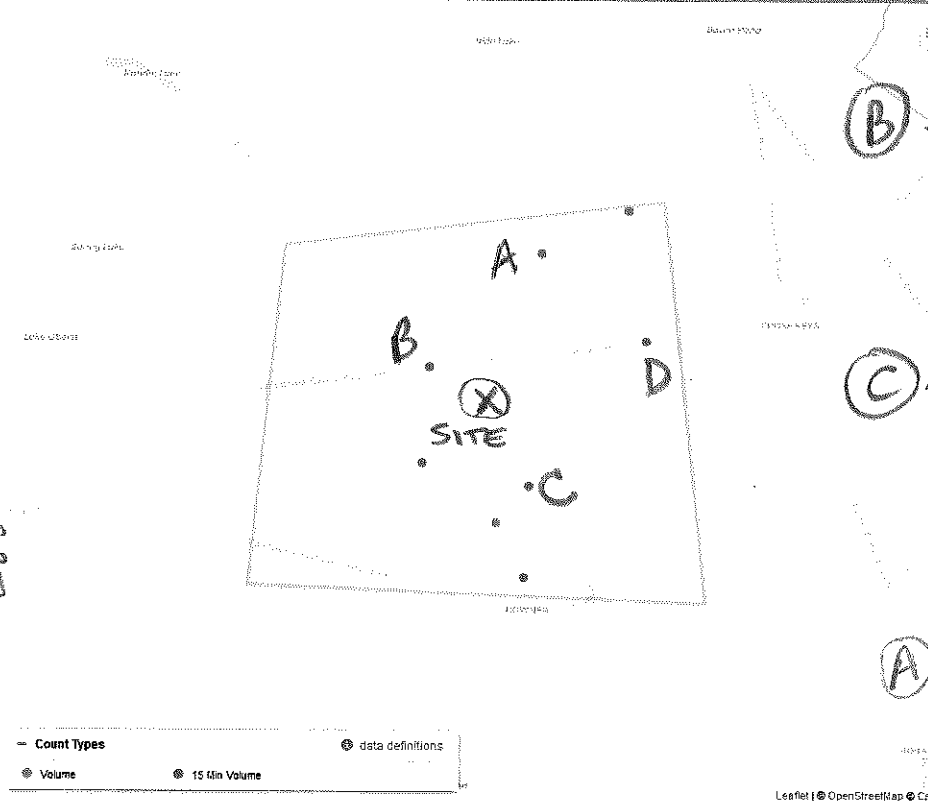


Turning Movement Peak Hour Data Plot (4:30 PM)

dvrpc | DVRPC TRAVEL MONITORING
COUNTING A REGION IN MOTION

Info & Tools

Enter a mcd, city, zip, or philly neighborhood | Draw Search Area | Filter map results | Count Type | Years | Update Map



New selected | download selected | download help

Filter table results

	Date	Road	Type	AADT	DVRPC File #
B	Jan 2020	CR 689 (Cross Keys Glassboro Rd) - WB	15 Min Volume	8,434	150999
B	Jan 2020	CR 689 (Cross Keys Glassboro Rd) - EB	15 Min Volume	7,294	150995
	Feb 2016	CR 689 (Cross Keys Glassboro Rd) - WB	15 Min Volume	7,738	124127
	Feb 2016	CR 689 (Cross Keys Glassboro Rd) - EB	15 Min Volume	7,000	124125
	Jan 2018	CR 658 (Pitman Downer Rd) - WB	15 Min Volume	1,637	137655
	Dec 2017	CR 658 (Pitman Downer Rd) - EB	15 Min Volume	1,649	137652
	Jun 2015	CR 658 (Pitman Downer Rd) - WB	15 Min Volume	1,587	120751
	Jun 2015	CR 658 (Pitman Downer Rd) - EB	15 Min Volume	2,165	120750
C	Dec 2018	CR 655 (Fries Mill Rd) - SB	15 Min Volume	6,919	143541
C	Dec 2018	CR 655 (Fries Mill Rd) - NB	15 Min Volume	7,396	143540
	Feb 2016	CR 655 (Fries Mill Rd) - SB	15 Min Volume	6,296	124124
	Feb 2016	CR 655 (Fries Mill Rd) - NB	15 Min Volume	6,568	124123
	Apr 2017	CR 658 (Pitman Downer Rd) - WB	Volume	1,720	147241
	Apr 2017	CR 658 (Pitman Downer Rd) - EB	Volume	1,608	147243
	Jun 2016	CR 658 (Pitman Downer Rd) - WB	Volume	1,555	138808
	Jun 2016	CR 658 (Pitman Downer Rd) - EB	Volume	1,472	138827
A	Jan 2017	CR 655 (Fries Mill Rd) - SB	15 Min Volume	6,603	139102
A	Jan 2017	CR 655 (Fries Mill Rd) - NB	15 Min Volume	6,652	139101

Showing 1 to 18 of 28 entries

Previous 1 2 Next

Leaflet | © OpenStreetMap © CartoDB

B 7,294 + 8,434 = 15,728

C 6,919 + 7,396 = 14,315

A 6,603 + 6,652 = 13,255

D Jan 2019 CR 689 15 min 7725 > 15,008
" " " " 7283

DVRPC - Travel Monitoring

(A)

TAKEN BY: JH **DATE:** 1/17/2017 **PROJECT:** 17-61-080 **STATION ID:**

ROAD: CR 655 FRIES MILL RD **SRI/MP:** 08000655__/8.12

FROM: CR 689 CROSS KEYS RD **TO:** CR 654 HURFFVILLE CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401577180 - WASHINGTON TWP

COUNT DIR: NORTH **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 16

DVRPC FILE #: 133191 **COUNTER #:** 1590 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Monday 1/16/2017	Tuesday 1/17/2017	Wednesday 1/18/2017	Thursday 1/19/2017
12 AM		23	20	25
1 AM		20	13	19
2 AM		15	9	12
3 AM		26	23	35
4 AM		67	51	55
5 AM		189	200	192
6 AM		459	401	443
7 AM		537	555	511
8 AM		553	498	577
9 AM		436	446	421
10 AM		387	340	
11 AM		371	333	
12 PM		338	354	
1 PM	417	366	350	
2 PM	398	384	378	
3 PM	435	455	452	
4 PM	377	459	452	
5 PM	358	436	476	
6 PM	313	314	374	
7 PM	194	209	263	
8 PM	130	144	157	
9 PM	100	102	116	
10 PM	64	40	76	
11PM	24	50	40	
Total	**2,810**	**6,380**	**6,377**	**2,290**

AXLE CORR. FACTOR: 0.980 **AADT:** 6,652 **AM Peak %:** 8.7 **Hour Beginning:** 8:00 AM

SEASONAL FACTOR: 1.064 **PM Peak %:** 7.2 **Hour Beginning:** 4:00 PM

DVRPC - Travel Monitoring

(A)

TAKEN BY: JH **DATE:** 1/17/2017 **PROJECT:** 17-61-080 **STATION ID:**

ROAD: CR 655 FRIES MILL RD **SRI/MP:** 08000655__/8.12

FROM: CR 689 CROSS KEYS RD **TO:** CR 654 HURFFVILLE CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401577180 - WASHINGTON TWP

COUNT DIR: SOUTH **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 16

DVRPC FILE #: 133192 **COUNTER #:** 1591 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Monday 1/16/2017	Tuesday 1/17/2017	Wednesday 1/18/2017	Thursday 1/19/2017
12 AM		39	47	42
1 AM		22	21	30
2 AM		17	23	21
3 AM		27	27	25
4 AM		13	23	19
5 AM		53	53	52
6 AM		155	153	151
7 AM		295	309	317
8 AM		264	271	252
9 AM		288	265	282
10 AM		324	321	
11 AM		339	321	
12 PM		344	362	
1 PM	369	394	390	
2 PM	493	466	501	
3 PM	543	591	548	
4 PM	516	595	586	
5 PM	493	540	560	
6 PM	404	470	546	
7 PM	334	386	414	
8 PM	267	317	338	
9 PM	187	218	238	
10 PM	129	115	162	
11PM	56	61	77	
Total	**3,791**	**6,333**	**6,556**	**1,191**

AXLE CORR. FACTOR: 0.980 **AADT:** 6,603 **AM Peak %:** 5.4 **Hour Beginning:** 11:00 AM

SEASONAL FACTOR: 1.064 **PM Peak %:** 9.4 **Hour Beginning:** 4:00 PM

C29

DVRPC - Travel Monitoring

(B)

TAKEN BY: BB DATE: 1/23/2020 PROJECT: 20-61-080 STATION ID:

ROAD: CR 689 CROSS KEYS GLASSBORO RD SRI/MP: 08000689__/2.58

FROM: CR 658 PITMAN DOWNER RD TO: CR 655 FRIES MILL RD

STATE: NJ COUNTY: GLOUCESTER MCD: 3401547250 - MONROE TWP

COUNT DIR: EAST TRAFFIC DIR: BOTH SPEED LIMIT: 50 FC: 14

DVRPC FILE #: 150995 COUNTER #: 1847 WEATHER: F DATA SOURCE: EXTERNAL

COMMENTS:

Hour Beginning	Wednesday 1/22/2020	Thursday 1/23/2020	Friday 1/24/2020	Saturday 1/25/2020	Sunday 1/26/2020
12 AM		23	45	64	75
1 AM		18	28	40	41
2 AM		17	17	25	31
3 AM		23	27	23	24
4 AM		29	36	21	15
5 AM		107	120	45	24
6 AM		281	248	85	59
7 AM		352	380	139	113
8 AM		393	391	263	157
9 AM		333	357	320	249
10 AM		354	377	330	304
11 AM		353	448	380	373
12 PM		386	470	458	446
1 PM	297	389	422	425	437
2 PM	417	468	536	413	420
3 PM	566	580	596	468	221
4 PM	593	592	675	406	
5 PM	557	588	539	390	
6 PM	468	461	465	364	
7 PM	314	285	319	260	
8 PM	254	240	240	195	
9 PM	205	203	216	185	
10 PM	103	96	160	116	
11PM	59	62	116	114	
Total	**3,833**	**6,633**	**7,228**	**5,529**	**2,989**

AXLE CORR. FACTOR: 0.988 AADT: 7,294 AM Peak %: 5.9 Hour Beginning: 8:00 AM

SEASONAL FACTOR: 1.113 PM Peak %: 8.9 Hour Beginning: 4:00 PM

C30

DVRPC - Travel Monitoring

B

TAKEN BY: BB **DATE:** 1/23/2020 **PROJECT:** 20-61-080 **STATION ID:**

ROAD: CR 689 CROSS KEYS GLASSBORO RD **SRI/MP:** 08000689__/2.58

FROM: CR 658 PITMAN DOWNER RD **TO:** CR 655 FRIES MILL RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401547250 - MONROE TWP

COUNT DIR: WEST **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 14

DVRPC FILE #: 150996 **COUNTER #:** 1610 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Wednesday 1/22/2020	Thursday 1/23/2020	Friday 1/24/2020	Saturday 1/25/2020	Sunday 1/26/2020
12 AM		56	49	105	120
1 AM		20	28	55	79
2 AM		17	21	31	37
3 AM		22	32	33	29
4 AM		29	32	23	18
5 AM		108	108	41	25
6 AM		244	224	55	46
7 AM		610	535	135	87
8 AM		461	402	223	149
9 AM		386	371	280	227
10 AM		419	441	390	286
11 AM		422	428	372	345
12 PM		430	466	416	449
1 PM	384	435	502	427	499
2 PM	506	542	564	475	500
3 PM	549	549	642	502	352
4 PM	662	642	603	483	
5 PM	602	628	657	456	
6 PM	460	476	504	437	
7 PM	368	359	429	320	
8 PM	286	303	298	261	
9 PM	235	263	313	265	
10 PM	132	168	233	192	
11PM	103	81	129	197	
Total	**4,287**	**7,670**	**8,011**	**6,174**	**3,248**

AXLE CORR. FACTOR: 0.988 **AADT:** 8,434 **AM Peak %:** 8.0 **Hour Beginning:** 7:00 AM

SEASONAL FACTOR: 1.113 **PM Peak %:** 8.4 **Hour Beginning:** 4:00 PM

C31

DVRPC - Travel Monitoring

TAKEN BY: BN **DATE:** 12/19/2018 **PROJECT:** 19-61-080 **STATION ID:**

ROAD: CR 655 FRIES MILL RD **SRI/MP:** 08000655__/7.08

FROM: CR 658 PITMAN DOWNER RD **TO:** CR 689 CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401547250 - MONROE TWP

COUNT DIR: NORTH **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 16

DVRPC FILE #: 143540 **COUNTER #:** 1826 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Tuesday 12/18/2018	Wednesday 12/19/2018	Thursday 12/20/2018
12 AM		42	33
1 AM		33	26
2 AM		14	15
3 AM		26	40
4 AM		63	67
5 AM		213	188
6 AM		438	469
7 AM		529	475
8 AM		569	591
9 AM		526	498
10 AM	312	480	111
11 AM	400	413	
12 PM	388	422	
1 PM	418	405	
2 PM	376	442	
3 PM	498	500	
4 PM	579	495	
5 PM	512	521	
6 PM	462	385	
7 PM	249	261	
8 PM	187	198	
9 PM	150	139	
10 PM	77	74	
11PM	43	56	
Total	**4,651**	**7,244**	**2,513**

AXLE CORR. FACTOR: 0.978 **AADT:** 7,396 **AM Peak %:** 7.9 **Hour Beginning:** 8:00 AM

SEASONAL FACTOR: 1.044 **PM Peak %:** 7.2 **Hour Beginning:** 5:00 PM

C32

DVRPC - Travel Monitoring

(C)

TAKEN BY: BN **DATE:** 12/19/2018 **PROJECT:** 19-61-080 **STATION ID:**

ROAD: CR 655 FRIES MILL RD **SRI/MP:** 08000655__/7.08

FROM: CR 658 PITMAN DOWNER RD **TO:** CR 689 CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401547250 - MONROE TWP

COUNT DIR: SOUTH **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 16

DVRPC FILE #: 143541 **COUNTER #:** 1826 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Tuesday 12/18/2018	Wednesday 12/19/2018	Thursday 12/20/2018
12 AM		67	79
1 AM		38	51
2 AM		12	21
3 AM		19	41
4 AM		33	36
5 AM		80	91
6 AM		173	184
7 AM		303	310
8 AM		265	268
9 AM		304	325
10 AM	172	360	82
11 AM	375	351	
12 PM	393	368	
1 PM	420	396	
2 PM	448	484	
3 PM	453	535	
4 PM	463	599	
5 PM	491	510	
6 PM	528	473	
7 PM	398	430	
8 PM	368	372	
9 PM	338	317	
10 PM	167	174	
11PM	104	114	
Total	**5,118**	**6,777**	**1,488**

AXLE CORR. FACTOR: 0.978 **AADT:** 6,919 **AM Peak %:** 5.3 **Hour Beginning:** 10:00 AM

SEASONAL FACTOR: 1.044 **PM Peak %:** 8.8 **Hour Beginning:** 4:00 PM

C33

DVRPC - Travel Monitoring

D

TAKEN BY: BN **DATE:** 1/8/2019 **PROJECT:** 19-61-080 **STATION ID:**

ROAD: CR 689 CROSS KEYS GLASSBORO RD **SRI/MP:** 08000689__/3.57

FROM: CR 655 FRIES MILL RD **TO:** CR 654 HURFFVILLE CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401577180 - WASHINGTON TWP

COUNT DIR: EAST **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 14

DVRPC FILE #: 143632 **COUNTER #:** 1826 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Monday 1/7/2019	Tuesday 1/8/2019	Wednesday 1/9/2019
12 AM		29	28
1 AM		22	28
2 AM		18	20
3 AM		20	23
4 AM		41	32
5 AM		115	113
6 AM		305	324
7 AM		458	436
8 AM		516	462
9 AM		363	409
10 AM		321	366
11 AM		391	271
12 PM		424	
1 PM		406	
2 PM	384	407	
3 PM	575	579	
4 PM	621	603	
5 PM	513	592	
6 PM	450	486	
7 PM	279	334	
8 PM	208	213	
9 PM	134	164	
10 PM	99	125	
11PM	59	53	
Total	**3,322**	**6,985**	**2,512**

AXLE CORR. FACTOR: 0.980 **AADT:** 7,283 **AM Peak %:** 7.4 **Hour Beginning:** 8:00 AM

SEASONAL FACTOR: 1.064 **PM Peak %:** 8.6 **Hour Beginning:** 4:00 PM

C34

DVRPC - Travel Monitoring

TAKEN BY: BN **DATE:** 1/8/2019 **PROJECT:** 19-61-080 **STATION ID:**

ROAD: CR 689 CROSS KEYS GLASSBORO RD **SRI/MP:** 08000689__/3.57

FROM: CR 655 FRIES MILL RD **TO:** CR 654 HURFFVILLE CROSS KEYS RD

STATE: NJ **COUNTY:** GLOUCESTER **MCD:** 3401577180 - WASHINGTON TWP

COUNT DIR: WEST **TRAFFIC DIR:** BOTH **SPEED LIMIT:** 50 **FC:** 14

DVRPC FILE #: 143633 **COUNTER #:** 1826 **WEATHER:** F **DATA SOURCE:** EXTERNAL

COMMENTS:

Hour Beginning	Monday 1/7/2019	Tuesday 1/8/2019	Wednesday 1/9/2019
12 AM		50	73
1 AM		20	21
2 AM		16	25
3 AM		14	11
4 AM		27	22
5 AM		122	115
6 AM		326	315
7 AM		446	492
8 AM		351	374
9 AM		360	377
10 AM		360	295
11 AM		327	313
12 PM		404	
1 PM		448	
2 PM	442	485	
3 PM	537	548	
4 PM	633	678	
5 PM	627	637	
6 PM	500	487	
7 PM	352	385	
8 PM	296	344	
9 PM	228	344	
10 PM	147	150	
11PM	92	80	
Total	**3,854**	**7,409**	**2,433**

AXLE CORR. FACTOR: 0.980 **AADT:** 7,725 **AM Peak %:** 6.0 **Hour Beginning:** 7:00 AM

SEASONAL FACTOR: 1.064 **PM Peak %:** 9.2 **Hour Beginning:** 4:00 PM

C35

Appendix D

TRIP GENERATION & DISTRIBUTION

Table 1

Trip Generation

The Greens Subdivision

Age-Restricted Mutli-Family **117** **dwelling units**

- Trip Generation Reference: *ITE Trip Generation, 10th Edition,* Sept 2017
Land Use Code 252 - Senior Adult Housing - Attached

Weekday AM Peak Hour

Fitted Curve Equation: T = 0.20(X) - 0.18
Total Number of Trips: 23 vph

35% Enter = 8
65% Exit = 15

Weekday PM Peak Hour

Fitted Curve Equation: T = 0.24(X) + 2.26
Total Number of Trips: 30 vph

55% Enter = 17
45% Exit = 13

Table 1.1

Trip Distribution

The Greens Subdivision

Common Zone	%	# of Trips AM	PM	
To/From CR 655 N	30.0%	7	9	Total
		2	5	Enter
		* ~~5~~ 4	4	Exit
To/From CR 655 S	25.0%	6	7	Total
		2	4	Enter
		4	3	Exit
To/From CR 689 E	25.0%	6	7	Total
		2	4	Enter
		4	3	Exit
To/From CR 689 W	20.0%	5	6	Total
		2	* ~~3~~ 4	Enter
		3	3	Exit
	100.0%	23	30	Total
		8	17	Enter
		15	13	Exit

* - VALUES ROUNDED TO MATCH TOTALS

Table 2

Trip Generation

Stirling Glen I

Age-Restricted Single-Family	**195**	**total dwelling units**
	82	**units constructed at time of traffic counts (9/26/19)**
	113	**units remaining**

- Trip Generation Reference: *ITE Trip Generation, 10th Edition,* Sept 2017
Land Use Code 251 - Senior Adult Housing - Detached

				58%
				REMAINING
Weekday AM Peak Hour				
Fitted Curve Equation: Ln(T) = 0.76 Ln(X) + 0.21				
Total Number of Trips:	45	vph		*26*
33%	Enter = 15			*9*
67%	Exit = 30			*17*
Weekday PM Peak Hour				
Fitted Curve Equation: Ln(T) = 0.78 Ln(X) + 0.28				
Total Number of Trips:	53	vph		*31*
61%	Enter = 32			*19*
39%	Exit = 21			*12*

Table 2.1

Trip Distribution

Stirling Glen I (Total)

Common Zone	%	# of Trips AM	PM	
To/From CR 655 N	30.0%	13	16	Total
		4	10	Enter
		9	6	Exit
To/From CR 655 S	25.0%	11	13	Total
		4	8	Enter
		8	5	Exit
To/From CR 689 E	25.0%	11	13	Total
		4	8	Enter
		8	5	Exit
To/From CR 689 W	20.0%	9	11	Total
		3	6	Enter
		6	4	Exit
		45	53	Total
	100.0%	15	32	Enter
		30	21	Exit

Table 2.2

Trip Distribution

Stirling Glen I (Remaining)

Common Zone	%	# of Trips AM	PM	
To/From CR 655 N	30.0%	8	9	Total
		3	6	Enter
		5	4	Exit
To/From CR 655 S	25.0%	6	8	Total
		2	5	Enter
		4	3	Exit
To/From CR 689 E	25.0%	6	8	Total
		2	5	Enter
		4	3	Exit
To/From CR 689 W	20.0%	5	6	Total
		2	~~4~~ 3 *	Enter
		~~3~~ 4 *	2	Exit
		26	31	Total
	100.0%	9	19	Enter
		17	12	Exit

* - ROUNDED TO MATCH TOTALS

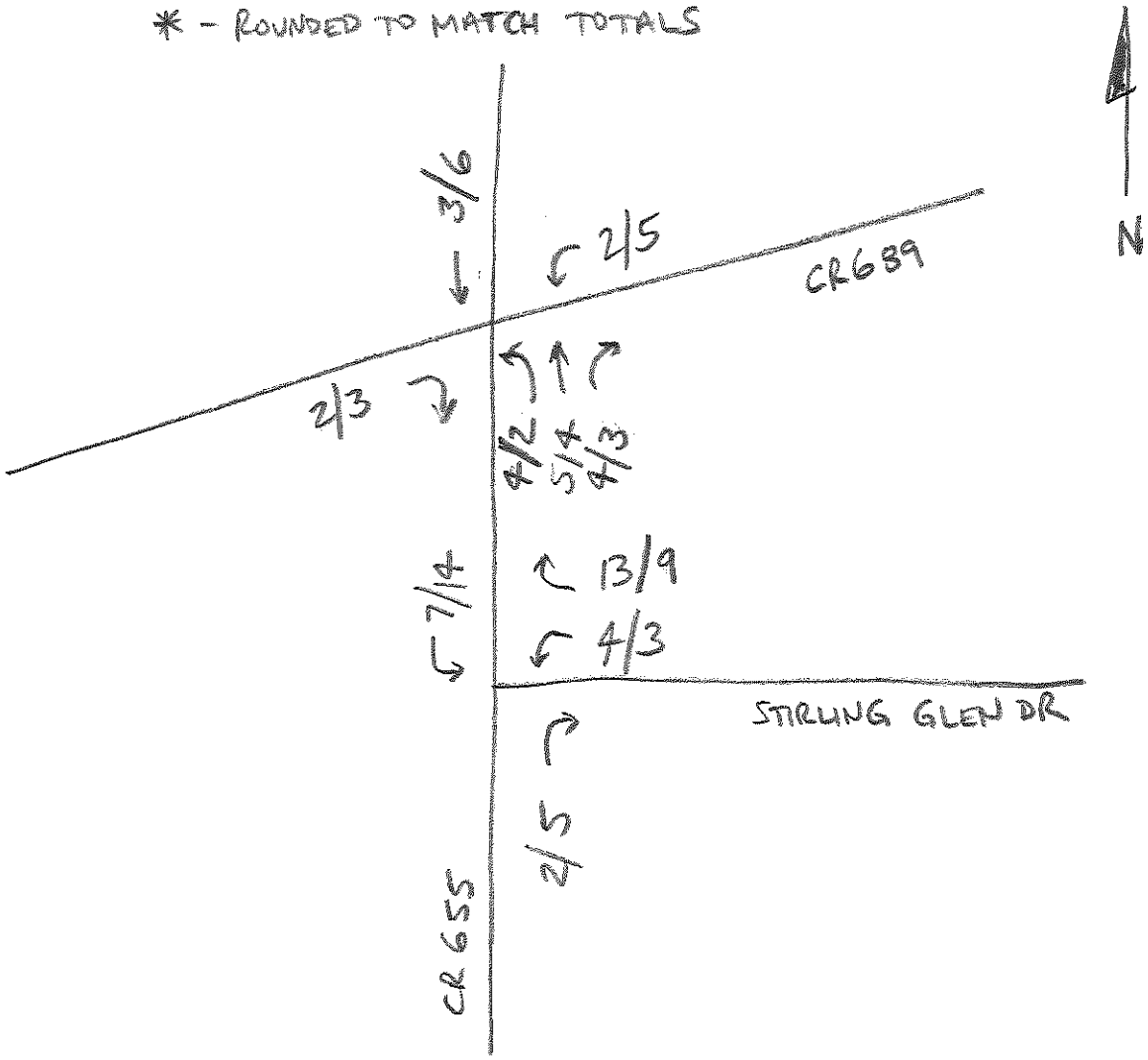


Table 3

Trip Generation

Appletree Lane

Single-Family Homes **100** **dwelling units (assumed # of units using this access)**

- Trip Generation Reference: *ITE Trip Generation, 10th Edition,* Sept 2017
Land Use Code 210 - Single-Family Detached Housing

Weekday AM Peak Hour

Fitted Curve Equation: T = 0.71(X) + 4.80
Total Number of Trips: 76 vph

25% Enter = 19
75% Exit = 57

Weekday PM Peak Hour

Fitted Curve Equation: Ln(T) = 0.96 Ln(X) + 0.20
Total Number of Trips: 102 vph

63% Enter = 64
37% Exit = 38

Table 3.1

Trip Distribution

Appletree Lane

Common Zone	%	# of Trips AM	PM	
To/From CR 655 N	30.0%	23	30	Total
		6	19	Enter
		17	11	Exit
To/From CR 655 S	25.0%	19	25	Total
		5	16	Enter
		14	9	Exit
To/From CR 689 E	25.0%	19	25	Total
		5	16	Enter
		14	9	Exit
To/From CR 689 W	20.0%	15	20	Total
		4	13	Enter
		11	8	Exit
		76	102	Total
	100.0%	19	64	Enter
		57	38	Exit

TRAFFIC IMPACT STUDY

STEVEN SMITH SUBDIVISION

Glassboro-Cross Keys Road

Monroe Township
Gloucester County
New Jersey

Prepared by:

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March 30, 2001

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File No. 01-037

HCA *Horner & Canter Associates*

TRANSPORTATION AND TRAFFIC ENGINEERING

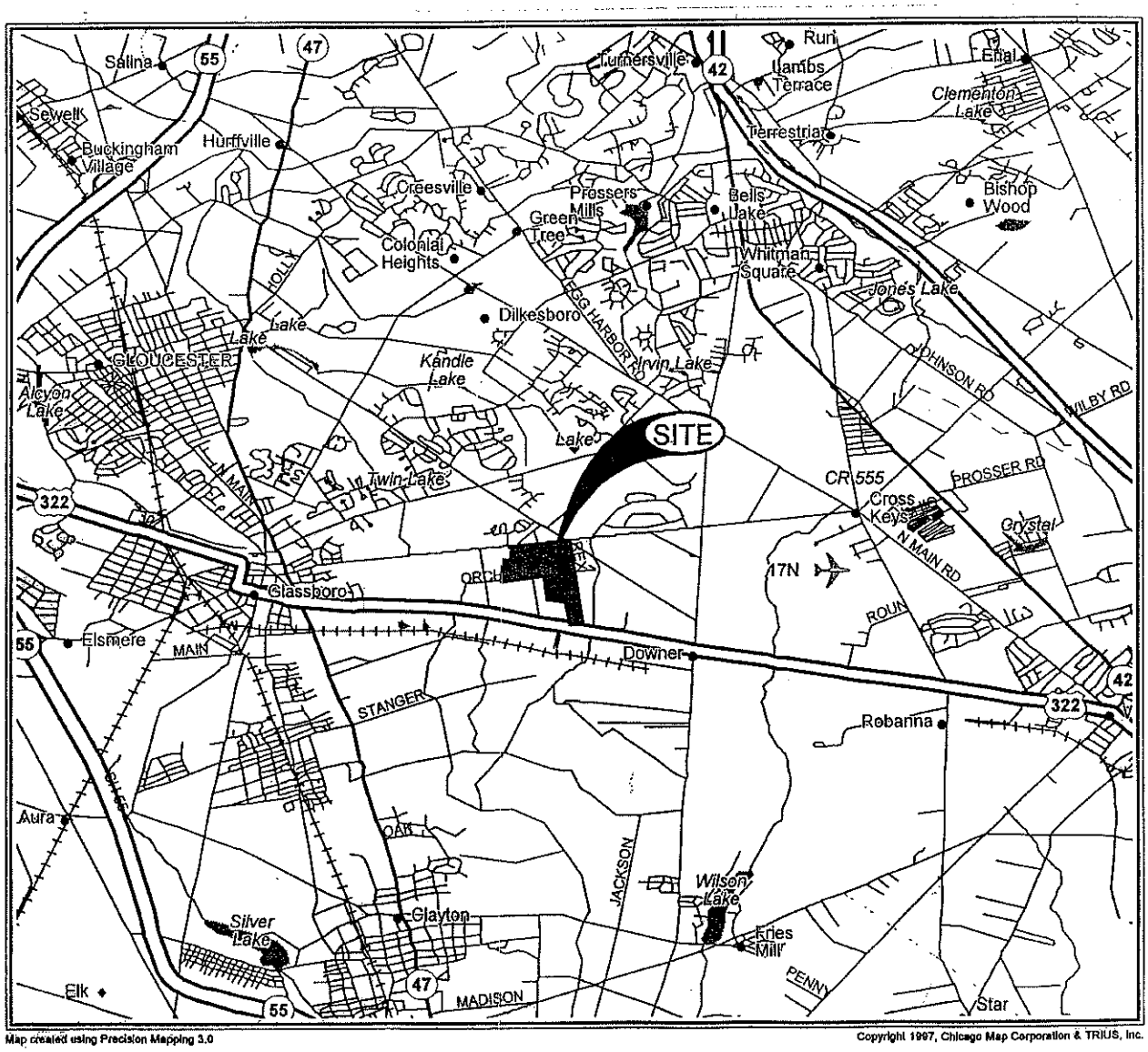


FIGURE 1
SITE LOCATION MAP

STEVEN SMITH SUBDIVISION

MONROE TOWNSHIP, GLOUCESTER COUNTY, NJ

01-037
MARCH 2001

D10

To supplement the manual counts, an Automatic Traffic Recorder (ATR) measured hourly and daily traffic along Glassboro-Cross Keys Road and US Route 322.

Existing peak hour intersection volumes are shown in Figure 2, with the 15-minute counts for the entire count period shown in the Appendix to this report.

SITE TRAFFIC

The determination of the amount of site traffic that a proposed development will have can best be made by comparison with similar sites. The Institute of Transportation Engineers has compiled hundreds of generation studies and published the results in *Trip Generation,* 1997, which is a standard used for estimating site traffic. Studies our firm has been involved in throughout New Jersey confirm the applicability of this national standard to this area.

As a result, the 273-unit single-family home subdivision can be expected to have the following site traffic:

Table 2

Site Trips*

	In	Out	Total
AM Peak Hour	49	150	199
PM Peak Hour	169	96	265
Daily Volume	1,306	1,306	2,612

*A trip is a one-way traffic movement (i.e. a vehicle entering the site counts as one "trip"; as the vehicle leaves the site it counts as a separate "trip").

TRAFFIC DISTRIBUTION

In order to analyze the impact of the site-generated traffic, these trips must be distributed to the adjoining street and highway system in a manner in which we can reasonably expect the residents to travel. Since the highest hourly volume in and out of a residential development is generally found to occur during the morning and afternoon street peak hours when the home/work travel is the primary trip purpose, we distributed the new trips based on the existing pattern of work trips made by residents of Monroe Township, Gloucester County, as determined in the latest census information, adjusted to reflect localized conditions as measured in our traffic counts.

Based on this analysis, we were able to distribute the peak hour trips as shown in Table 3 and assign them to the adjoining streets and highways as shown in Figure 3.

Table 3

Trip Distribution

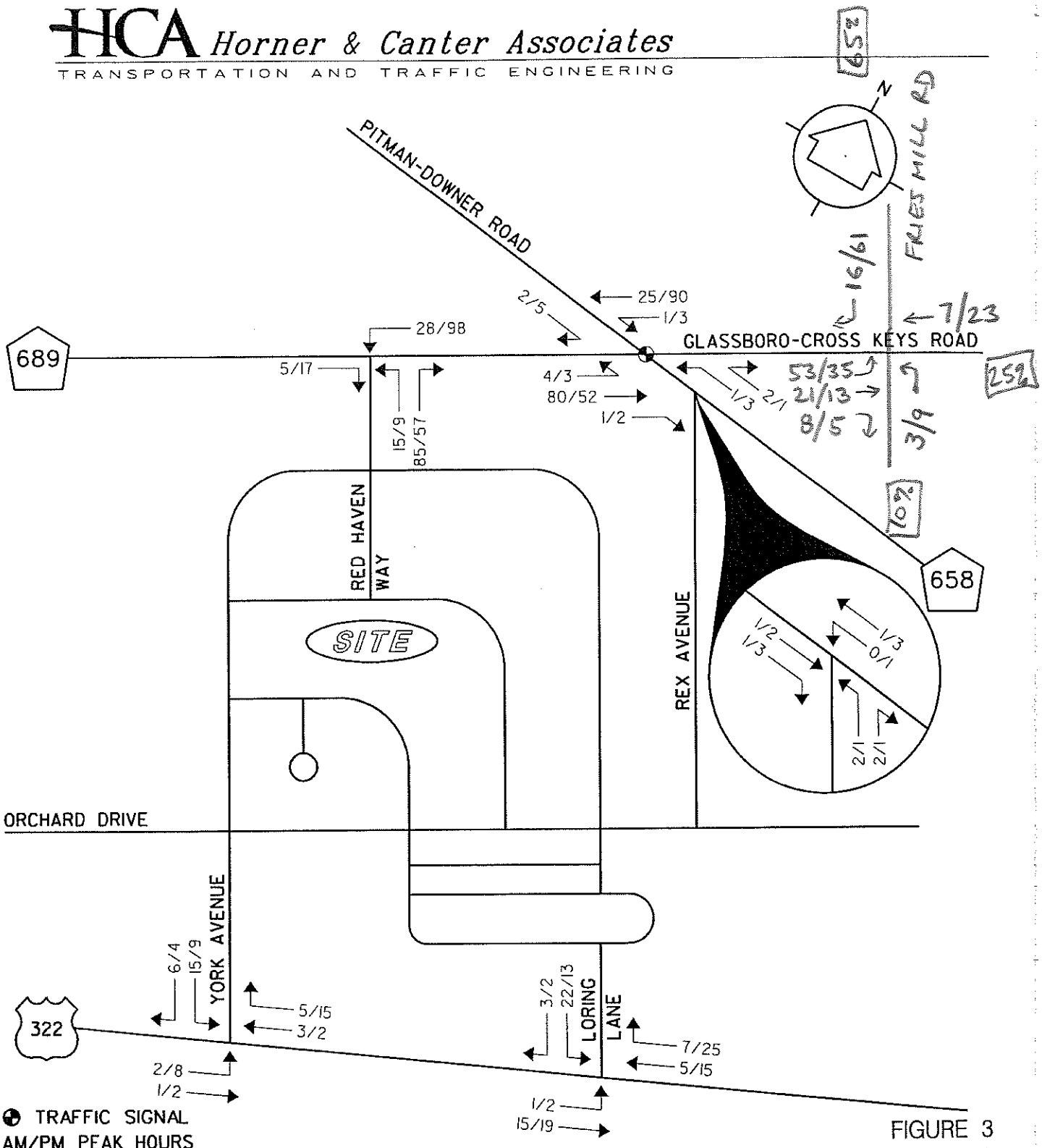
Route	Percentage
Glassboro Cross Keys Road (CR 689)/US Route 322	
to/from West	16%
Glassboro Cross Keys Road (CR 689)	
to/from East	15%
US Route 322	
to/from East	20%
Fries Mill Road (CR 655)	
to/from North	40%
to/from South	6%
Pitman-Downer Road (CR 658)	
to/from North	3%
Total	100%

DESIGN HOUR VOLUMES

As with any land development, the residential development will not exhibit its full traffic

HCA Horner & Canter Associates

TRANSPORTATION AND TRAFFIC ENGINEERING



TRAFFIC SIGNAL
AM/PM PEAK HOURS

FIGURE 3
SITE TRAFFIC

STEVEN SMITH SUBDIVISION

MONROE TOWNSHIP, GLOUCESTER COUNTY, NJ

01-037
MARCH 2001

Land Use: 252
Senior Adult Housing—Attached

Description

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and onsite medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired. Senior adult housing—detached (Land Use 251), congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the one general urban/suburban site with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:00 and 1:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, and the 2000s in Alberta (CAN), California, Illinois, New Hampshire, New Jersey, New York, and Pennsylvania.

Source Numbers

272, 501, 576, 602, 703, 734, 741, 902, 970

D14

Senior Adult Housing - Attached
(252)

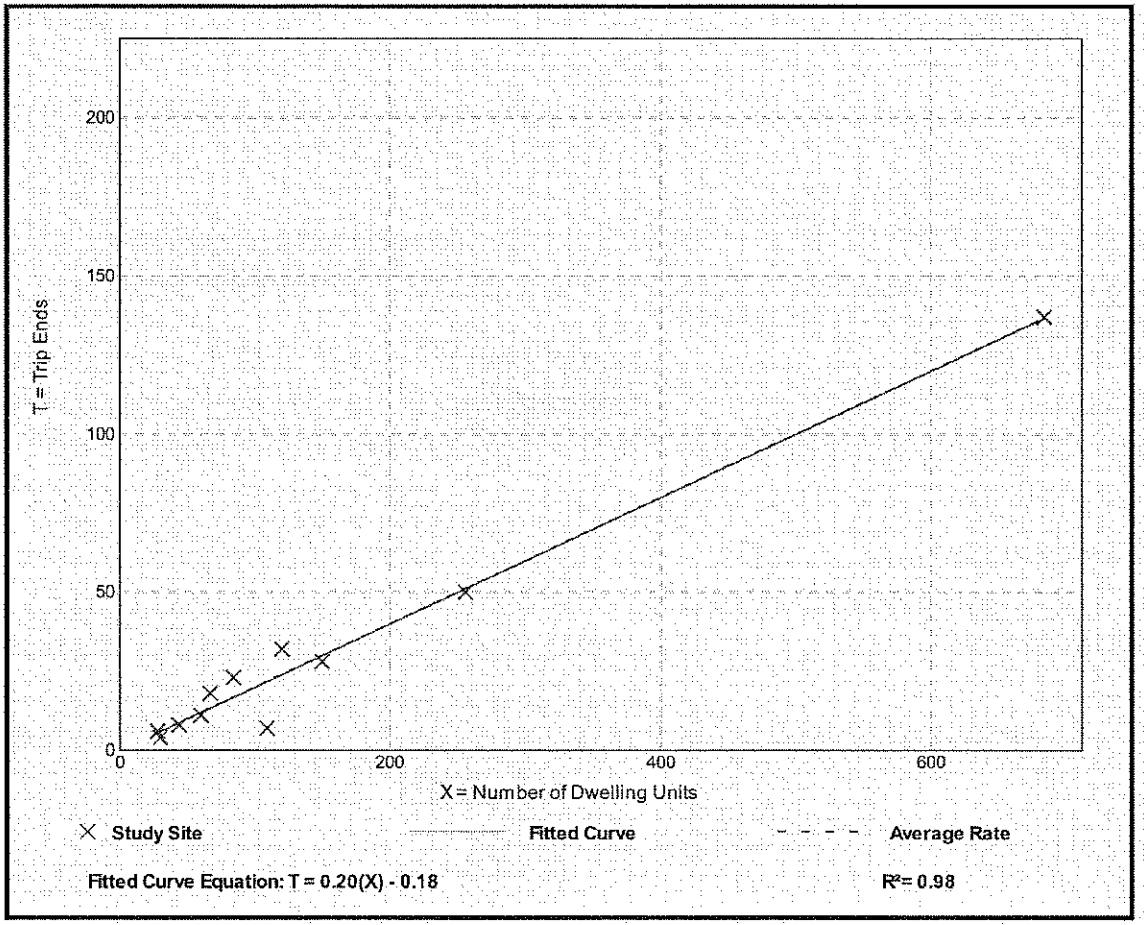
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Dwelling Units: 148
Directional Distribution: 35% entering, 65% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.06 - 0.27	0.05

55% = 0.11

Data Plot and Equation



D15

Senior Adult Housing - Attached
(252)

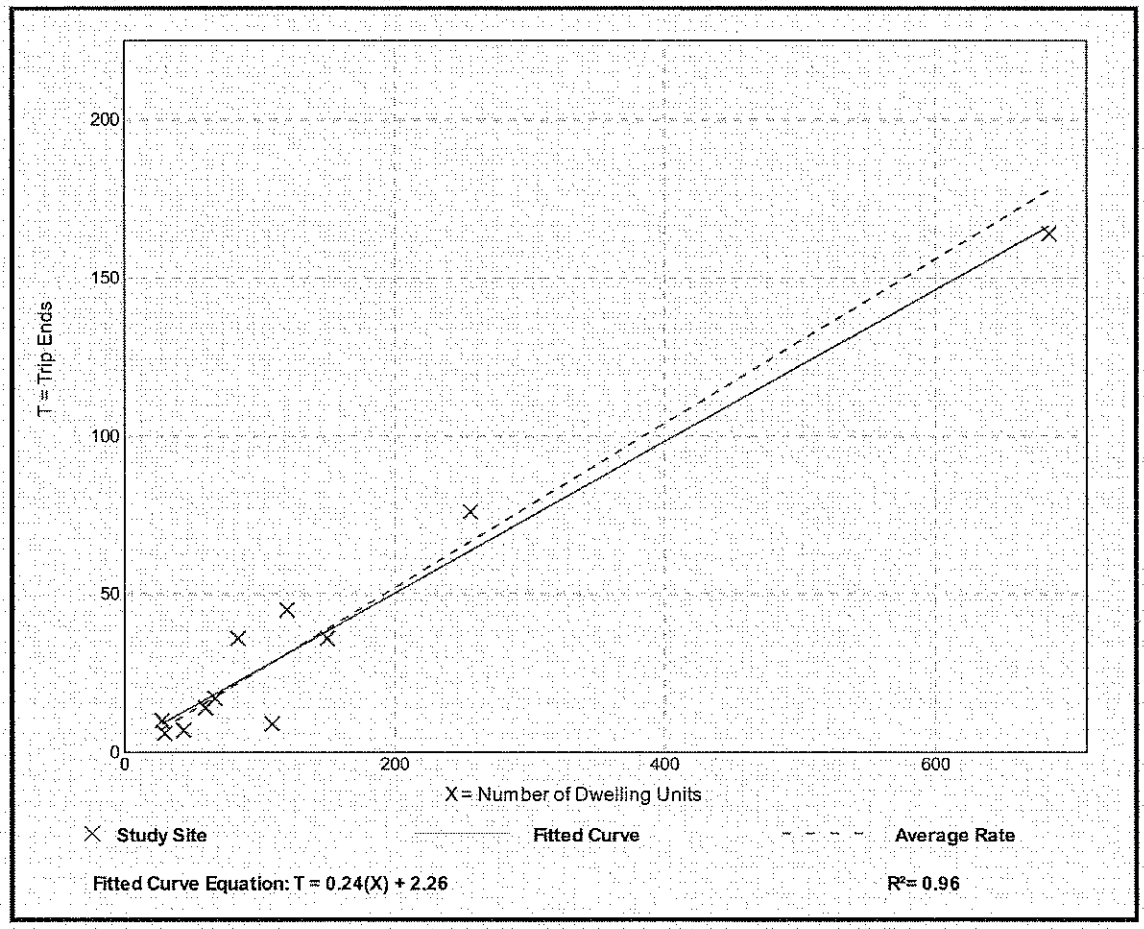
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Dwelling Units: 148
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.26	0.08 - 0.43	0.08

55% = 0.143

Data Plot and Equation



D16

Land Use: 251
Senior Adult Housing—Detached

Description

Senior adult housing consists of detached independent living developments, including retirement communities, age-restricted housing, and active adult communities. These developments may include amenities such as golf courses, swimming pools, 24-hour security, transportation, and common recreational facilities. However, they generally lack centralized dining and on-site health facilities. Detached senior adult housing communities may or may not be gated. Residents in these communities are typically active (requiring little to no medical supervision). The percentage of retired residents varies by development. Senior adult housing—attached (Land Use 252), congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related land uses.

Additional Data

Caution should be used when applying trip rates for this land use as it may contain a wide variety of studies ranging from communities with very active, working residents to communities with older, retired residents. As more data becomes available, consideration will be given to future stratification of this land use.

Many factors affected the trip rates for detached senior adult housing. Factors such as the average age of residents, development location and size, affluence of residents, employment status, and vehicular access should be taken into consideration when conducting an analysis. Some developments were located within close proximity to medical facilities, restaurants, shopping centers, banks, and recreational activities.

For the six sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 98.5 percent of the total dwelling units were occupied.

Time-of-day distribution data for this land use are presented in Appendix A. For the six general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 5:00 and 6:00 p.m., respectively.

For the six sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 98.5 percent of the units were occupied.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Hampshire, New Jersey, and Pennsylvania.

Source Numbers

221, 289, 398, 421, 500, 550, 598, 601, 629, 734, 930

D17

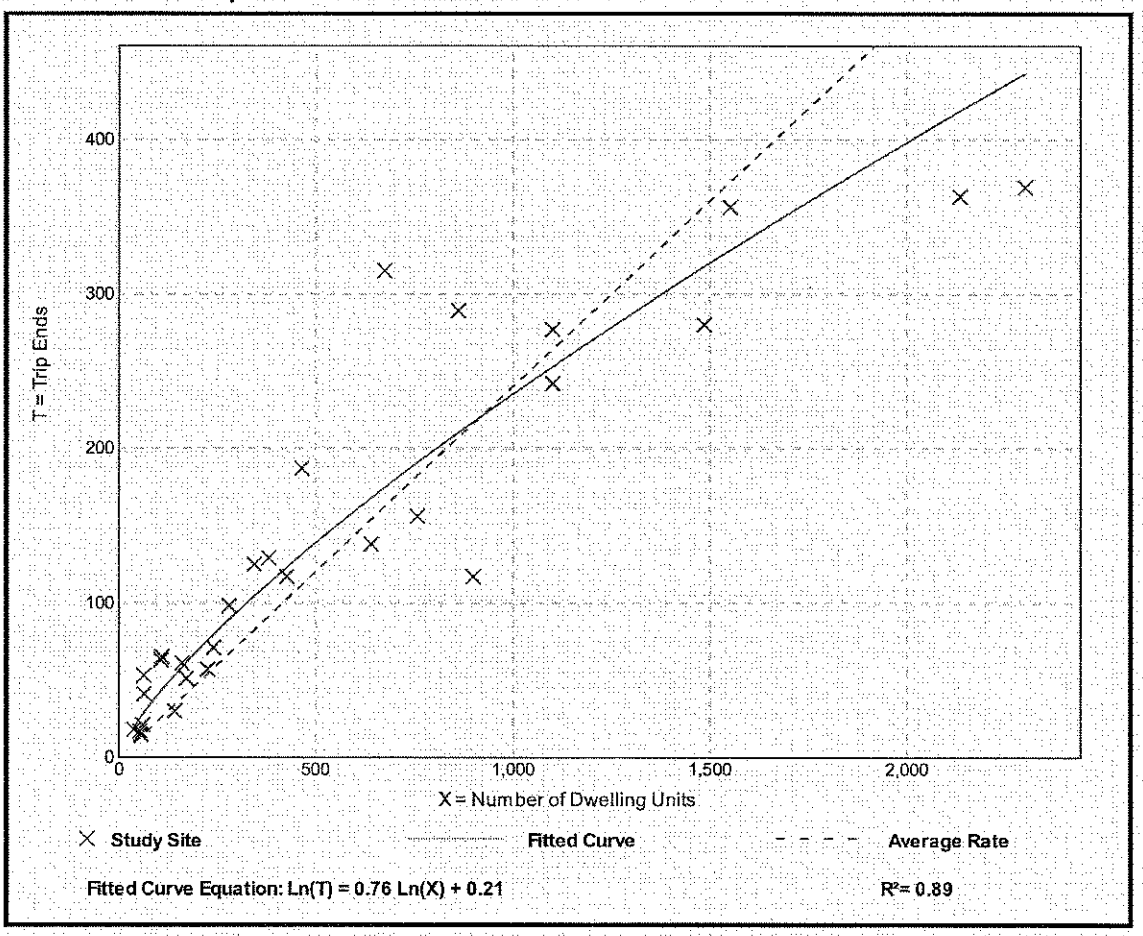
Senior Adult Housing - Detached
(251)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 583
Directional Distribution: 33% entering, 67% exiting

Vehicle Trip Generation per Dwelling Unit

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

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.76 Ln(X) + 0.21 R^2= 0.89

D18

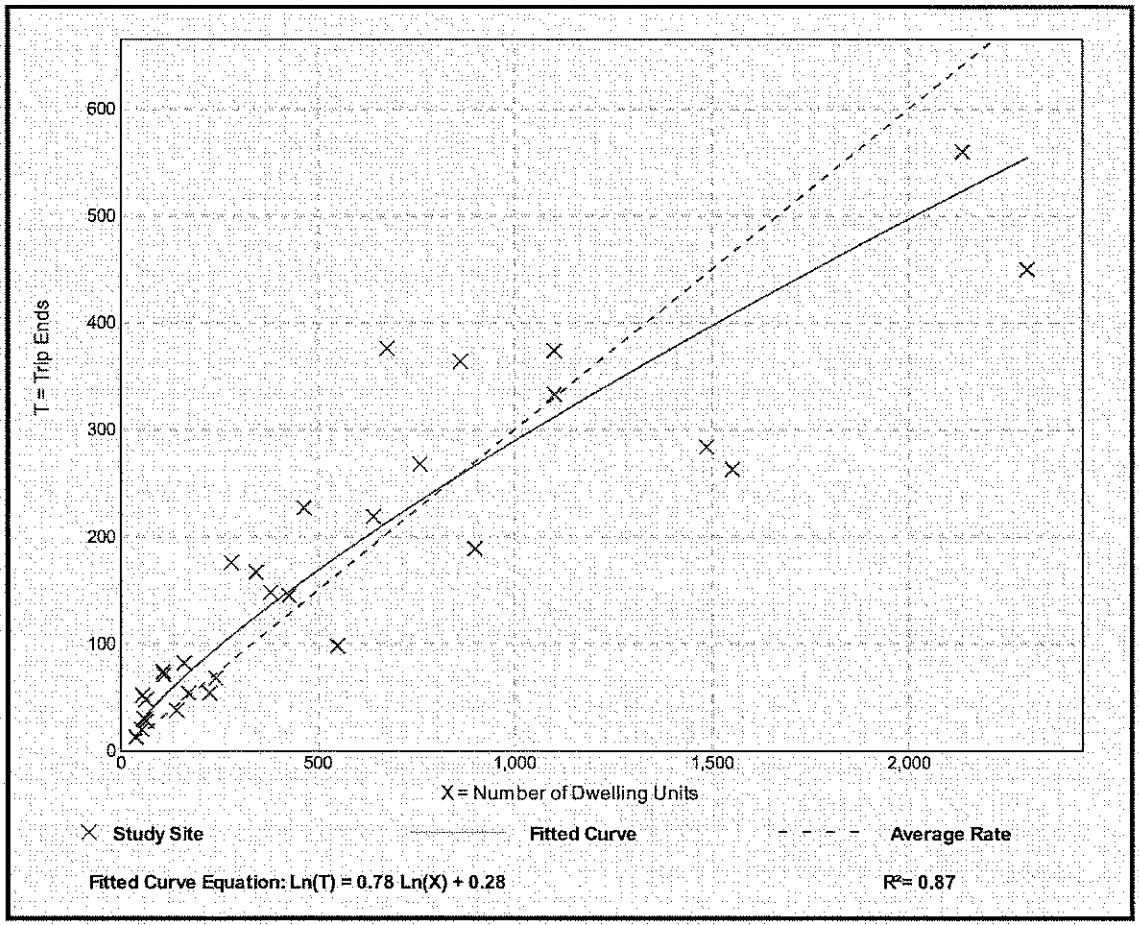
Senior Adult Housing - Detached
(251)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 30
Avg. Num. of Dwelling Units: 582
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.17 - 0.95	0.13

Data Plot and Equation



D19

Land Use: 210
Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project, and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas, and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

Time-of-day distribution data for this land use are presented in Appendix A. For the six general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:00 and 5:00 p.m., respectively. For the two sites with Saturday data, the overall highest vehicle volume was counted between 3:00 and 4:00 p.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 10:15 and 11:15 a.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Delaware, Illinois, Indiana, Maryland, Minnesota, Montana, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, and Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 903, 925, 936

D20

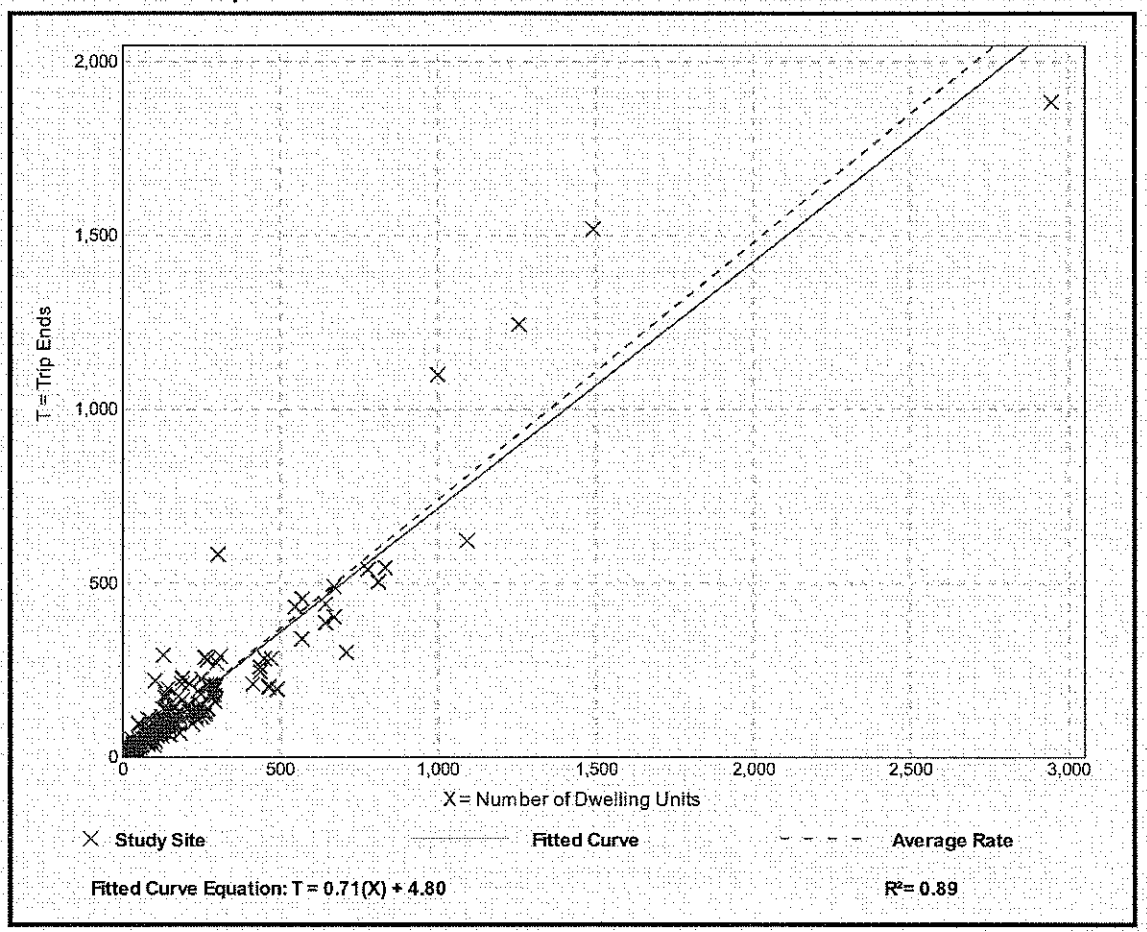
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



D 21

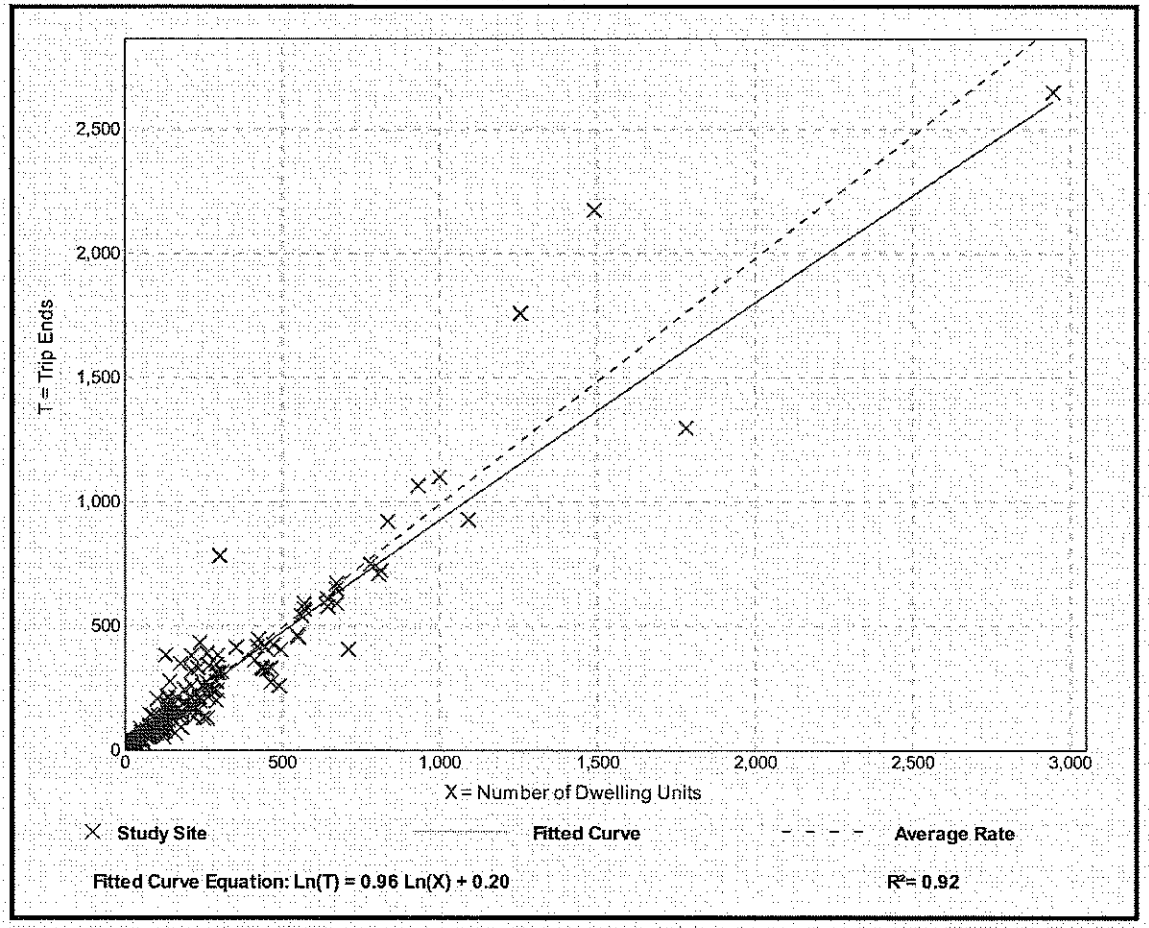
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	190
Avg. Num. of Dwelling Units:	242
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



D22

Appendix E

HCS REPORTS

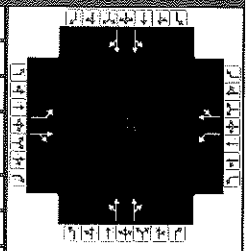
HCS REPORTS

2019 EXISTING

E2

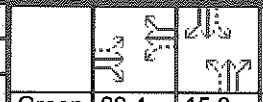
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 AM	PHF	0.91
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	332	18	110	507	10	11	399	152	6	212	107

Signal Information			
Cycle, s	47.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	20.4	15.0	0.0	0.0	0.0	0.0	1	2	3	4		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8		
Red	2.0	2.0	0.0	0.0	0.0	0.0						

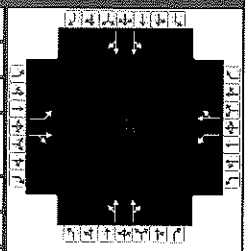
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	332	18	110	507	10	11	399	152	6	212	107
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (*Pg*), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

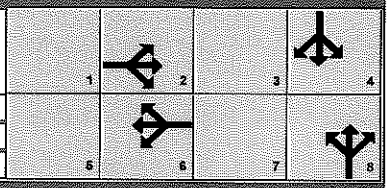
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 AM	PHF	0.91
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	332	18	110	507	10	11	399	152	6	212	107

Signal Information					EB		WB		NB		SB	
Cycle, s	47.4	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	20.4	15.0	0.0	0.0	0.0	0.0		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0		



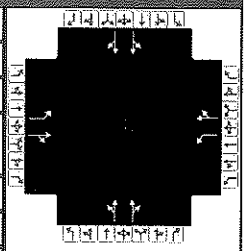
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		26.4		26.4		21.0		21.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.1		3.1		3.0		3.0
Queue Clearance Time (g_s), s		18.0		13.9		9.1		6.0
Green Extension Time (g_e), s		2.4		2.5		1.7		1.7
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.00		0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	77	385		121	568		336		281	193		164
Adjusted Saturation Flow Rate (*s*), veh/h/ln	843	1892		999	1858		1891		1570	1843		1502
Queue Service Time (g_s), s	3.9	6.9		4.7	11.9		0.0		7.1	0.0		4.0
Cycle Queue Clearance Time (g_c), s	16.0	6.9		11.7	11.9		6.9		7.1	3.7		4.0
Green Ratio (*g/C*)	0.43	0.43		0.43	0.43		0.32		0.32	0.32		0.32
Capacity (*c*), veh/h	300	813		433	799		677		497	662		476
Volume-to-Capacity Ratio (*X*)	0.256	0.473		0.279	0.711		0.496		0.566	0.292		0.344
Back of Queue (*Q*), ft/ln (95 th percentile)	28.8	88.9		37.8	152.2		97.2		82.5	51		43.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	3.5		1.5	6.0		3.9		3.3	2.0		1.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.00		0.25	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.7	9.7		13.9	11.1		13.4		13.5	12.3		12.4
Incremental Delay (d_2), s/veh	0.2	0.2		0.1	0.4		0.2		0.4	0.1		0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.9	9.8		14.0	11.5		13.6		13.8	12.4		12.6
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.2	B		12.0	B		13.7	B		12.5	B	
Intersection Delay, s/veh / LOS	12.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	1.25	A	1.62	B	1.00	A	0.78	A

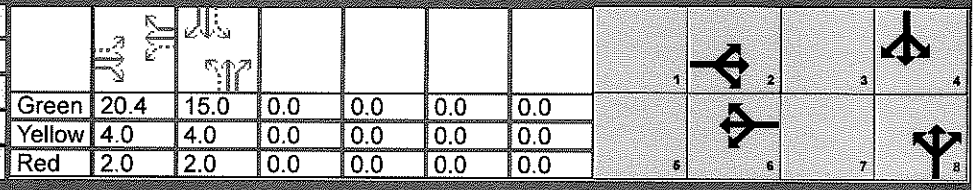
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 AM	PHF	0.91
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	70	332	18	110	507	10	11	399	152	6	212	107

Signal Information			
Cycle, s	47.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	20.4	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

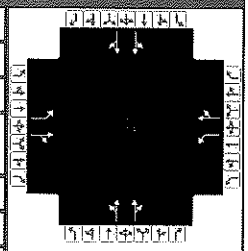
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.444	0.000		0.526	0.000		0.990	0.990		0.988	0.988	
Right-Turn Adjustment Factor (f_{RT})		0.991	0.991		0.997	0.997		0.822	0.822		0.806	0.806
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	843	1795	97	999	1822	36	68	2460	932	63	2204	1079
Proportion of Vehicles Arriving on Green (P)	0.43	0.43	0.43	0.43	0.43	0.43	0.32	0.32	0.32	0.32	0.32	0.32
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04		0.04	0.04		0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.43		0.43		0.32		0.32
Permitted Saturation Flow Rate (s_p), veh/h/ln		843		999		1047		828
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		20.4		20.4		15.0		15.0
Permitted Service Time (g_u), s		8.3		13.3		11.1		8.0
Permitted Queue Service Time (g_{ps}), s		3.9		4.7		0.0		0.0
Time to First Blockage (g_f), s		0.0		0.0		9.8		10.9
Queue Service Time Before Blockage (g_{fs}), s						6.9		3.7
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.082	0.000	0.082	0.000	0.096	0.000	0.096
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	860.35	7.69	860.35	7.69	633.15	11.07	633.15	11.07
Bicycle F_w / F_v	-3.64	0.76	-3.64	1.14	-3.64	0.51	-3.64	0.29

HCS7 Signalized Intersection Results Graphical Summary

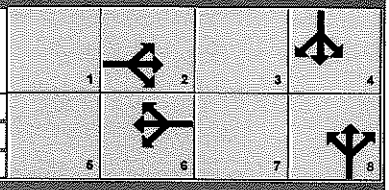
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 AM	PHF	0.91
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-am.xus		
Project Description	CES #2264-02				



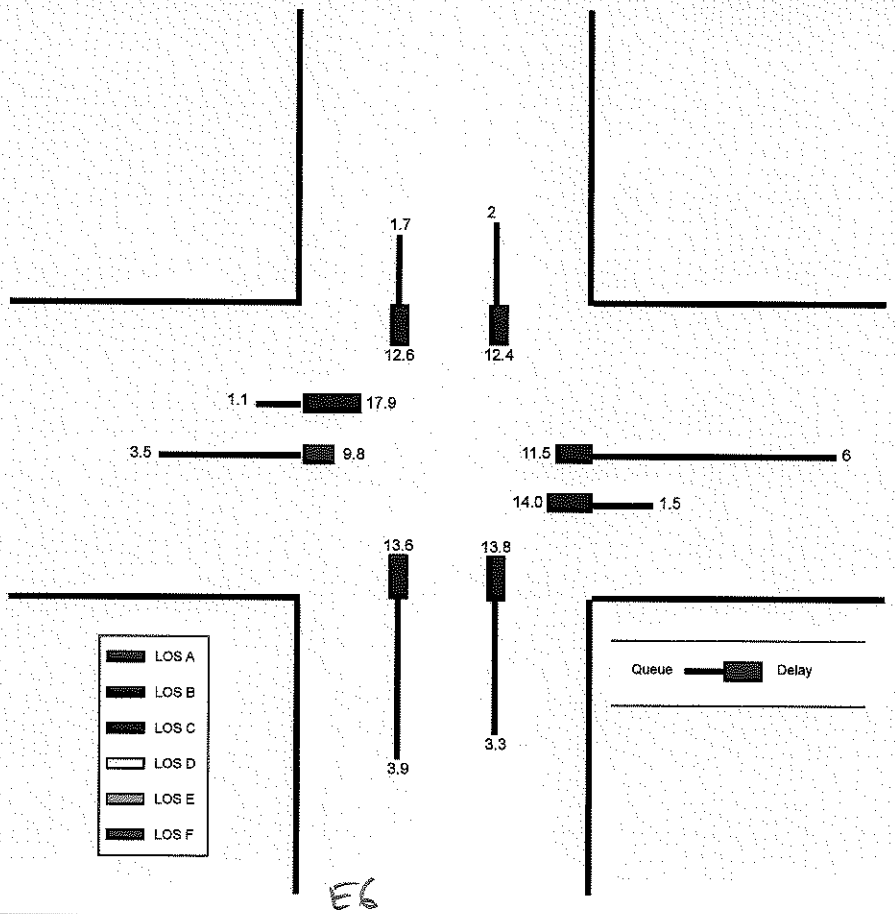
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	332	18	110	507	10	11	399	152	6	212	107

Signal Information			
Cycle, s	47.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.4	15.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



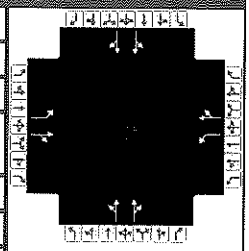
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	28.8	88.9		37.8	152.2		97.2		82.5	51		43.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	3.5		1.5	6.0		3.9		3.3	2.0		1.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.00		0.25	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	17.9	9.8		14.0	11.5		13.6		13.8	12.4		12.6
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.2		B	12.0		B	13.7		B	12.5		B
Intersection Delay, s/veh / LOS	12.4						B					



E6

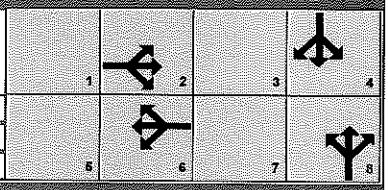
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 PM	PHF	0.98
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	118	501	13	135	535	8	25	377	148	11	447	155

Signal Information			
Cycle, s	50.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

												
Green	23.0	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

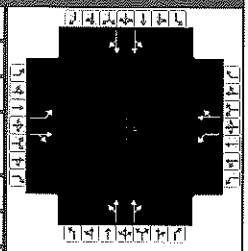
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	118	501	13	135	535	8	25	377	148	11	447	155
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (Pg), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (Y), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

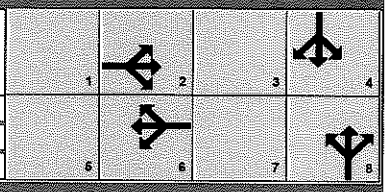
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 PM	PHF	0.98
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	118	501	13	135	535	8	25	377	148	11	447	155

Signal Information			
Cycle, s	50.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	23.0	15.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



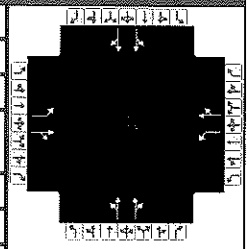
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		29.0		29.0		21.0		21.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.2		3.2		3.0		3.0
Queue Clearance Time (g_s), s		20.0		19.4		9.9		10.0
Green Extension Time (g_e), s		3.1		3.1		2.2		2.2
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.02		0.02		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	120	524		138	554		301		260	339		286
Adjusted Saturation Flow Rate (s), veh/h/ln	854	1901		878	1860		1818		1573	1841		1543
Queue Service Time (g_s), s	6.3	10.3		7.0	11.5		0.0		6.9	0.0		8.0
Cycle Queue Clearance Time (g_c), s	18.0	10.3		17.4	11.5		7.9		6.9	7.8		8.0
Green Ratio (g/C)	0.46	0.46		0.46	0.46		0.30		0.30	0.30		0.30
Capacity (c), veh/h	338	874		364	855		624		472	627		463
Volume-to-Capacity Ratio (X)	0.356	0.600		0.379	0.648		0.483		0.551	0.541		0.618
Back of Queue (Q), ft/ln (95 th percentile)	47	133.9		52.2	146.1		97.3		85.3	112.8		96.5
Back of Queue (Q), veh/ln (95 th percentile)	1.9	5.3		2.1	5.8		3.9		3.4	4.5		3.9
Queue Storage Ratio (RQ) (95 th percentile)	0.28	0.00		0.35	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.4	10.1		16.7	10.4		14.5		14.7	15.0		15.0
Incremental Delay (d_2), s/veh	0.2	0.2		0.2	0.3		0.2		0.4	0.3		0.5
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (d), s/veh	17.6	10.3		16.9	10.7		14.8		15.0	15.2		15.5
Level of Service (LOS)	B	B		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.7	B		11.9	B		14.9	B		15.4	B	
Intersection Delay, s/veh / LOS	13.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	1.55	B	1.63	B	0.95	A	1.00	A

HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 PM	PHF	0.98
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	118	501	13	135	535	8	25	377	148	11	447	155

Signal Information			
Cycle, s	50.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	23.0	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

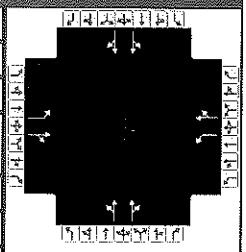
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.450	0.000		0.462	0.000		0.952	0.952		0.987	0.987	
Right-Turn Adjustment Factor (f_{RT})		0.995	0.995		0.997	0.997		0.824	0.824		0.828	0.828
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	854	1853	48	878	1832	27	154	2323	914	61	2470	853
Proportion of Vehicles Arriving on Green (P)	0.46	0.46	0.46	0.46	0.46	0.46	0.30	0.30	0.30	0.30	0.30	0.30
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04		0.04	0.04		0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.46		0.46		0.30		0.30
Permitted Saturation Flow Rate (s_p), veh/h/ln		854		878		821		883
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		23.0		23.0		15.0		15.0
Permitted Service Time (g_u), s		11.3		12.5		7.1		8.2
Permitted Queue Service Time (g_{ps}), s		6.3		7.0		0.0		0.0
Time to First Blockage (g_f), s		0.0		0.0		7.9		9.9
Queue Service Time Before Blockage (g_{fs}), s						6.6		7.8
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.080	0.000	0.080	0.000	0.101	0.000	0.101
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	920.44	7.29	920.44	7.29	599.77	12.26	599.77	12.26
Bicycle F_w / F_v	-3.64	1.06	-3.64	1.14	-3.64	0.46	-3.64	0.52

HCS7 Signalized Intersection Results Graphical Summary

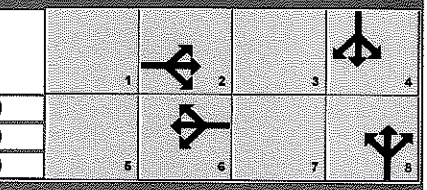
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2019 PM	PHF	0.98
Urban Street		Analysis Year		Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-19-pm.xus		
Project Description	CES #2264-02				



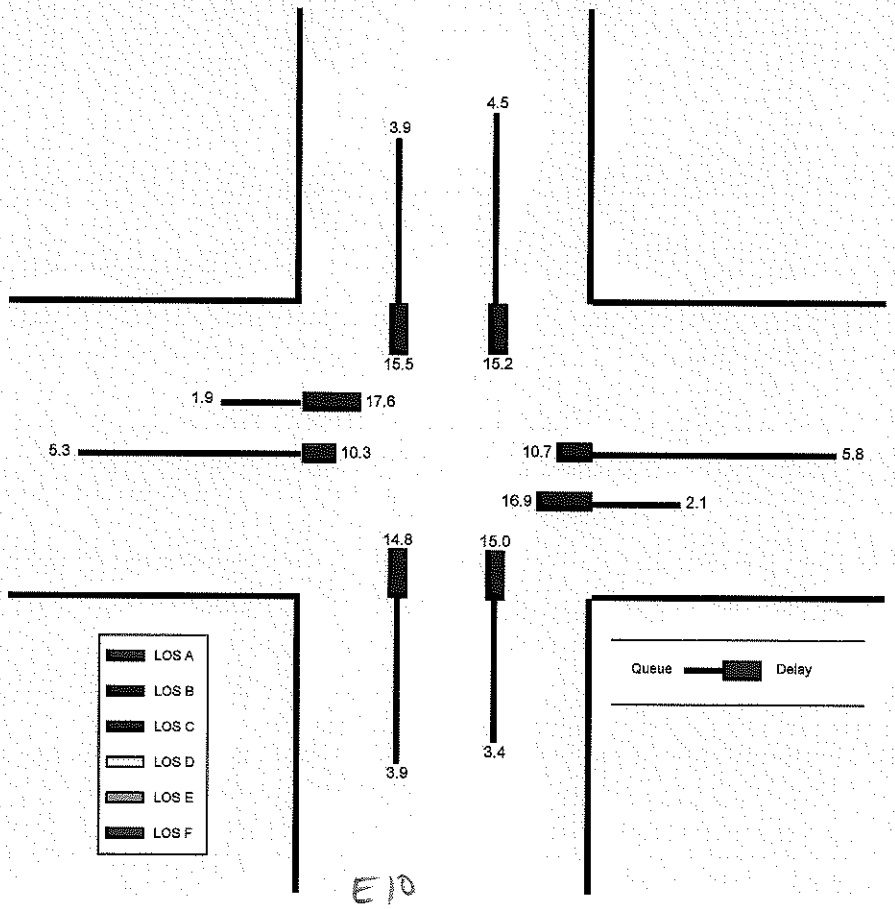
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	118	501	13	135	535	8	25	377	148	11	447	155

Signal Information			
Cycle, s	50.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	23.0	15.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	47	133.9		52.2	146.1		97.3		85.3	112.8		96.5
Back of Queue (Q), veh/ln (95 th percentile)	1.9	5.3		2.1	5.8		3.9		3.4	4.5		3.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.28	0.00		0.35	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	17.6	10.3		16.9	10.7		14.8		15.0	15.2		15.5
Level of Service (LOS)	B	B		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.7	B		11.9	B		14.9	B		15.4	B	
Intersection Delay, s/veh / LOS	13.4						B					



E10

HCS7 Two-Way Stop-Control Report

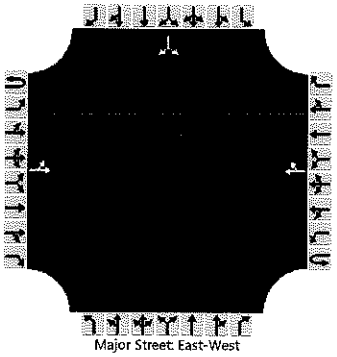
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2019
Time Analyzed	2019 AM
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree Lane
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Lane
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		4	380				619	15						46		11
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.60		6.30
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													62	
Capacity, c (veh/h)		915													244	
v/c Ratio		0.00													0.25	
95% Queue Length, Q_{95} (veh)		0.0													1.0	
Control Delay (s/veh)		9.0													24.7	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)	0.1												24.7			
Approach LOS													C			

HCS7 Two-Way Stop-Control Report

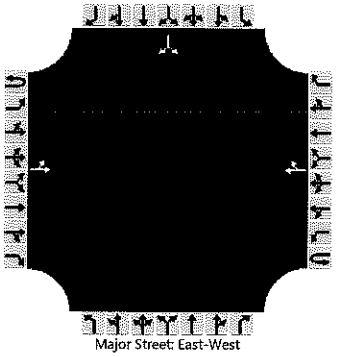
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2019
Time Analyzed	2019 PM
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree Lane
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Lane
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		13	582				687	51						30		8
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.60		6.30
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14													41	
Capacity, c (veh/h)		830													155	
v/c Ratio		0.02													0.27	
95% Queue Length, Q_{95} (veh)		0.1													1.0	
Control Delay (s/veh)		9.4													36.4	
Level of Service (LOS)		A													E	
Approach Delay (s/veh)	0.4												36.4			
Approach LOS													E			

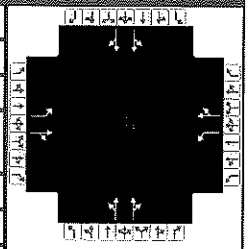
HCS REPORTS

2026 BASE

E13

HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	128	377	29	120	551	11	19	433	167	6	230	131

Signal Information			
Cycle, s	54.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	27.1	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

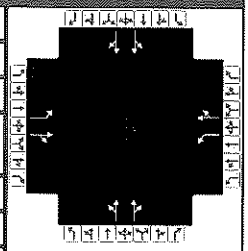
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	128	377	29	120	551	11	19	433	167	6	230	131
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (*Pg*), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	128	377	29	120	551	11	19	433	167	6	230	131

Signal Information			
Cycle, s	54.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	27.1	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

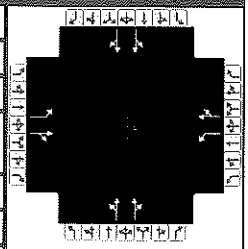
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		33.1		33.1		21.0		21.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.2		3.2		3.0		3.0
Queue Clearance Time (g_s), s		24.2		16.3		11.6		7.5
Green Extension Time (g_e), s		3.0		3.2		2.0		2.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.06		0.01		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	141	446		132	618		370		311	220		184
Adjusted Saturation Flow Rate (s), veh/h/ln	806	1885		944	1858		1868		1570	1843		1487
Queue Service Time (g_s), s	8.6	8.4		5.8	13.4		1.2		9.6	0.0		5.5
Cycle Queue Clearance Time (g_c), s	22.2	8.4		14.3	13.4		9.4		9.6	5.2		5.5
Green Ratio (g/C)	0.50	0.50		0.50	0.50		0.28		0.28	0.28		0.28
Capacity (c), veh/h	333	942		456	928		590		437	581		413
Volume-to-Capacity Ratio (X)	0.422	0.474		0.289	0.665		0.627		0.711	0.378		0.444
Back of Queue (Q), ft/ln (95 th percentile)	61.7	107.5		45.1	171.3		148		127	79.8		67.7
Back of Queue (Q), veh/ln (95 th percentile)	2.4	4.2		1.8	6.7		5.9		5.1	3.2		2.7
Queue Storage Ratio (RQ) (95 th percentile)	0.36	0.00		0.30	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.5	8.8		13.6	10.1		17.5		17.5	15.9		16.1
Incremental Delay (d_2), s/veh	0.3	0.1		0.1	0.3		0.4		0.8	0.2		0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (d), s/veh	18.8	9.0		13.7	10.4		17.9		18.3	16.1		16.3
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.3	B		11.0	B		18.1	B		16.2	B	
Intersection Delay, s/veh / LOS	13.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.06	B	2.06	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	1.46	A	1.72	B	1.05	A	0.82	A

HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	128	377	29	120	551	11	19	433	167	6	230	131

Signal Information			
Cycle, s	54.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	27.1	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.424	0.000		0.497	0.000		0.978	0.978		0.988	0.988	
Right-Turn Adjustment Factor (f_{RT})		0.987	0.987		0.996	0.996		0.823	0.823		0.797	0.797
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	806	1750	135	944	1822	36	105	2405	928	55	2109	1166
Proportion of Vehicles Arriving on Green (P)	0.50	0.50	0.50	0.50	0.50	0.50	0.28	0.28	0.28	0.28	0.28	0.28
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04		0.04	0.04		0.04

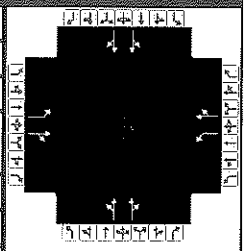
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.50		0.50		0.28		0.28
Permitted Saturation Flow Rate (s_p), veh/h/ln		806		944		1003		787
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		27.0		27.0		15.0		15.0
Permitted Service Time (g_u), s		13.4		18.5		9.6		5.5
Permitted Queue Service Time (g_{ps}), s		8.6		5.8		1.2		0.0
Time to First Blockage (g_f), s		0.0		0.0		8.2		10.7
Queue Service Time Before Blockage (g_{fs}), s						8.2		5.2
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.077	0.000	0.077	0.000	0.106	0.000	0.106
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1001.59	6.74	1001.59	6.74	554.71	14.12	554.71	14.12
Bicycle F_w / F_v	-3.64	0.97	-3.64	1.24	-3.64	0.56	-3.64	0.33

E16

HCS7 Signalized Intersection Results Graphical Summary

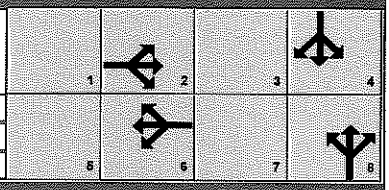
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am.xus		
Project Description	CES #2264-02				



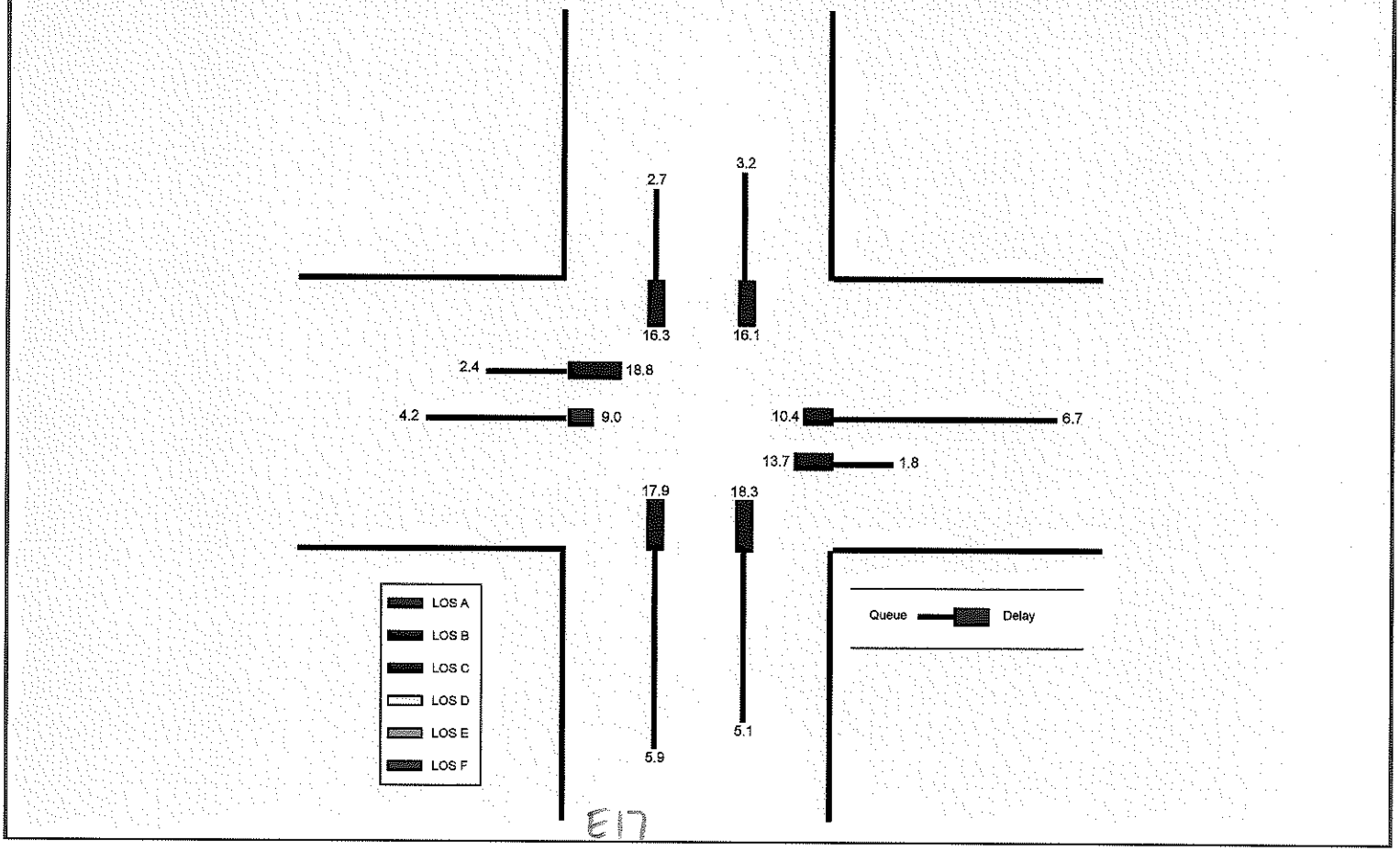
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	128	377	29	120	551	11	19	433	167	6	230	131

Signal Information			
Cycle, s	54.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	27.1	15.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



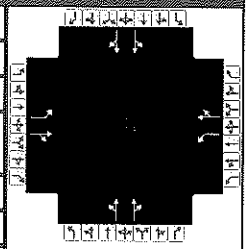
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	61.7	107.5		45.1	171.3		148		127	79.8		67.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	4.2		1.8	6.7		5.9		5.1	3.2		2.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.00		0.30	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	18.8	9.0		13.7	10.4		17.9		18.3	16.1		16.3
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.3	B		11.0	B		18.1	B		16.2	B	
Intersection Delay, s/veh / LOS	13.9						B					



E17

HCS7 Signalized Intersection Input Data

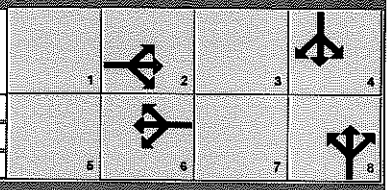
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	162	550	22	150	597	9	38	408	162	12	485	227

Signal Information			
Cycle, s	65.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.5	20.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



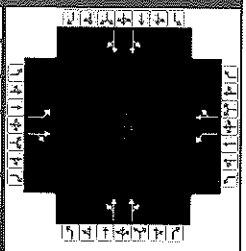
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	162	550	22	150	597	9	38	408	162	12	485	227
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (*Pg*), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

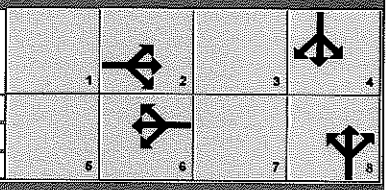
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	162	550	22	150	597	9	38	408	162	12	485	227

Signal Information			
Cycle, s	65.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.5	20.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		39.5		39.5		26.1		26.1
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.3		3.3		3.1		3.1
Queue Clearance Time (g_s), s		30.4		26.7		17.5		14.9
Green Extension Time (g_e), s		3.1		3.5		2.6		2.7
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.32		0.17		0.01		0.01

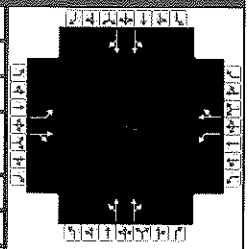
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	165	584		153	618		322		299	406		333
Adjusted Saturation Flow Rate (s), veh/h/ln	805	1896		831	1859		1343		1580	1840		1508
Queue Service Time (g_s), s	12.4	14.3		10.5	16.0		2.6		10.6	0.0		12.9
Cycle Queue Clearance Time (g_c), s	28.4	14.3		24.7	16.0		15.5		10.6	12.7		12.9
Green Ratio (g/C)	0.51	0.51		0.51	0.51		0.31		0.31	0.31		0.31
Capacity (c), veh/h	325	968		354	950		473		484	620		462
Volume-to-Capacity Ratio (X)	0.508	0.603		0.432	0.651		0.680		0.617	0.654		0.721
Back of Queue (Q), ft/ln (95 th percentile)	94.9	205.9		81.1	224.2		157.8		149.7	205		175
Back of Queue (Q), veh/ln (95 th percentile)	3.7	8.1		3.2	8.8		6.3		6.0	8.2		7.0
Queue Storage Ratio (RQ) (95 th percentile)	0.56	0.00		0.54	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	22.1	11.4		20.1	11.8		19.7		19.5	20.2		20.3
Incremental Delay (d_2), s/veh	0.5	0.3		0.3	0.6		0.6		0.5	0.4		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (d), s/veh	22.6	11.6		20.4	12.3		20.4		19.9	20.6		21.1
Level of Service (LOS)	C	B		C	B		C		B	C		C
Approach Delay, s/veh / LOS	14.0	B		13.9	B		20.2	C		20.8	C	
Intersection Delay, s/veh / LOS	17.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.72	B	1.76	B	1.00	A	1.10	A

E19

HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	162	550	22	150	597	9	38	408	162	12	485	227

Signal Information			
Cycle, s	65.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	33.5	20.1	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		5	6	7	8	
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.424	0.000		0.437	0.000		0.703	0.703		0.987	0.987	
Right-Turn Adjustment Factor (f_{RT})		0.993	0.993		0.997	0.997		0.828	0.828		0.809	0.809
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	805	1823	73	831	1832	28	162	1887	874	56	2244	1048
Proportion of Vehicles Arriving on Green (P)	0.51	0.51	0.51	0.51	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Incremental Delay Factor (k)	0.04	0.04		0.04	0.08		0.04		0.04	0.04		0.04

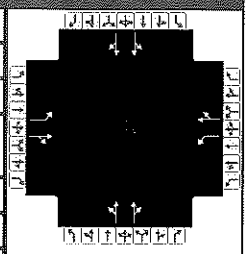
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.51		0.51		0.31		0.31
Permitted Saturation Flow Rate (s_p), veh/h/ln		805		831		739		846
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		33.5		33.5		20.1		20.1
Permitted Service Time (g_u), s		17.6		19.3		7.2		9.5
Permitted Queue Service Time (g_{ps}), s		12.4		10.5		2.6		0.0
Time to First Blockage (g_f), s		0.0		0.0		8.1		12.9
Queue Service Time Before Blockage (g_{fs}), s						8.1		12.7
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.083	0.000	0.083	0.000	0.111	0.000	0.111
Pedestrian M_{corner} / M_{cw}								
Bicycle C_b / d_b	1020.52	7.87	1020.52	7.87	613.67	15.76	613.67	15.76
Bicycle F_w / F_v	-3.64	1.24	-3.64	1.27	-3.64	0.51	-3.64	0.61

E20

HCS7 Signalized Intersection Results Graphical Summary

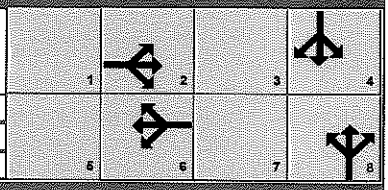
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm.xus		
Project Description	CES #2264-02				



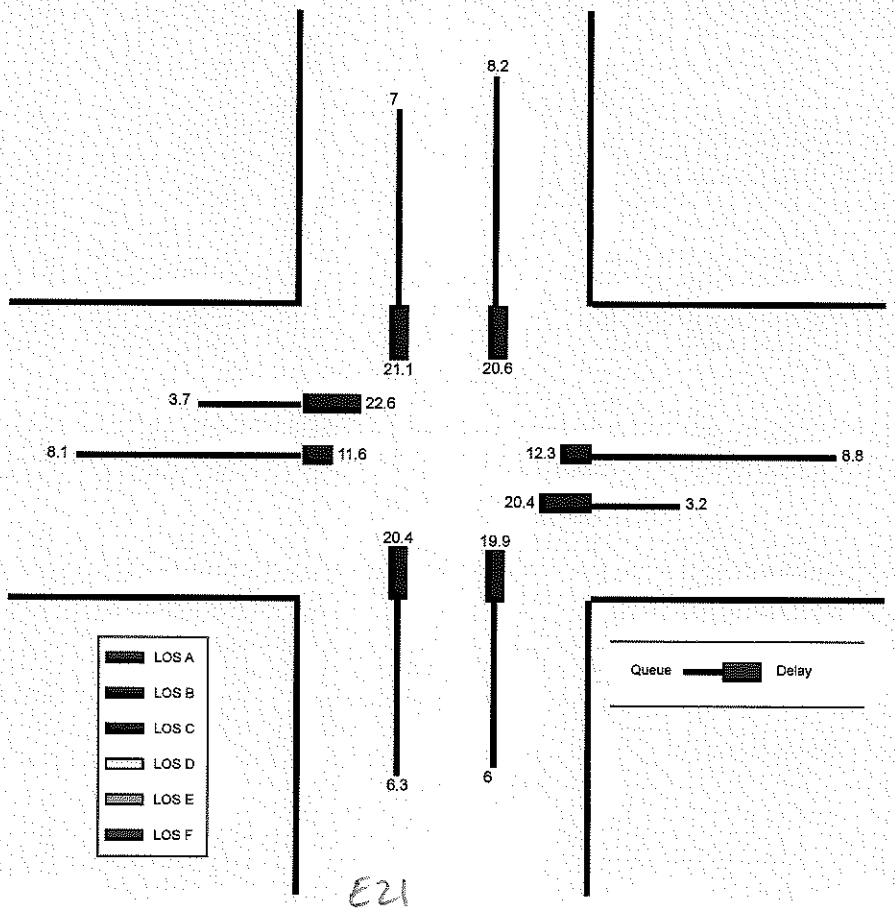
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	162	550	22	150	597	9	38	408	162	12	485	227

Signal Information			
Cycle, s	65.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.5	20.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	94.9	205.9		81.1	224.2		157.8		149.7	205		175
Back of Queue (Q), veh/ln (95 th percentile)	3.7	8.1		3.2	8.8		6.3		6.0	8.2		7.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.56	0.00		0.54	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	22.6	11.6		20.4	12.3		20.4		19.9	20.6		21.1
Level of Service (LOS)	C	B		C	B		C		B	C		C
Approach Delay, s/veh / LOS	14.0	B		13.9	B		20.2	C		20.8	C	
Intersection Delay, s/veh / LOS	17.1						B					



E21

HCS7 Two-Way Stop-Control Report

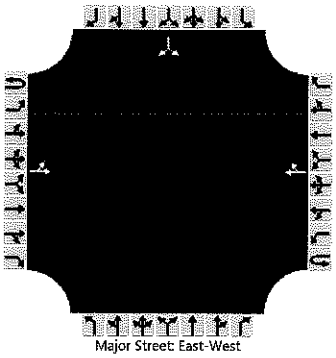
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 AM
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree Lane
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Lane
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		4	491				694	15						46		11
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.60		6.30
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4													62	
Capacity, c (veh/h)		853													186	
v/c Ratio		0.01													0.33	
95% Queue Length, Q_{95} (veh)		0.0													1.4	
Control Delay (s/veh)		9.2													33.8	
Level of Service (LOS)		A													D	
Approach Delay (s/veh)	0.1												33.8			
Approach LOS													D			

HCS7 Two-Way Stop-Control Report

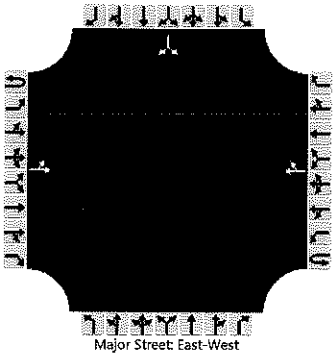
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 PM
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree Lane
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Lane
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		13	680				832	51						30		8
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.60		6.30
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14													41	
Capacity, c (veh/h)		725													106	
v/c Ratio		0.02													0.39	
95% Queue Length, Q_{95} (veh)		0.1													1.6	
Control Delay (s/veh)		10.1													59.0	
Level of Service (LOS)		B													F	
Approach Delay (s/veh)	0.5												59.0			
Approach LOS													F			

HCS7 Two-Way Stop-Control Report

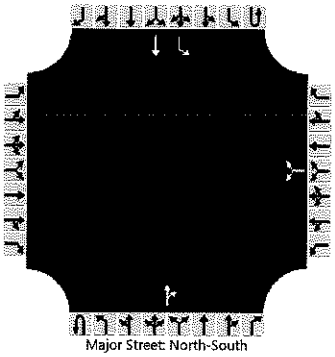
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 AM
Intersection Orientation	North-South
Project Description	CES #2264-02

Site Information

Intersection	CR 655 & Stirling Glen Dr
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	Stirling Glen Dr
North/South Street	CR 655
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						4		13			613	2		7	370	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						-2										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.00		6.00						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							18							8		
Capacity, c (veh/h)							406							931		
v/c Ratio							0.05							0.01		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							14.3							8.9		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					14.3								0.2			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

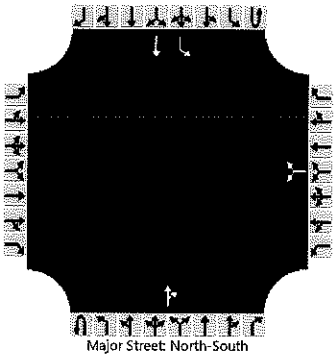
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 PM
Intersection Orientation	North-South
Project Description	CES #2264-02

Site Information

Intersection	CR 655 & Stirling Glen Dr
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	Stirling Glen Dr
North/South Street	CR 655
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						3		9			607	5		14	660	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						-2										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.00		6.00						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

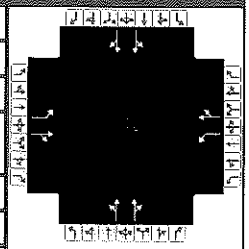
Flow Rate, v (veh/h)							13							15		
Capacity, c (veh/h)							337							934		
v/c Ratio							0.04							0.02		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
Control Delay (s/veh)							16.1							8.9		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.1								0.2			
Approach LOS					C											

HCS REPORTS

2026 BUILD-OUT

HCS7 Signalized Intersection Input Data

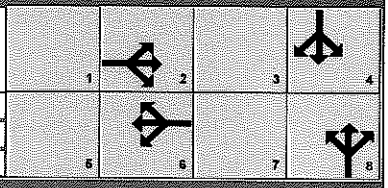
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM Build	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am-build.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	379	29	121	552	11	19	435	169	6	231	132

Signal Information			
Cycle, s	54.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	27.3	15.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						



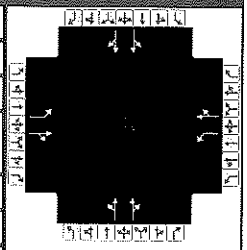
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	379	29	121	552	11	19	435	169	6	231	132
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (*Pg*), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

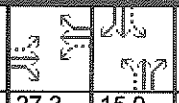
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM Build	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am-build.xus		
Project Description	CES #2264-02				

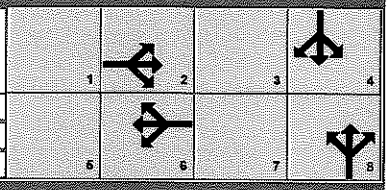


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	130	379	29	121	552	11	19	435	169	6	231	132

Signal Information			
Cycle, s	54.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	27.3	15.0	0.0	0.0	0.0	0.0				
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8



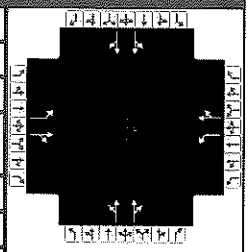
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		33.3		33.3		21.0		21.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (MAH), s		3.2		3.2		3.0		3.0
Queue Clearance Time (g_s), s		24.4		16.4		11.7		7.6
Green Extension Time (g_e), s		3.0		3.2		2.0		2.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.07		0.01		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	143	448		133	619		372		312	221		185
Adjusted Saturation Flow Rate (s), veh/h/ln	805	1885		942	1858		1868		1570	1843		1486
Queue Service Time (g_s), s	8.8	8.4		5.8	13.5		1.4		9.7	0.0		5.6
Cycle Queue Clearance Time (g_c), s	22.4	8.4		14.4	13.5		9.6		9.7	5.3		5.6
Green Ratio (g/C)	0.50	0.50		0.50	0.50		0.28		0.28	0.28		0.28
Capacity (c), veh/h	334	946		457	932		587		435	579		412
Volume-to-Capacity Ratio (X)	0.427	0.474		0.291	0.664		0.634		0.719	0.382		0.449
Back of Queue (Q), ft/ln (95 th percentile)	62.9	108.1		45.5	171.7		150.6		129.2	81.2		68.8
Back of Queue (Q), veh/ln (95 th percentile)	2.5	4.3		1.8	6.8		6.0		5.2	3.2		2.8
Queue Storage Ratio (RQ) (95 th percentile)	0.37	0.00		0.30	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.5	8.8		13.6	10.1		17.6		17.7	16.1		16.2
Incremental Delay (d_2), s/veh	0.3	0.1		0.1	0.3		0.4		0.8	0.2		0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (d), s/veh	18.8	9.0		13.7	10.4		18.0		18.5	16.2		16.5
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.4	B		11.0	B		18.3	B		16.3	B	
Intersection Delay, s/veh / LOS	14.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.06	B	2.06	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	1.46	A	1.73	B	1.05	A	0.82	A

HCS7 Signalized Intersection Intermediate Values

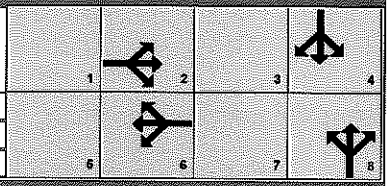
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM Build	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am-build.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	130	379	29	121	552	11	19	435	169	6	231	132

Signal Information			
Cycle, s	54.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Green	27.3	15.0		0.0	0.0		0.0	0.0				
Yellow	4.0	4.0		0.0	0.0		0.0	0.0				
Red	2.0	2.0		0.0	0.0		0.0	0.0				



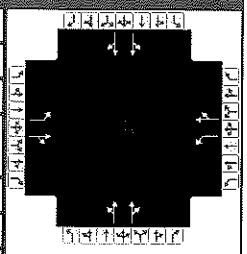
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.424	0.000		0.496	0.000		0.978	0.978		0.988	0.988	
Right-Turn Adjustment Factor (f_{RT})		0.987	0.987		0.996	0.996		0.822	0.822		0.797	0.797
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	805	1751	134	942	1822	36	105	2400	933	55	2106	1168
Proportion of Vehicles Arriving on Green (P)	0.50	0.50	0.50	0.50	0.50	0.50	0.28	0.28	0.28	0.28	0.28	0.28
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04		0.04	0.04		0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.50		0.50		0.28		0.28
Permitted Saturation Flow Rate (s_p), veh/h/ln		805		942		1001		784
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		27.2		27.2		15.0		15.0
Permitted Service Time (g_u), s		13.6		18.6		9.5		5.3
Permitted Queue Service Time (g_{ps}), s		8.8		5.8		1.4		0.0
Time to First Blockage (g_f), s		0.0		0.0		8.2		10.7
Queue Service Time Before Blockage (g_{fs}), s						8.2		5.3
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.076	0.000	0.076	0.000	0.106	0.000	0.106
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1005.55	6.71	1005.55	6.71	552.51	14.22	552.51	14.22
Bicycle F_w / F_v	-3.64	0.98	-3.64	1.24	-3.64	0.56	-3.64	0.33

HCS7 Signalized Intersection Results Graphical Summary

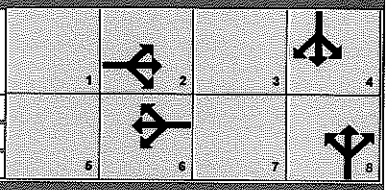
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 AM Build	PHF	0.91
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-am-build.xus		
Project Description	CES #2264-02				



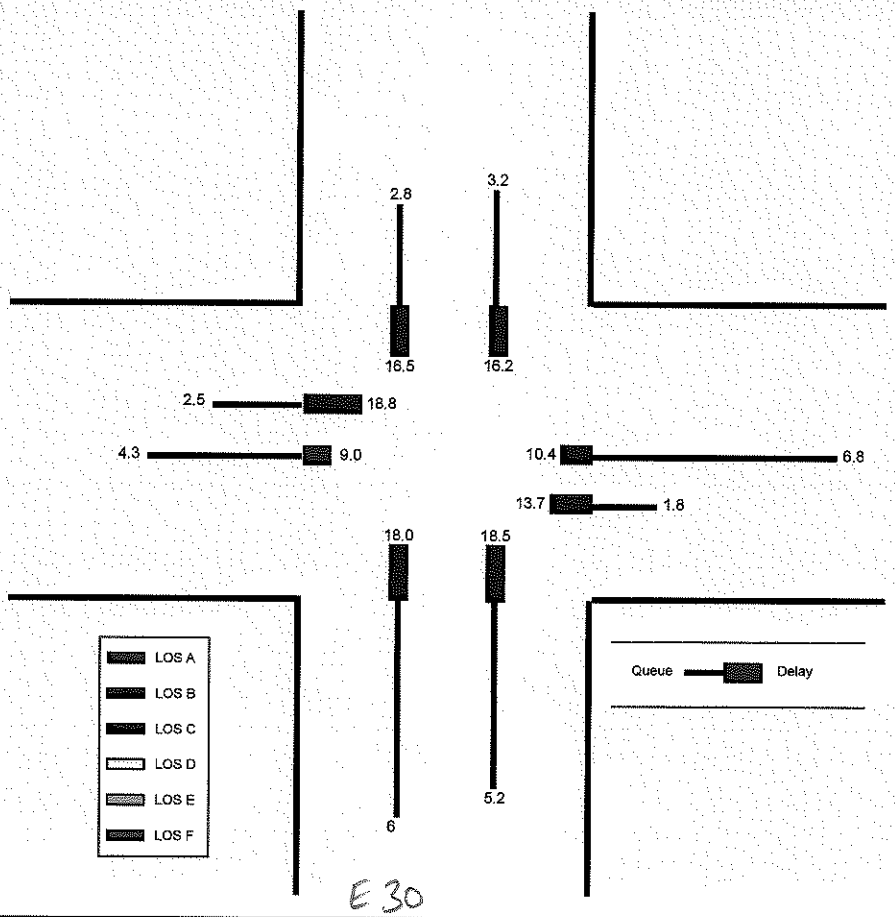
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	379	29	121	552	11	19	435	169	6	231	132

Signal Information			
Cycle, s	54.3	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	27.3	15.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	62.9	108.1		45.5	171.7		150.6		129.2	81.2		68.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.5	4.3		1.8	6.8		6.0		5.2	3.2		2.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.37	0.00		0.30	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	18.8	9.0		13.7	10.4		18.0		18.5	16.2		16.5
Level of Service (LOS)	B	A		B	B		B		B	B		B
Approach Delay, s/veh / LOS	11.4	B		11.0	B		18.3	B		16.3	B	
Intersection Delay, s/veh / LOS	14.0						B					



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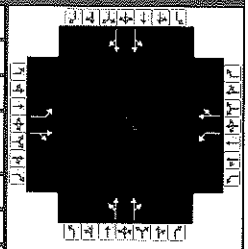
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM Build	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm-build.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	164	552	22	152	599	9	38	410	163	12	487	230

Signal Information					EB		WB				NB				SB			
Cycle, s	66.6	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	Yes	Simult. Gap E/W	On	Green	34.1	20.5	0.0	0.0	0.0	0.0								
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0								
				Red	2.0	2.0	0.0	0.0	0.0	0.0								

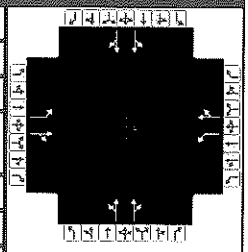
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	164	552	22	152	599	9	38	410	163	12	487	230
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2		2	2			2			2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0			12.0	
Turn Bay Length, ft	170	0		150	0			0			0	
Grade (Pg), %		-1			1			-1			1	
Speed Limit, mi/h	45	45	45	45	45	45	50	50	50	50	50	50

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0		40.0		38.0		38.0
Yellow Change Interval (Y), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		15		15		15		15
Start-Up Lost Time (l_1), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		2.0		2.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS7 Signalized Intersection Results Summary

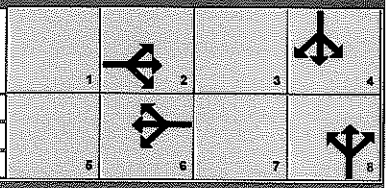
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM Build	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm-build.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	164	552	22	152	599	9	38	410	163	12	487	230

Signal Information			
Cycle, s	66.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.1	20.5	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



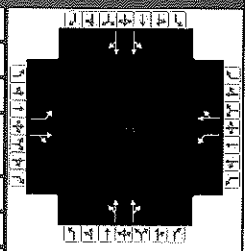
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		40.1		40.1		26.5		26.5
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.3		3.3		3.1		3.1
Queue Clearance Time (g_s), s		31.1		27.3		17.9		15.2
Green Extension Time (g_e), s		3.0		3.5		2.7		2.7
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.37		0.19		0.01		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	167	586		155	620		323		300	409		335
Adjusted Saturation Flow Rate (*s*), veh/h/ln	803	1896		830	1860		1337		1580	1840		1507
Queue Service Time (g_s), s	12.8	14.5		10.8	16.3		2.7		10.8	0.0		13.2
Cycle Queue Clearance Time (g_c), s	29.1	14.5		25.3	16.3		15.9		10.8	12.9		13.2
Green Ratio (*g/C*)	0.51	0.51		0.51	0.51		0.31		0.31	0.31		0.31
Capacity (*c*), veh/h	324	971		352	952		472		487	622		464
Volume-to-Capacity Ratio (*X*)	0.517	0.603		0.440	0.652		0.684		0.617	0.656		0.723
Back of Queue (*Q*), ft/ln (95 th percentile)	98.2	210.3		84.2	229.5		161.8		153.5	209.7		179.9
Back of Queue (*Q*), veh/ln (95 th percentile)	3.9	8.3		3.3	9.0		6.5		6.1	8.4		7.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.58	0.00		0.56	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	22.5	11.5		20.4	11.9		20.0		19.7	20.4		20.5
Incremental Delay (d_2), s/veh	0.5	0.3		0.3	0.6		0.7		0.5	0.4		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	23.0	11.8		20.7	12.6		20.6		20.2	20.9		21.3
Level of Service (LOS)	C	B		C	B		C		C	C		C
Approach Delay, s/veh / LOS	14.3	B		14.2	B		20.4	C		21.1	C	
Intersection Delay, s/veh / LOS	17.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.73	B	1.77	B	1.00	A	1.10	A

HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM Build	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm-build.xus		
Project Description	CES #2264-02				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	164	552	22	152	599	9	38	410	163	12	487	230

Signal Information					EB		WB				NB			SB		
Cycle, s	66.6	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	34.1	20.5	0.0	0.0	0.0	0.0	1	2	3	4		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8		

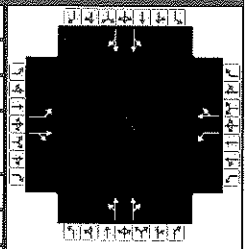
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	1.005	1.021	0.984	0.981	0.997	1.000	1.005	1.021	1.000	0.981	0.997
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.423	0.000		0.437	0.000		0.700	0.700		0.987	0.987	
Right-Turn Adjustment Factor (f_{RT})		0.993	0.993		0.997	0.997		0.828	0.828		0.808	0.808
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	803	1824	73	830	1832	28	160	1882	875	55	2237	1055
Proportion of Vehicles Arriving on Green (P)	0.51	0.51	0.51	0.51	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Incremental Delay Factor (k)	0.04	0.05		0.04	0.09		0.04		0.04	0.04		0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.51		0.51		0.31		0.31
Permitted Saturation Flow Rate (s_p), veh/h/ln		803		830		736		844
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s		34.1		34.1		20.5		20.5
Permitted Service Time (g_u), s		17.9		19.6		7.3		9.7
Permitted Queue Service Time (g_{ps}), s		12.8		10.8		2.7		0.0
Time to First Blockage (g_f), s		0.0		0.0		8.2		13.1
Queue Service Time Before Blockage (g_{fs}), s						8.2		12.9
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.083	0.000	0.083	0.000	0.111	0.000	0.111
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1023.19	7.95	1023.19	7.95	616.70	15.94	616.70	15.94
Bicycle F_w / F_v	-3.64	1.24	-3.64	1.28	-3.64	0.51	-3.64	0.61

HCS7 Signalized Intersection Results Graphical Summary

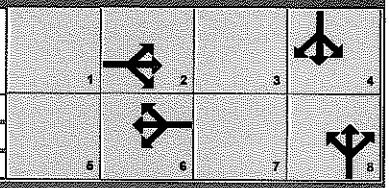
General Information				Intersection Information	
Agency	CES			Duration, h	0.250
Analyst	MRB	Analysis Date	4/2/2020	Area Type	Other
Jurisdiction	Monroe Twp, Gloucester Co	Time Period	2026 PM Build	PHF	0.98
Urban Street		Analysis Year	2026	Analysis Period	1> 7:00
Intersection	CR 655 & CR 689	File Name	signal-26-pm-build.xus		
Project Description	CES #2264-02				



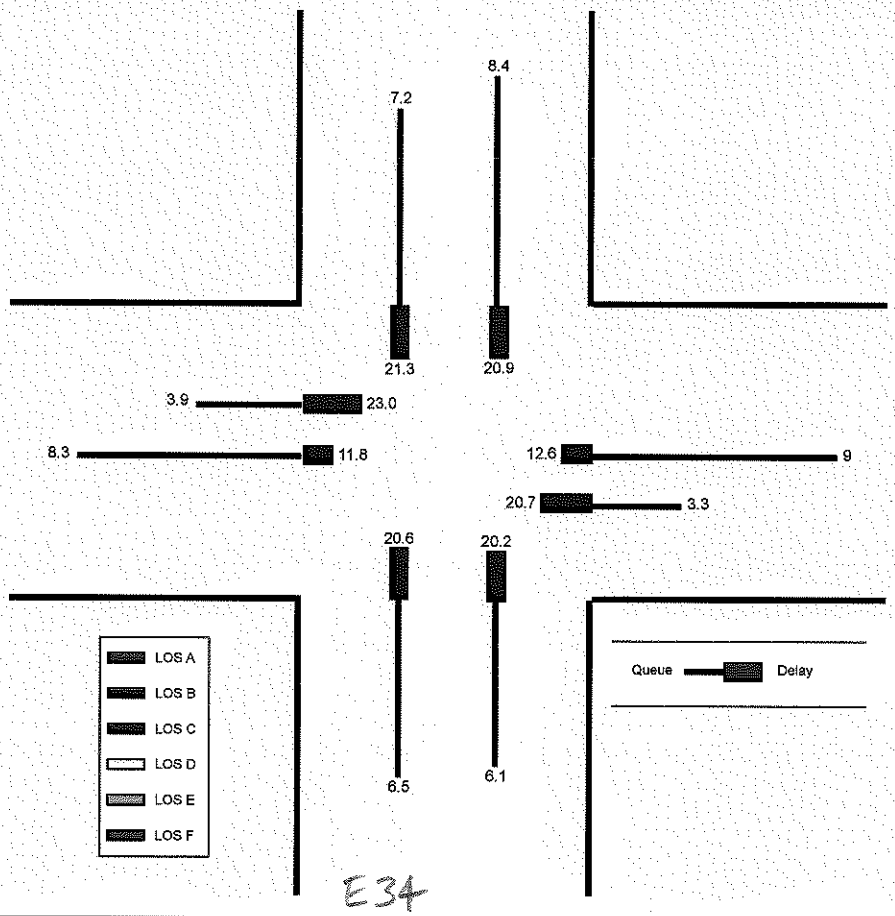
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	164	552	22	152	599	9	38	410	163	12	487	230

Signal Information			
Cycle, s	66.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	34.1	20.5	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	98.2	210.3		84.2	229.5		161.8		153.5	209.7		179.9
Back of Queue (*Q*), veh/ln (95 th percentile)	3.9	8.3		3.3	9.0		6.5		6.1	8.4		7.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.58	0.00		0.56	0.00		0.00		0.00	0.00		0.00
Control Delay (*d*), s/veh	23.0	11.8		20.7	12.6		20.6		20.2	20.9		21.3
Level of Service (LOS)	C	B		C	B		C		C	C		C
Approach Delay, s/veh / LOS	14.3	B		14.2	B		20.4	C		21.1	C	
Intersection Delay, s/veh / LOS	17.3						B					



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HCS7 Two-Way Stop-Control Report

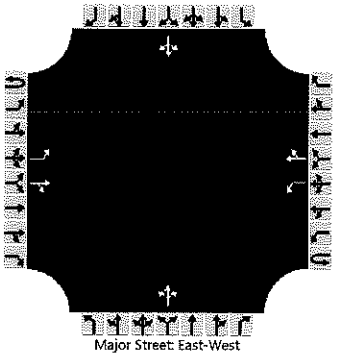
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 AM Build
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree/Prestw
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Ln/Prestwick Ln
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		4	491	2		2	694	15		3	0	4		46	0	11
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.30	6.70	6.30
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				2					8				62	
Capacity, c (veh/h)		853				1042					232				145	
v/c Ratio		0.01				0.00					0.03				0.43	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.1				1.9	
Control Delay (s/veh)		9.2				8.5					21.0				47.4	
Level of Service (LOS)		A				A					C				E	
Approach Delay (s/veh)	0.1				0.0				21.0				47.4			
Approach LOS									C				E			

HCS7 Two-Way Stop-Control Report

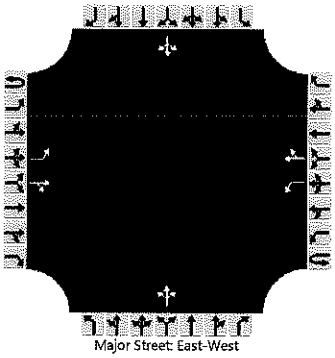
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 PM Build
Intersection Orientation	East-West
Project Description	CES #2264-02

Site Information

Intersection	CR 689 & Appletree/Prestw
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	CR 689
North/South Street	Appletree Ln/Prestwick Ln
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		13	680	4		5	832	51		3	0	4		30	0	8
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)										0				1		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.30	6.70	6.30
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14				5					8				41	
Capacity, c (veh/h)		725				873					131				76	
v/c Ratio		0.02				0.01					0.06				0.54	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.2				2.3	
Control Delay (s/veh)		10.1				9.1					34.2				98.0	
Level of Service (LOS)		B				A					D				F	
Approach Delay (s/veh)	0.2				0.1				34.2				98.0			
Approach LOS									D				F			

HCS7 Two-Way Stop-Control Report

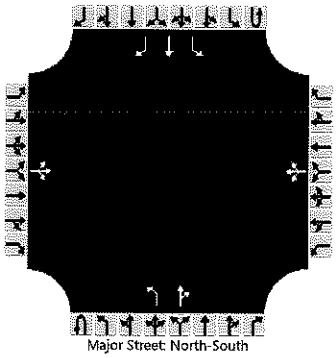
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 AM Build
Intersection Orientation	North-South
Project Description	CES #2264-02

Site Information

Intersection	CR 655 & SG/Queensferry
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	Stirling Glen/Queensferry
North/South Street	CR 655
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		4	0	4		4	0	13		2	613	2		7	370	2
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)		-3				-2										
Right Turn Channelized														No		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		6.50	5.90	5.90		6.70	6.10	6.00		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			9				18			2				8		
Capacity, c (veh/h)			335				372			1165				931		
v/c Ratio			0.03				0.05			0.00				0.01		
95% Queue Length, Q_{95} (veh)			0.1				0.2			0.0				0.0		
Control Delay (s/veh)			16.0				15.2			8.1				8.9		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)		16.0				15.2				0.0				0.2		
Approach LOS		C				C										

HCS7 Two-Way Stop-Control Report

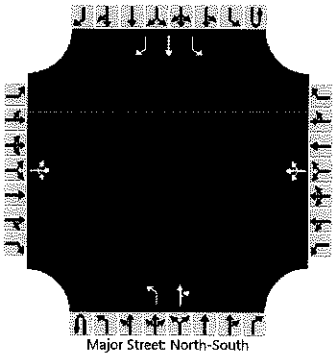
General Information

Analyst	MRB
Agency/Co.	CES
Date Performed	4/6/2020
Analysis Year	2026
Time Analyzed	2026 PM Build
Intersection Orientation	North-South
Project Description	CES #2264-02

Site Information

Intersection	CR 655 & SG/Queensferry
Jurisdiction	Monroe Twp, Gloucester Co
East/West Street	Stirling Glen/Queensferry
North/South Street	CR 655
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		3	0	3		3	0	9		4	607	5		14	660	4
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)		-3				-2										
Right Turn Channelized														No		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		6.50	5.90	5.90		6.70	6.10	6.00		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			7				13			4				15		
Capacity, c (veh/h)			215				289			890				934		
v/c Ratio			0.03				0.05			0.00				0.02		
95% Queue Length, Q_{95} (veh)			0.1				0.1			0.0				0.0		
Control Delay (s/veh)			22.3				18.0			9.1				8.9		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)		22.3				18.0				0.1				0.2		
Approach LOS		C				C										