Engineers Planners Surveyors Landscape Architects Environmental Scientists

MASER CONSULTING P. A.

Traffic Impact Study

Dutchtown Commons

616 - 630 Northampton Street
City of Easton, Northampton County, Pennsylvania

July 19, 2019

Prepared For

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MC Project No. 10001207A

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I. INTRODUCTION

The following report has been prepared to determine the traffic impacts of a proposed mixed-use development consisting of a 13,479 SF supermarket and 39 multi-family residential units, (The Project) in the City of Easton, Northampton County, Pennsylvania. The subject site is located along Northampton Street, east of its intersection with Locust Street, and is designated as 616 – 630 Northampton Street. The site location map is included as **Figure 1** in **Appendix A**.

Access to the supermarket portion of the site is proposed via a full movement driveway along Northampton Street, which will create the fourth leg of the intersection of Northampton Street with Union Street. Access to the multi-family residential portion of the site is proposed via separated ingress and egress only driveways along Pine Street. Additionally, it is proposed to convert Pine Street to a one-way street traveling westbound between Walnut Street and Locust Street. **Figure 2** in **Appendix A** illustrates the proposed Site Plan.

This study presents an evaluation of the current and future traffic conditions in the vicinity of the site. Specific elements included in this study are:

- An inventory of the roadway facilities in the vicinity of the project, including the existing physical and traffic operating characteristics;
- Determination of the Existing Conditions;
- Site Generated Trips described in the ITE Trip Generation Manual, 10th Edition;
- Trip Distribution and Assignment;
- Forecast of 2021 No Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2021 No-Build Conditions;
- Forecast of the 2021 Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2021 Build conditions;
- Site Access and Parking Assessment;
- Sight Distance Analysis; and
- Summary and Conclusions.

II. EXISTING ROADWAY CONDITIONS

A field investigation was conducted adjacent to the project site to obtain an inventory of existing roadway conditions, posted traffic controls, adjacent land uses, lane configurations, and existing vehicular/pedestrian traffic patterns. The following is a brief description of the roadways studied:

Northampton Street is a local road under the City of Easton jurisdiction with a general east-west orientation. Within the project vicinity, the roadway provides one (1) travel lane in each direction, with 18 on-street parking spaces along the northerly side of the roadway and 15 on-street parking spaces along the southerly side of the roadway. The posted speed limit is 35 MPH within the study area.

Union Street is a local road under the City of Easton jurisdiction with a general north-south orientation. Within the project vicinity, the roadway provides one (1) travel lane in the northbound direction, with 10 on-street permit parking only spaces along the easterly side of the roadway. There is no posted speed limit.

Locust Street is a local road under the City of Easton jurisdiction with a general north-south orientation. North of Northampton Street, Locust Street provides one (1) travel lane in the southbound direction and South of Northampton Street, Locust Street provides one (1) travel lane in the northbound direction. There is no posted speed limit.

Walnut Street is a local road under the City of Easton jurisdiction a general east-west orientation. Within the project vicinity, Walnut Street provides one (1) travel lane in each direction, with 24 on-street parking spaces along the northerly side of the roadway. The posted speed limit is 25 MPH.

Pine Street is a local road under the City of Easton jurisdiction with a general east-west orientation. Within the project vicinity, Pine Street provides one (1) travel lane in each direction. There is no posted speed limit.

Unsignalized Intersections

Northampton Street with Union Street is an unsignalized T-intersection. Union Street provides a one-way lane northbound, and all approaches of the intersection provide one shared lane for all turning movements.

Northampton Street with Locust Street is an unsignalized intersection with the northbound and southbound approaches of Locust Street under stop control. All approaches of the intersection provide one shared lane for all turning movements.

Pine Street with South Locust Street is an unsignalized intersection with the eastbound and westbound approaches of Pine Street under stop control. All approaches of the intersection provide one shared lane for all turning movements.

Walnut Street with Pine Street is an unsignalized T-intersection with the southbound approach of Pine Street under stop control. All approaches of the intersection provide one shared lane for all turning movements.

III. EXISTING TRAFFIC CONDITIONS

Traffic volume data for the roadway network adjacent to the subject property was obtained through manual turning movement counts (MTMC) conducted at the following intersections:

- Northampton Street with Locust Street
- Northampton Street with Union Street
- Pine Street with South Locust Street
- Pine Street with Walnut Street.

The traffic counts were conducted on Tuesday, June 11, 2019 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. The following table details the data collection efforts and peak hours.

Table 1 – Data Collection Efforts and Established Peak Hours

Peak Period	Date Collected	Traffic Count Time Frame	Established Peak Hour
Weekday Morning	Tuesday, June 11, 2019	7:00 AM – 9:00 AM	8:00 AM – 9:00 AM
Weekday Evening		4:00 PM – 6:00 PM	4:00 PM – 5:00 PM

Figure 3, located in **Appendix A**, details the existing traffic volumes. The MTMC summary sheets are provided in **Appendix B**.

IV. TRIP GENERATION & DISTRIBUTION

Trip Generation

The ability of any roadway network to serve anticipated traffic volumes is measured by comparing peak hour traffic volumes to roadway capacities. Thus, it is essential to determine the hourly traffic volumes to be generated by The Project and add them to the No Build traffic volumes for the peak hours.

Trip generation estimates for the development of The Project were made utilizing data published under Land Use Code 221 – Multifamily Housing (Mid-Rise) and Land Use Code 850 – Supermarket in the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, Tenth Edition*. This publication sets forth the trip generation rates based on traffic counts conducted at research sites throughout the county. **Table 2** details the anticipated trips for The Project.

Mass Transit Trip Credits

The trips generated by ITE represent the number of vehicle trips made to the developments within suburban areas. Generally, the studies on which these rates are based do not include mass transit availability. The Easton Transportation Center is approximately ½ of a mile from the proposed development. Based on data provided by the U.S. Census, approximately 10% of the Easton population utilize public transportation and/or walk for commuting to/from work. As such a 10% transit credit was applied to the proposed residential and supermarket site generated trips during the peak hours.

Internal Capture

Internal capture is identified by the ability for a trip to access multiple land uses by either pedestrian or vehicular means without traveling on the major street system. *Internal Capture Rate* is the percentage reduction applicable to the site generated trips which is provided by ITE within the *Trip Generation User's Guide and Handbook, 3rd Edition.*

The ITE provides internal capture rates describing trip origins and trip destinations to/from retail, office and residential developments. The rates are an estimate of typical internal capture experienced at the multi-land use sites studied. For this site, the ITE internal trip rates to/from retail were applied to Land Use Code 221 – Multifamily Housing (Mid-Rise) and Land Use Code 850 – Supermarket.

Pass-By Trips

Pass-By Trips are those trips which are not made for the sole purpose of patronizing the proposed development and are currently within the existing traffic volumes. An example of a pass-by trip would be a motorist, whose existing commuting route makes use of the adjacent roadway, which directly intersects a proposed driveway. After the development is constructed, this motorist may elect to make an intermediate shopping trip at the subject development while conducting their normal commuting trip. This trip is not 'new' to the roadway network, as it already existed prior to the development being constructed. The only impact this trip would have on the road network

would be the increase in traffic for ingress and egress movements at the proposed site driveway intersection.

Within the ITE *Trip Generation Handbook, 3rd Edition,* pass-by rates have been established for individual land uses. These rates are published as a percentage of the total site generated traffic. They are based on numerous site studies where surveys were conducted to determine if the trip was a primary destination or an intermediate trip. ITE publishes an average pass-by rate for a supermarket use of 36% during the weekday evening peak hour. A summary of the transit, internal capture, pass-by, and new site trips are illustrated in **Table 2**.

Table 2 – Trip Generation Calculations

ITE Trip Generation		**AM Peak**			**PM Peak**		
Land Use	**Size**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
221 – Multifamily Housing (Mid-Rise)	39 Units	4	10	14	10	7	17
	Transit Credit (10%)	0	1	1	1	1	2
	Internal Capture	0	0	0	4	3	7
	Primary Trips	**4**	**9**	**13**	**5**	**3**	**8**
850 – Supermarket	13,479 SF	30	21	51	64	61	125
	Transit Credit (10%)	3	2	5	6	6	12
	Internal Capture	0	0	0	3	4	7
	External Trips	27	19	46	55	51	106
	Pass-by Trips (0% AM, 36% PM)	*0*	*0*	*0*	*19*	*19*	*38*
	Primary Trips	**27**	**19**	**46**	**36**	**32**	**68**
Total Primary Trips		**31**	**28**	**59**	**41**	**35**	**76**

As illustrated by the table above, the proposed development generates a maximum of 76 additional peak hour trips. It is noted ITE defines a *"significant increase in traffic"* as 100 or more peak hour trips added to the adjacent network. Since the project would generate less than 100 peak hour trips during the weekday morning and evening peak hours, the proposed development will not have a significant impact on the adjacent roadway network.

Trip Distribution

Trip distribution methodology is developed based on a variety of factors. These factors include the existing travel patterns within the adjacent roadway network, adjacent land uses, proposed land use, development locations, driveway locations and the proximity of major arterials within the project vicinity.

As previously mentioned, access to the supermarket portion of the site is proposed via a full movement driveway along Northampton Street, which will create the fourth leg of the intersection of Northampton Street with Union Street. Access to the multi-family residential portion of the site is proposed via separated ingress and egress only driveways along Pine Street. Additionally, it is proposed to convert Pine Street to a one-way street traveling westbound. The site generated trips

were implemented into the roadway network based upon the anticipated distributions and are illustrated as **Figures 4 - 8** in **Appendix A**.

V. FUTURE TRAFFIC CONDITIONS

To determine the traffic impact of the development, an estimation of the traffic operational characteristics at the Build date without the construction of the project (or "No Build" condition) is made. The existing volumes have been projected to the Build year of 2021.

2021 Base Conditions

A general background growth rate was applied to the transient traffic volumes along the adjacent roadways to account for general increases in traffic due to regional population and employment growth by the build year. The 2021 Base traffic volumes were forecasted by applying a background growth rate from the PennDOT Annual Background Growth Rate Table. The annual background growth rate is 0.47% for urban non-interstate roadways in Northampton County.

Adjacent Developments

Maser Consulting contacted the City of Easton Planning Board to determine if there are any planned or approved developments in the vicinity of the project site. It was determined there are no developments planned in the vicinity of the site.

2021 No Build Conditions

The 2021 No Build volumes are equal to the 2021 Base volumes, as there are no planned developments within the vicinity of the site. The 2021 No Build volumes are presented in **Figure 9** of **Appendix A**.

2021 Build Conditions

The 2021 Build volumes were forecasted by adding the site generated traffic from the proposed development to the 2021 No Build traffic volumes within the roadway network. The 2021 Build Condition traffic volumes are summarized as **Figure 10** of **Appendix A**.

VI. HCM CAPACITY ANALYSIS

The peak hour traffic operations within the project vicinity were evaluated at the study intersections. The analyses were performed using the latest version of *Synchro Trafficware, Version 10.0*; a traffic analysis and simulation program. The results of these analyses provide Levels of Service (LOS), volume/capacity descriptions and average seconds of delay for the intersection movements.

The efficiency with which an intersection operates is a function of volume and capacity. The capacity of an intersection is the volume of vehicles it can accommodate during a given time period. LOS is a qualitative measure describing operational conditions within a traffic stream in terms of traffic characteristics such as freedom to maneuver, traffic interruption, comfort and convenience. Six LOS are defined for each type of facility with analysis procedures available. Levels of Service range from "A" through "F", with "A" representing excellent conditions with no delays and failure and deficient operations denoted by Level "F". The HCM LOS criteria for signalized and unsignalized intersections are summarized in the following table.

Table 3 – HCM: Unsignalized LOS/Delay Criteria

Level of Service	Average Control Delay (sec/veh)
	Unsignalized Intersection
A	< 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

The level of service for the 2021 No Build Conditions and 2021 Build Conditions are detailed in **Table 5**. The capacity analysis calculation worksheets are provided in **Appendix D**.

Table 4 – Level of Service Summary

Intersection	Movement		2021 No Build				2021 Build			
			AM Peak		PM Peak		AM Peak		PM Peak	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Northampton Street (EB/WB) with Locust Street (NB/SB)	NB	L/R	B	10.2	B	11.2	B	10.5	B	11.0
	SB	L/R	B	10.0	B	11.1	B	10.2	B	11.4
Pine Street (EB/WB) with Locust Street (NB)	EB	L/(T)*	A	9.7	A	9.0	A	8.8	A	8.6
	WB	T/R	A	9.4	A	8.6	A	8.8	A	8.5
Pine Street (SB) with Walnut Street (EB/WB)	EB	L/R	A	9.1	A	8.8	-	-	-	-
	NB	L	A	7.3	A	7.3	A	7.3	A	7.3
Northampton Street (EB/WB) & Site Driveway (NB) with Union Street (SB)	EB	L	A	7.5	A	7.7	A	7.5	A	7.7
	WB	L	--	--	--	--	A	7.7	A	7.7
	NB	L/T/R	--	--	--	--	B	10.3	B	11.2
Pine Street (EB/WB) with Site Driveway (SB)	SB	R	--	--	--	--	A	8.4	A	8.4

*Eastbound thru movement restricted under Build Scenario

The following are discussions pertaining to each of the intersections analyzed. All capacity analysis calculation worksheets are appended. It should be noted the existing percentage of trucks and peak hour factors were used in all analysis. The following is a summary of the findings for each location.

Northampton Street with Locust Street

2021 No Build Analysis

Under the No Build condition, all intersection movements will operate at Levels of Service "B" or better during all peak hours studied.

2021 Build Analysis

Under the Build condition, all intersection movements will continue to operate at or near No Build levels of service.

Pine Street with Locust Street

2021 No Build Analysis

Under the No Build condition, all intersection movements will operate at Levels of Service "A" during all peak hours studied.

2021 Build Analysis

Under the Build condition, all intersection movements will continue to operate at or near No Build levels of service.

Pine Street with Walnut Street

2021 No Build Analysis

Under the No Build condition, all intersection movements will operate at Levels of Service "A" during all peak hours studied.

2021 Build Analysis

Under the Build Condition it is proposed to convert Pine Street into a one-way westbound street between Walnut Street and Locust Street.

Northampton Street with Site Driveway/ Union Street

2021 Build Analysis

With the addition of the site traffic, all intersection movements will operate at Levels of Service "B" or better with calculated 95th percentile queue lengths of less than one (1) vehicle during all peak hours studied.

Pine Street with Site Driveway

2021 Build Analysis

With the addition of the site traffic, all intersection movements will operate at Levels of Service "A" with calculated 95th percentile queue lengths of less than one (1) vehicle during all peak hours studied.

VII. SITE ACCESS AND PARKING ASSESSMENT

Access to the supermarket portion of the site is proposed via a full movement driveway along Northampton Street, which will create the fourth leg of the intersection of Northampton Street with Union Street. Access to the multi-family residential portion of the site is proposed via separated ingress and egress only driveways along Pine Street. Additionally, it is proposed to convert Pine Street to a one-way street traveling westbound. The layout of the structured parking provides sufficient circulation for vehicles to maneuver efficiently.

The City of Easton Ordinance sets forth a minimum parking requirement of 1 space per dwelling unit for Residential mid-rise uses and 4.5 spaces per 1,000 SF for shopping center developments. For the proposed 39 dwelling units and 13,479 SF supermarket, this equates to a parking requirement of 100 spaces. It is proposed to provide 49 off-street parking spaces, plus an additional 18 on-street parking spaces along the northerly side of Northampton Street, for a total of 67 spaces.

VIII. SIGHT DISTANCE ANALYSIS

Sufficient sight distance must be provided at access points, to allow drivers leaving the site to find adequate gaps in the traffic stream and complete desired maneuvers safely. A sight distance analysis was performed at the proposed site driveways. The sight distance along the frontage of the site was calculated and measured based on *A Policy on Geometric Design of Highway and Streets* published by the American Association of State Highway and Transportation Officials (AASHTO). The calculated stopping sight distance for a posted regulatory speed of 35 MPH is 250 feet for a full movement driveway. In order to provide adequate sight distance, it is proposed to restrict on-street parking within the sight triangle along the southerly side of Northampton Street for a distance of XX feet to the west and XX feet to the east.

IX. SUMMARY AND CONCLUSIONS

The Traffic Impact Study prepared by Maser Consulting evaluated the impact the proposed 14,405 SF development will have on the adjacent roadway network in the City of Bordentown, Burlington County, New Jersey. The findings of the Traffic Impact Study are summarized as follows:

1. Access to the supermarket portion of the site is proposed via a full movement driveway along Northampton Street, which will create the fourth leg of the intersection of Northampton Street with Union Street. Access to the multi-family residential portion of the site is proposed via separated ingress and egress only driveways along Pine Street. Additionally, it is proposed to convert Pine Street to a one-way street traveling westbound.

2. Under the Build condition, all movements at the intersection of Northampton Street with Locust Street will continue to operate at or near No Build levels of service.

3. Under the Build condition, all movements at the intersection of Pine Street with Locust Street will continue to operate at or near No Build levels of service.

4. Under the Build condition, all movements at the intersection of Northampton Street with Site Driveway/ Union Street will operate at Levels of Service "B" or better with calculated 95th percentile queue lengths of less than one (1) vehicle during all peak hours studied.

5. Under the Build condition, all movements at the intersection of Pine street with Site Driveway will operate at Levels of Service "A" with calculated 95th percentile queue lengths of less than one (1) vehicle during all peak hours studied.

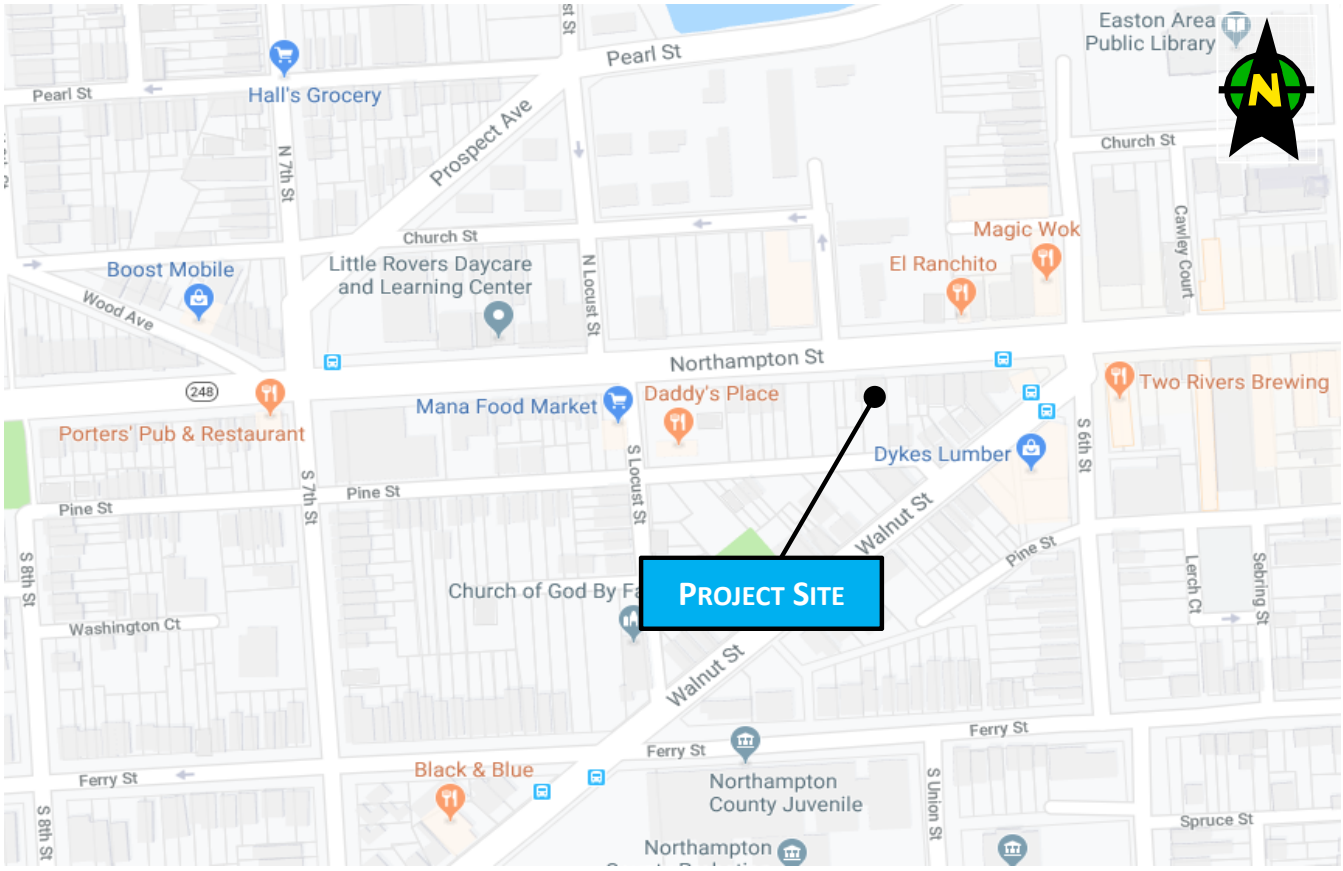
6. The layout of the structured parking provides sufficient circulation for vehicles to maneuver efficiently.

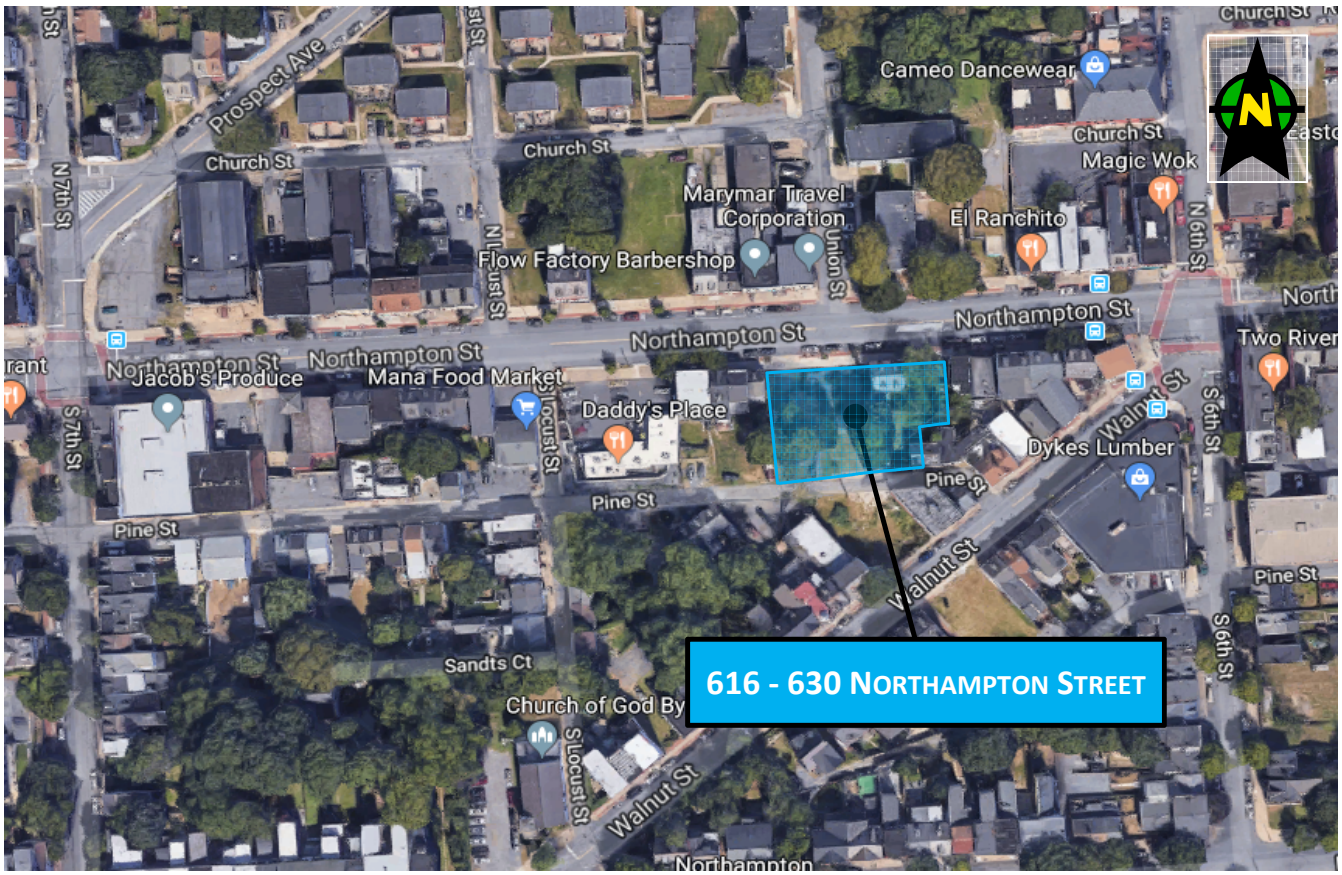
7. The City of Easton Ordinance requires 100 parking spaces for the proposed development. It is proposed to provide 49 off-street parking spaces, plus an additional 18 on-street parking spaces along the northerly side of Northampton Street, for a total of 67 spaces.

DUTCHTOWN COMMONS
TRAFFIC IMPACT STUDY

APPENDIX A

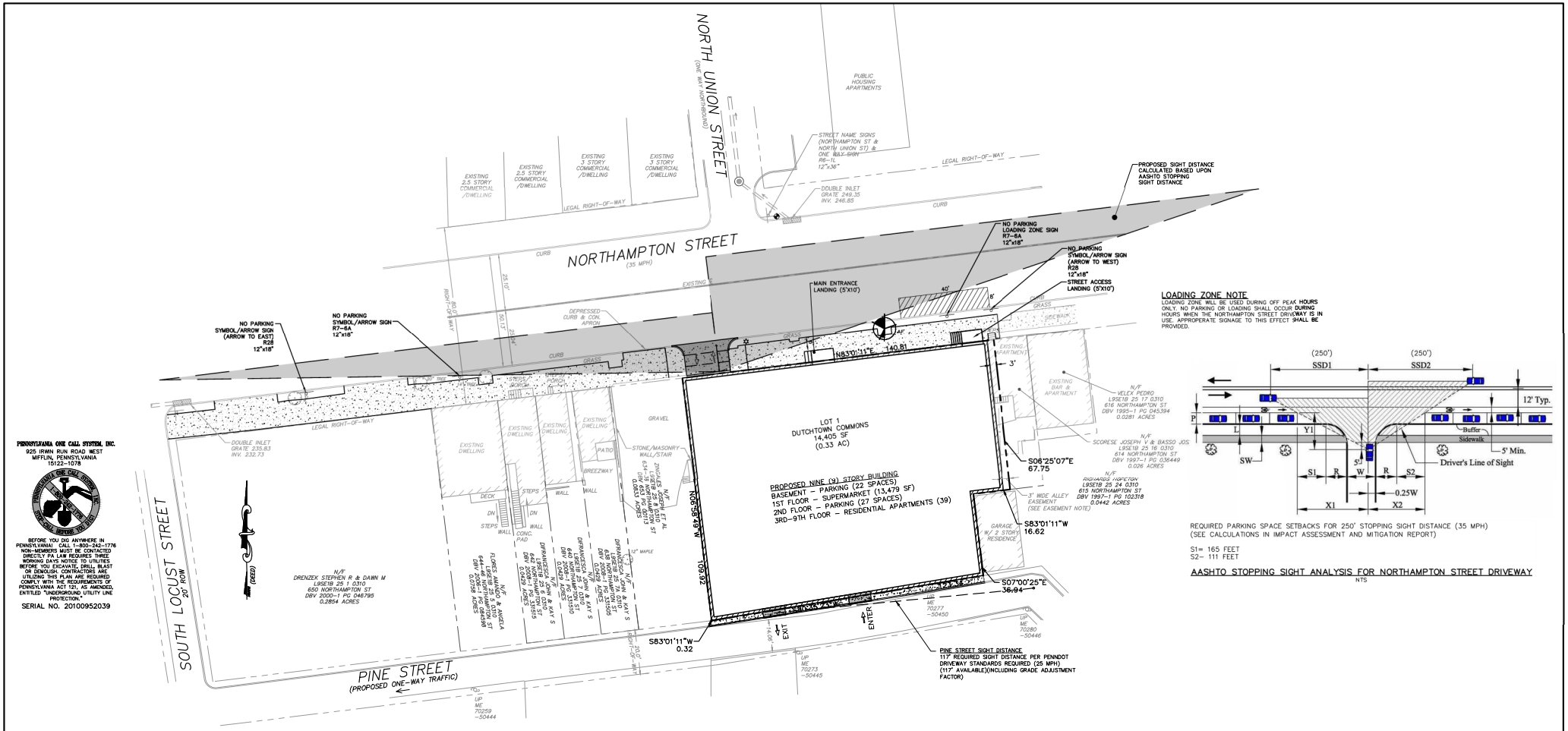
TRAFFIC FIGURES





10001207A	Dutchtown Commons	**Figure 1**
	City of Easton, Northampton County, PA	**Site Location Map**

Figure 2



PENNSYLVANIA ONE CALL SYSTEM, INC.
925 IRWIN RUN ROAD WEST
MIFFLIN, PENNSYLVANIA
15122–1078

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1–800–242–1776 NON–MEMBERS MUST BE CONTACTED DIRECTLY PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH. CONTRACTORS ARE, UTILIZING THIS PLAN ARE REQUIRED COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 121, AS AMENDED, ENTITLED "UNDERGROUND UTILITY LINE PROTECTION."

SERIAL NO. 20100952039

LOADING ZONE NOTE

LOADING ZONE WILL BE USED DURING OFF PEAK HOURS ONLY. NO PARKING OR LOADING SHALL OCCUR DURING HOURS WHEN THE NORTHAMPTON STREET DRIVEWAY IS IN USE. APPROPERATE SIGNAGE TO THIS EFFECT SHALL BE PROVIDED.

REQUIRED PARKING SPACE SETBACKS FOR 250' STOPPING SIGHT DISTANCE (35 MPH)
(SEE CALCULATIONS IN IMPACT ASSESSMENT AND MITIGATION REPORT)

S1= 165 FEET
S2– 111 FEET

AASHTO STOPPING SIGHT ANALYSIS FOR NORTHAMPTON STREET DRIVEWAY

NTS

LEGEND

SITE BOUNDARY LINE
MAJOR CONTOUR
MINOR CONTOUR
RIGHT–OF–WAY
EASEMENT
PROPERTY LINE
EDGE OF PAVEMENT
CURB
WATER UTILITIES
SANITARY UTILITIES
ELECTRIC UTILITIES
GAS UTILITIES
STORMWATER
FENCE
SIDEWALK
SIGN
TREE
STREET LAMP
BENCHMARK

EXISTING FEATURES ARE DENOTED BY SLANTED TEXT

NEW BUILDING WALL
NEW CONCRETE SIDEWALK/APRON
NEW SIGHT LINE/TRIANGLE
NEW CONCRETE CURB
NEW STORMWATER ROOF LEADER
NEW SIGN
TEST PIT LOCATION

NEW (PROPOSED) FEATURES ARE DENOTED BY VERTICAL TEXT

NUMBER	DATE	REVISION
2	08/13/18	GENERAL PLAN REVISIONS
1	12/15/10	REVISE PER CITY COMMENTS

20' 0' 10' 20' 40' 60'
(IN FEET)
1 INCH = 20 FEET

FINELLI
CONSULTING ENGINEERS, INC.
2605 NAZARETH ROAD
EASTON, PA 18045
TELEPHONE: (610) 559–1000
FAX: (610) 258–6237

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL EUGENE N. WEBER ENGINEER
EUGENE N. WEBER, P.E., L.S.
PA Professional Engineer Lic. No. PE027756
PA Professional Land Surveyor Lic. No. SU000144A

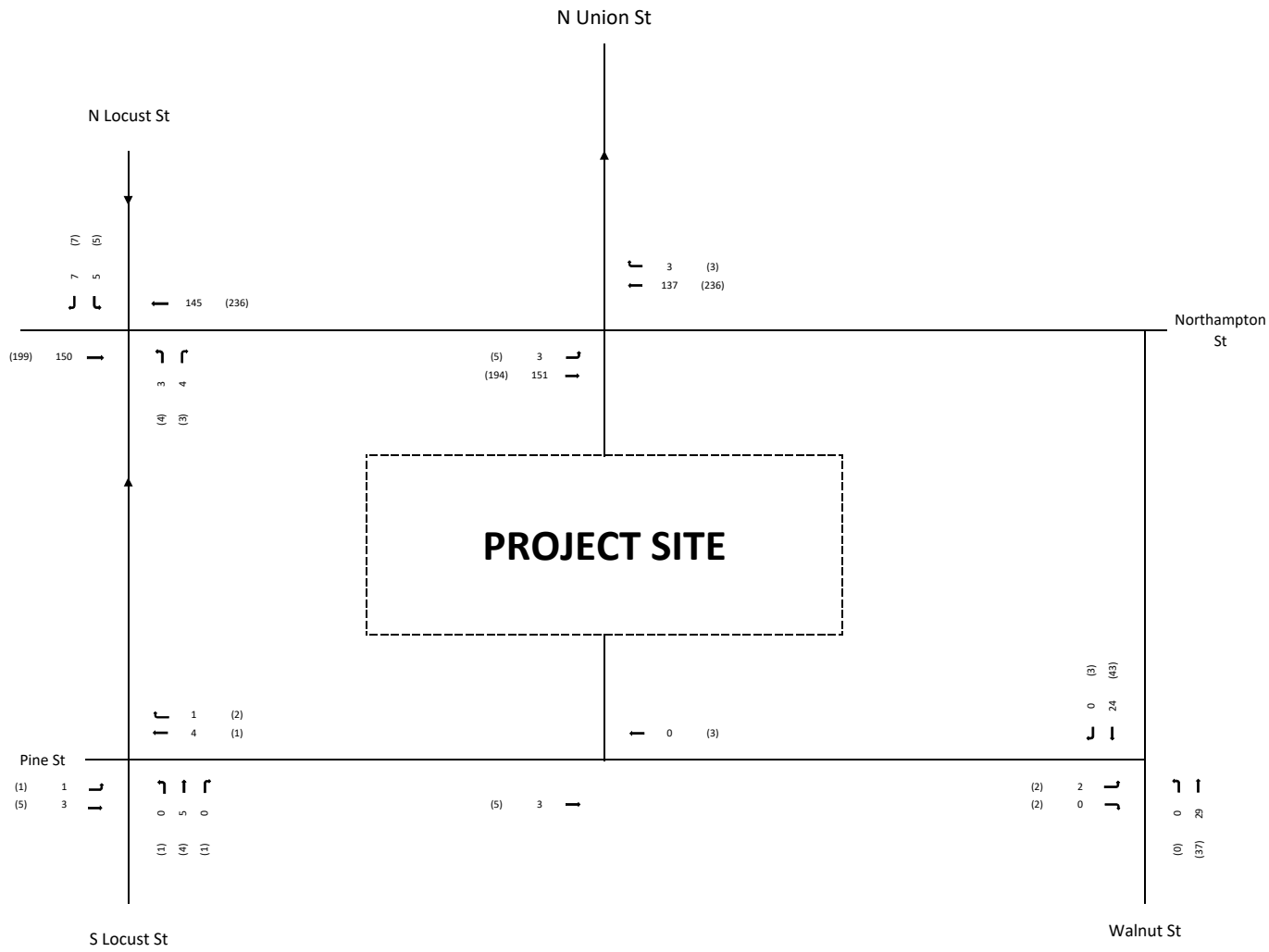
PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
FOR
DUTCHTOWN COMMONS

SIGHT DISTANCE ANALYSIS PLAN

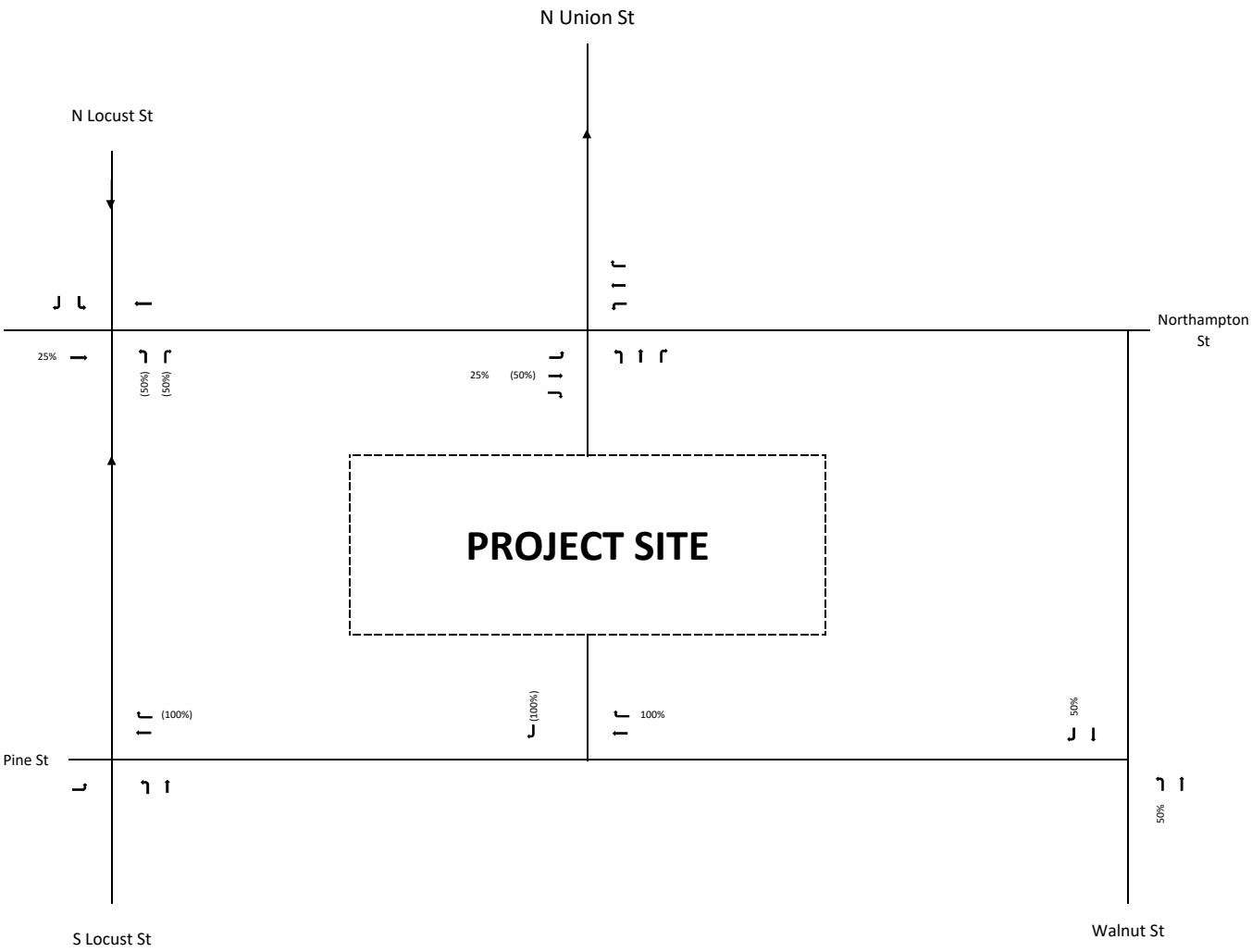
616–630 NORTHAMPTON STREET
CITY OF EASTON
NORTHAMPTON COUNTY, PENNSYLVANIA

DATE:	SCALE:	PROJECT NUMBER:
11/10/10	1"=20'	WEAN18005
DRN. BY/CHK. BY:	FIELD BOOK	SHEET:
TA/ENW	–	4 of 7

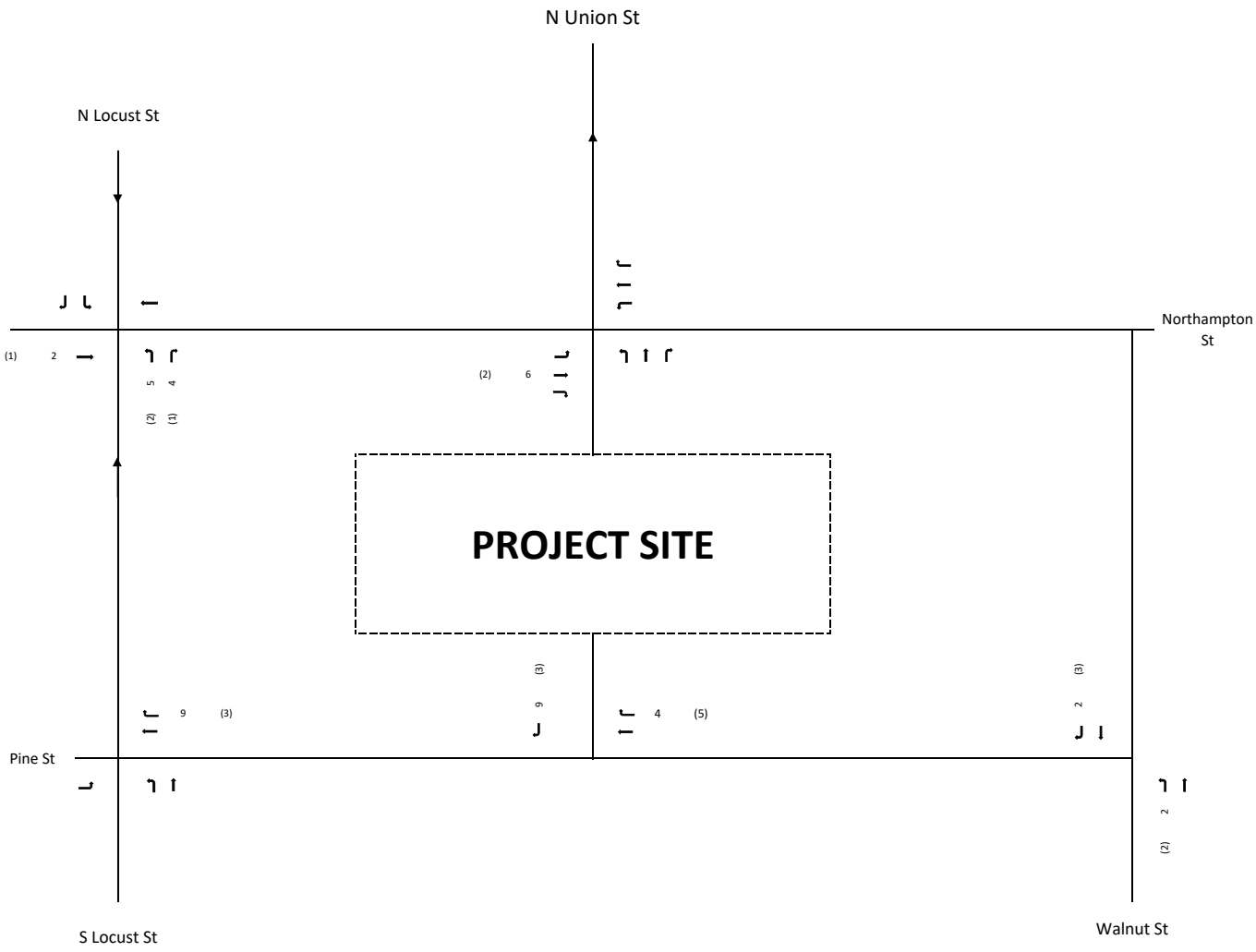
R:\PRIVATE\6000 TO 6999\6040WEAN SCHWARTZ\6040 – DUTCHTOWN R1.DWG



MASER CONSULTING P.A.	Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 3** **Existing Conditions** **AM & PM Peak Hours**

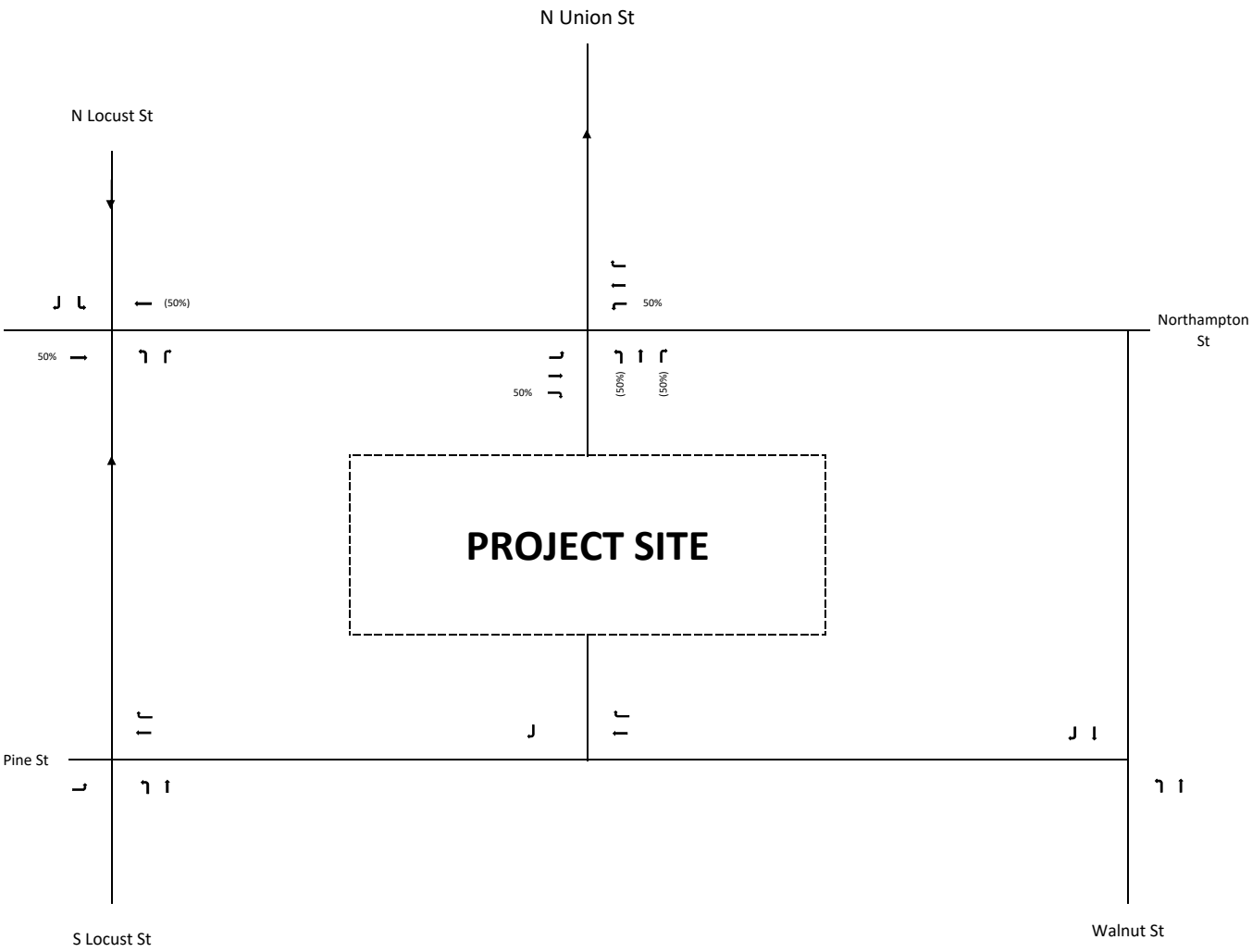


MASER CONSULTING P.A.	Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 4** **Residential Trip Distribution** **AM & PM Peak Hours**

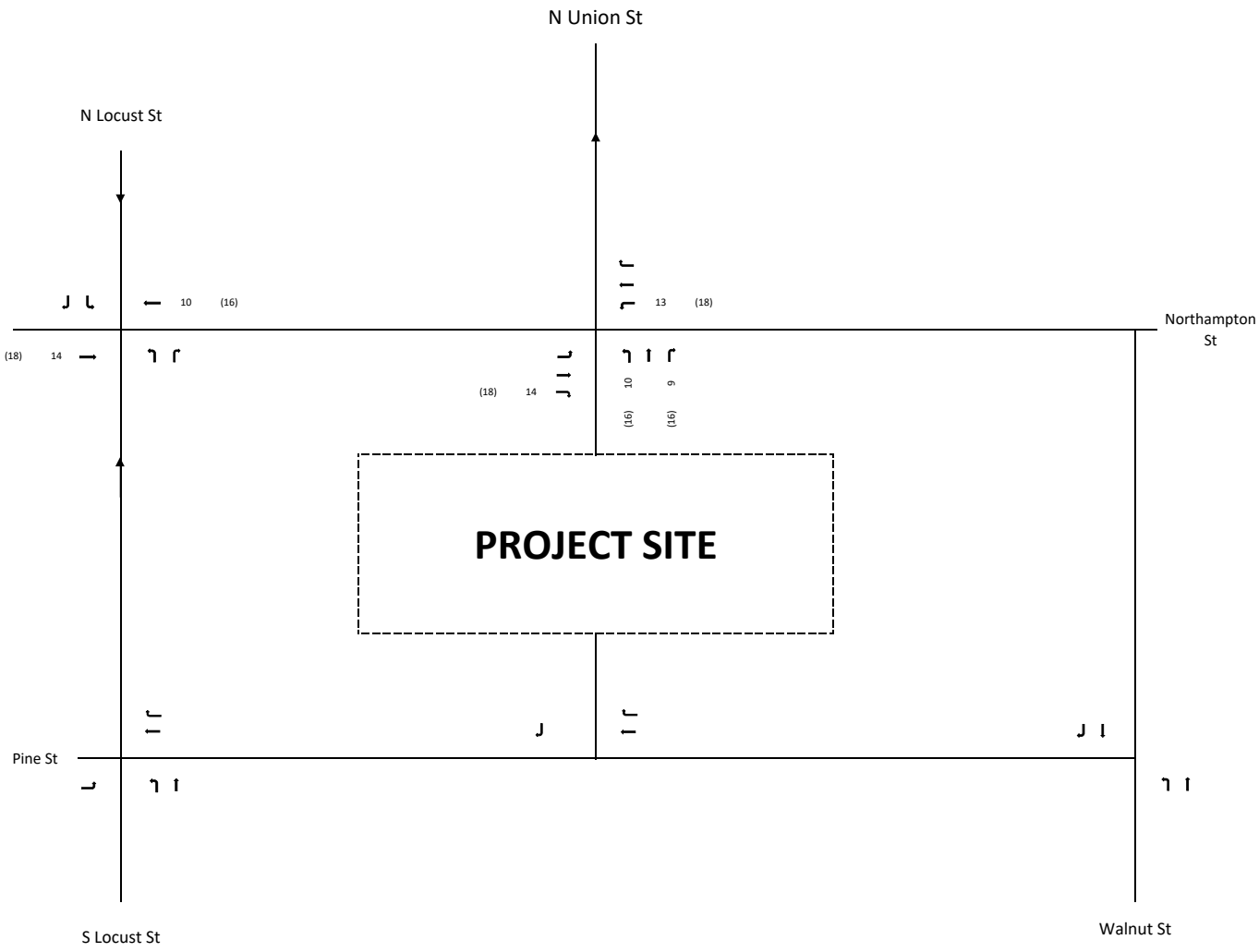


PEAK HOUR	ENTER	EXIT	TOTAL
AM	4	9	13
PM	5	3	8

Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 5** **Residential Site Generated Trips** **AM & PM Peak Hours**

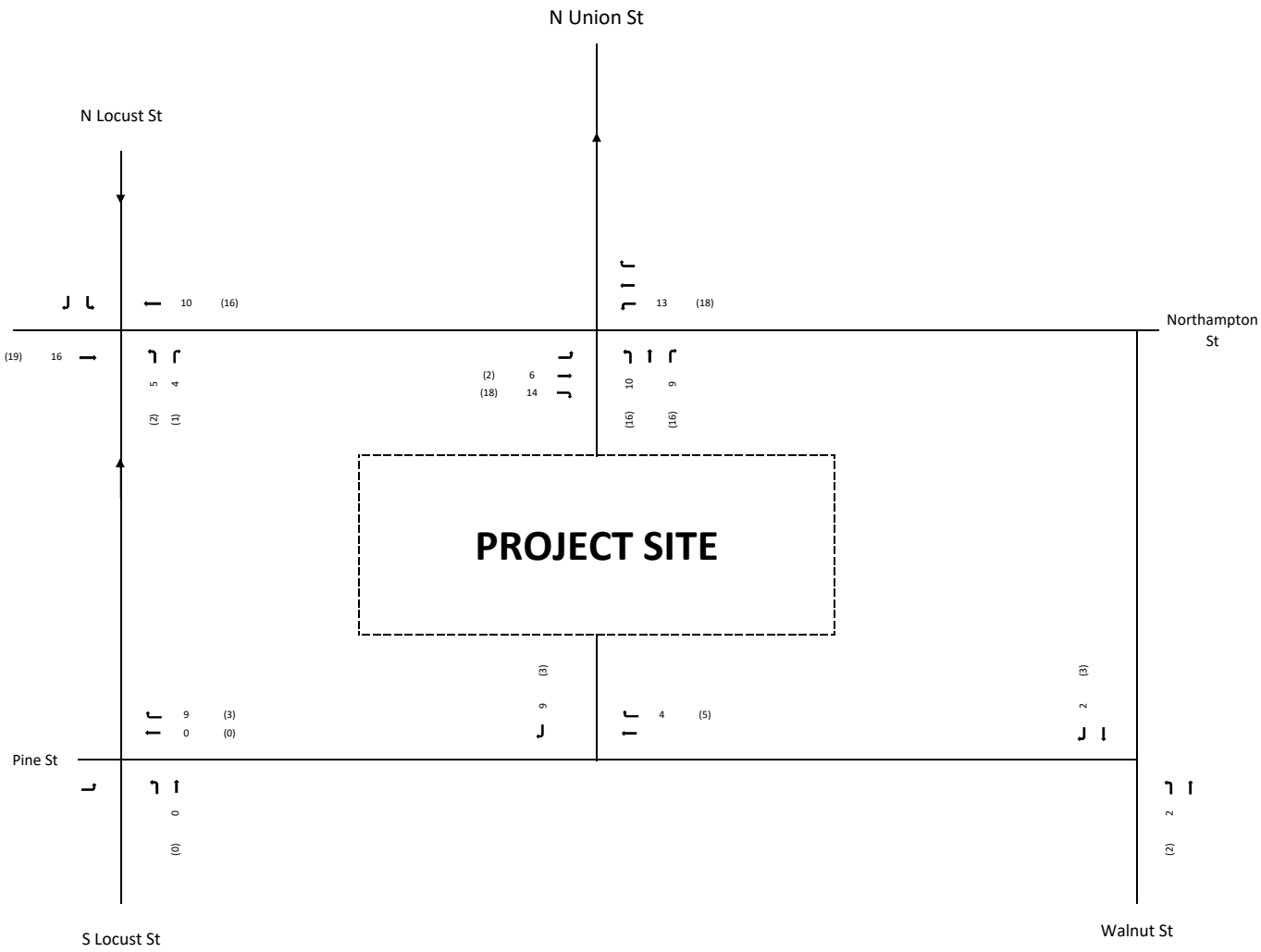


Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 6** **Supermarket Trip Distribution** **AM & PM Peak Hours**	



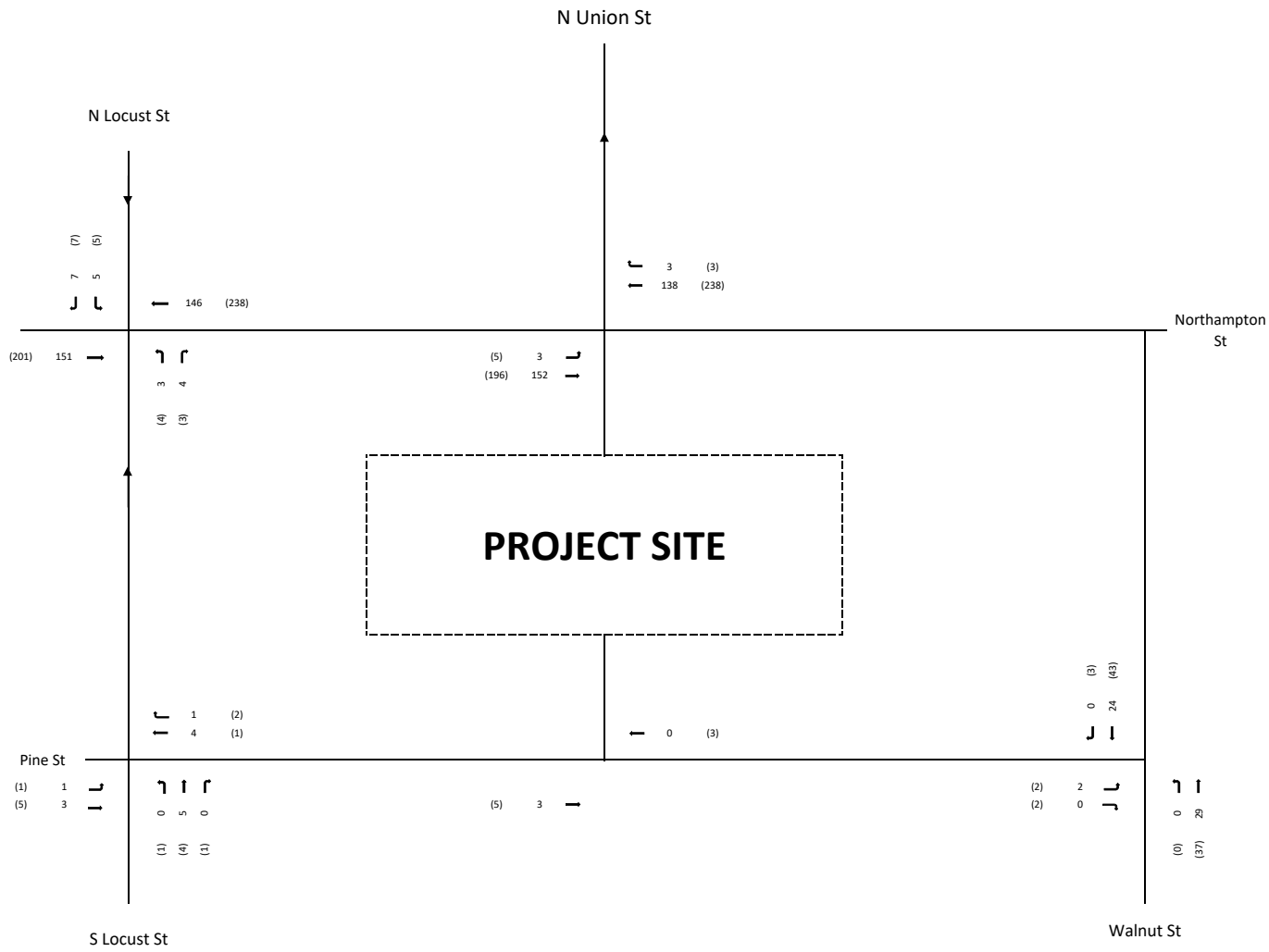
PEAK HOUR	ENTER	EXIT	TOTAL
AM	27	19	46
PM	36	32	68

MASER CONSULTING P.A.	Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 7** **Supermarket Site Generated Trips** **AM & PM Peak Hours**



PEAK HOUR	ENTER	EXIT	TOTAL
AM	31	28	59
PM	41	35	76

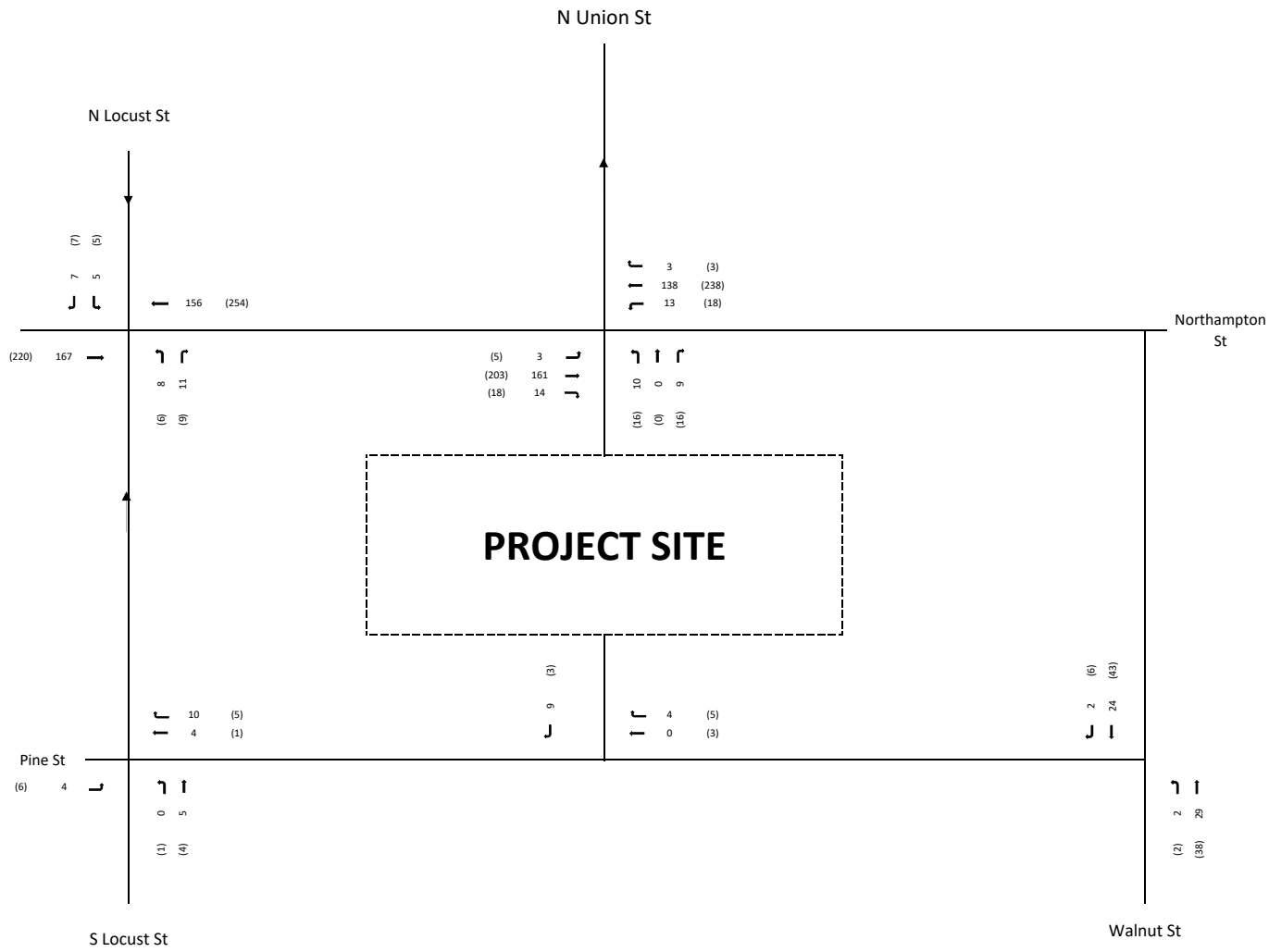
Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 8** **Total Site Generated Trips** **AM & PM Peak Hours**



BUILD-YEAR GROWTH RATE

GROWTH RATE:	0.47%
YEARS:	2
GROWTH FACTOR:	1.009

Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 9** **2021 No Build Volumes** **AM & PM Peak Hours**



MASER CONSULTING P.A.	Dutchtown Commons MC Project No. 10001207A City of Easton, Northampton County, PA	**Legend** AM Peak Hour: ### PM Peak Hour: (###) Thru Movement: Turning Movement: Signalized Intersection:	**Figure 10** **2021 Build Volumes** **AM & PM Peak Hours**

DUTCHTOWN COMMONS
TRAFFIC IMPACT STUDY

APPENDIX B

TRAFFIC COUNT DATA

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Easton, PA
Northampton St & Locust St
Tuesday, June 11, 2019
Location: 40.690877, -75.216681

Count Name: Northampton St/Locust St
Site Code:
Start Date: 06/11/2019

Turning Movement Data

Start Time	Northampton St Eastbound				Northampton St Westbound				Locust St Northbound				Locust St Southbound				
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:00 AM	12	0	0	12	19	0	0	19	3	1	2	4	1	0	2	1	36
7:15 AM	17	0	1	17	18	0	1	18	1	1	2	2	0	4	4	4	41
7:30 AM	24	2	0	26	17	0	0	17	1	0	2	1	0	1	1	1	45
7:45 AM	26	0	0	26	14	0	0	14	3	0	2	3	2	0	3	2	45
Hourly Total	79	2	1	81	68	0	1	68	8	2	8	10	3	5	10	8	167
8:00 AM	29	0	0	29	31	0	0	31	1	1	3	2	2	1	4	3	65
8:15 AM	38	0	2	38	38	0	0	38	0	0	3	0	1	0	19	1	77
8:30 AM	37	0	0	37	46	0	0	46	2	2	1	4	1	5	7	6	93
8:45 AM	46	0	0	46	30	0	0	30	0	1	2	1	1	1	2	2	79
Hourly Total	150	0	2	150	145	0	0	145	3	4	9	7	5	7	32	12	314
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	49	0	5	49	57	0	0	57	1	0	7	1	1	3	15	4	111
4:15 PM	51	0	0	51	50	0	0	50	3	1	5	4	1	2	11	3	108
4:30 PM	54	0	4	54	68	0	1	68	0	1	10	1	2	1	9	3	126
4:45 PM	45	0	3	45	61	0	0	61	0	1	3	1	1	1	10	2	109
Hourly Total	199	0	12	199	236	0	1	236	4	3	25	7	5	7	45	12	454
5:00 PM	50	0	5	50	44	0	0	44	0	1	13	1	2	2	10	4	99
5:15 PM	35	0	6	35	50	0	0	50	2	1	14	3	2	3	8	5	93
5:30 PM	59	0	2	59	46	0	0	46	2	1	4	3	0	1	10	1	109
5:45 PM	43	0	13	43	55	0	0	55	0	0	12	0	4	2	10	6	104
Hourly Total	187	0	26	187	195	0	0	195	4	3	43	7	8	8	38	16	405
Grand Total	615	2	41	617	644	0	2	644	19	12	85	31	21	27	125	48	1340
Approach %	99.7	0.3	-	-	100.0	0.0	-	-	61.3	38.7	-	-	43.8	56.3	-	-	-
Total %	45.9	0.1	-	46.0	48.1	0.0	-	48.1	1.4	0.9	-	2.3	1.6	2.0	-	3.6	-
Lights	594	2	-	596	608	0	-	608	19	10	-	29	19	27	-	46	1279
% Lights	96.6	100.0	-	96.6	94.4	-	-	94.4	100.0	83.3	-	93.5	90.5	100.0	-	95.8	95.4
Buses	11	0	-	11	17	0	-	17	0	0	-	0	0	0	-	0	28
% Buses	1.8	0.0	-	1.8	2.6	-	-	2.6	0.0	0.0	-	0.0	0.0	0.0	-	0.0	2.1
Trucks	10	0	-	10	19	0	-	19	0	2	-	2	2	0	-	2	33
% Trucks	1.6	0.0	-	1.6	3.0	-	-	3.0	0.0	16.7	-	6.5	9.5	0.0	-	4.2	2.5
Bicycles on Crosswalk	-	-	1	-	-	-	0	-	-	-	3	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	2.4	-	-	-	0.0	-	-	-	3.5	-	-	-	3.2	-	-
Pedestrians	-	-	40	-	-	-	2	-	-	-	82	-	-	-	121	-	-
% Pedestrians	-	-	97.6	-	-	-	100.0	-	-	-	96.5	-	-	-	96.8	-	-

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Easton, PA
Northampton St & Locust St
Tuesday, June 11, 2019
Location: 40.690877, -75.216681

Count Name: Northampton St/Locust St
Site Code:
Start Date: 06/11/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Northampton St Eastbound				Northampton St Westbound				Locust St Northbound				Locust St Southbound				Int. Total
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Peds	App. Total	Left	Right	Peds	App. Total	
8:00 AM	29	0	0	29	31	0	0	31	1	1	3	2	2	1	4	3	65
8:15 AM	38	0	2	38	38	0	0	38	0	0	3	0	1	0	19	1	77
8:30 AM	37	0	0	37	46	0	0	46	2	2	1	4	1	5	7	6	93
8:45 AM	46	0	0	46	30	0	0	30	0	1	2	1	1	1	2	2	79
Total	150	0	2	150	145	0	0	145	3	4	9	7	5	7	32	12	314
Approach %	100.0	0.0	-	-	100.0	0.0	-	-	42.9	57.1	-	-	41.7	58.3	-	-	-
Total %	47.8	0.0	-	47.8	46.2	0.0	-	46.2	1.0	1.3	-	2.2	1.6	2.2	-	3.8	-
PHF	0.815	0.000	-	0.815	0.788	0.000	-	0.788	0.375	0.500	-	0.438	0.625	0.350	-	0.500	0.844
Lights	141	0	-	141	131	0	-	131	3	3	-	6	5	7	-	12	290
% Lights	94.0	-	-	94.0	90.3	-	-	90.3	100.0	75.0	-	85.7	100.0	100.0	-	100.0	92.4
Buses	5	0	-	5	9	0	-	9	0	0	-	0	0	0	-	0	14
% Buses	3.3	-	-	3.3	6.2	-	-	6.2	0.0	0.0	-	0.0	0.0	0.0	-	0.0	4.5
Trucks	4	0	-	4	5	0	-	5	0	1	-	1	0	0	-	0	10
% Trucks	2.7	-	-	2.7	3.4	-	-	3.4	0.0	25.0	-	14.3	0.0	0.0	-	0.0	3.2
Bicycles on Crosswalk	-	-	0	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	-	-	-	-	0.0	-	-	-	0.0	-	-
Pedestrians	-	-	2	-	-	-	0	-	-	-	9	-	-	-	32	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	100.0	-	-	-	100.0	-	-

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Easton, PA
Northampton St & Locust St
Tuesday, June 11, 2019
Location: 40.690877, -75.216681

Count Name: Northampton St/Locust St
Site Code:
Start Date: 06/11/2019

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Northampton St Eastbound				Northampton St Westbound				Locust St Northbound				Locust St Southbound				Int. Total
	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Left	Right	Peds	App. Total	Left	Right	Peds	App. Total	
4:00 PM	49	0	5	49	57	0	0	57	1	0	7	1	1	3	15	4	111
4:15 PM	51	0	0	51	50	0	0	50	3	1	5	4	1	2	11	3	108
4:30 PM	54	0	4	54	68	0	1	68	0	1	10	1	2	1	9	3	126
4:45 PM	45	0	3	45	61	0	0	61	0	1	3	1	1	1	10	2	109
Total	199	0	12	199	236	0	1	236	4	3	25	7	5	7	45	12	454
Approach %	100.0	0.0	-	-	100.0	0.0	-	-	57.1	42.9	-	-	41.7	58.3	-	-	-
Total %	43.8	0.0	-	43.8	52.0	0.0	-	52.0	0.9	0.7	-	1.5	1.1	1.5	-	2.6	-
PHF	0.921	0.000	-	0.921	0.868	0.000	-	0.868	0.333	0.750	-	0.438	0.625	0.583	-	0.750	0.901
Lights	197	0	-	197	230	0	-	230	4	3	-	7	4	7	-	11	445
% Lights	99.0	-	-	99.0	97.5	-	-	97.5	100.0	100.0	-	100.0	80.0	100.0	-	91.7	98.0
Buses	2	0	-	2	2	0	-	2	0	0	-	0	0	0	-	0	4
% Buses	1.0	-	-	1.0	0.8	-	-	0.8	0.0	0.0	-	0.0	0.0	0.0	-	0.0	0.9
Trucks	0	0	-	0	4	0	-	4	0	0	-	0	1	0	-	1	5
% Trucks	0.0	-	-	0.0	1.7	-	-	1.7	0.0	0.0	-	0.0	20.0	0.0	-	8.3	1.1
Bicycles on Crosswalk	-	-	0	-	-	-	0	-	-	-	1	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	0.0	-	-	-	4.0	-	-	-	6.7	-	-
Pedestrians	-	-	12	-	-	-	1	-	-	-	24	-	-	-	42	-	-
% Pedestrians	-	-	100.0	-	-	-	100.0	-	-	-	96.0	-	-	-	93.3	-	-

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Easton, PA
Northampton St & Union St
Tuesday, June 11, 2019
Location: 40.690938, -75.215639

Count Name: Northampton St/Union St
Site Code:
Start Date: 06/11/2019

Turning Movement Data

Start Time	Northampton St Eastbound					Northampton St Westbound					Union St Southbound		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Peds	App. Total	Int. Total
7:00 AM	2	13	0	0	15	21	0	0	0	21	2	0	36
7:15 AM	2	15	0	0	17	20	0	0	2	20	4	0	37
7:30 AM	0	27	0	0	27	16	0	0	0	16	2	0	43
7:45 AM	0	25	0	0	25	18	0	0	0	18	2	0	43
Hourly Total	4	80	0	0	84	75	0	0	2	75	10	0	159
8:00 AM	1	31	1	0	33	28	1	0	0	29	3	0	62
8:15 AM	0	37	0	0	37	37	0	0	0	37	8	0	74
8:30 AM	0	41	2	0	43	43	1	0	0	44	5	0	87
8:45 AM	2	42	1	0	45	29	1	1	0	31	3	0	76
Hourly Total	3	151	4	0	158	137	3	1	0	141	19	0	299
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	46	0	0	47	56	0	1	0	57	10	0	104
4:15 PM	0	61	0	4	61	54	1	0	0	55	18	0	116
4:30 PM	3	45	0	1	48	64	1	0	4	65	8	0	113
4:45 PM	1	42	1	0	44	62	1	0	0	63	10	0	107
Hourly Total	5	194	1	5	200	236	3	1	4	240	46	0	440
5:00 PM	2	44	1	3	47	39	0	1	1	40	12	0	87
5:15 PM	2	41	0	4	43	58	0	0	1	58	8	0	101
5:30 PM	2	49	1	0	52	39	0	0	7	39	10	0	91
5:45 PM	7	45	0	2	52	61	3	0	6	64	12	0	116
Hourly Total	13	179	2	9	194	197	3	1	15	201	42	0	395
Grand Total	25	604	7	14	636	645	9	3	21	657	117	0	1293
Approach %	3.9	95.0	1.1	-	-	98.2	1.4	0.5	-	-	-	-	-
Total %	1.9	46.7	0.5	-	49.2	49.9	0.7	0.2	-	50.8	-	0.0	-
Lights	22	583	7	-	612	609	9	3	-	621	-	0	1233
% Lights	88.0	96.5	100.0	-	96.2	94.4	100.0	100.0	-	94.5	-	-	95.4
Buses	0	10	0	-	10	17	0	0	-	17	-	0	27
% Buses	0.0	1.7	0.0	-	1.6	2.6	0.0	0.0	-	2.6	-	-	2.1
Trucks	3	11	0	-	14	19	0	0	-	19	-	0	33
% Trucks	12.0	1.8	0.0	-	2.2	2.9	0.0	0.0	-	2.9	-	-	2.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	4	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	3.4	-	-
Pedestrians	-	-	-	14	-	-	-	-	21	-	113	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	96.6	-	-

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Northampton St Eastbound					Northampton St Westbound					Union St Southbound		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Peds	App. Total	Int. Total
8:00 AM	1	31	1	0	33	28	1	0	0	29	3	0	62
8:15 AM	0	37	0	0	37	37	0	0	0	37	8	0	74
8:30 AM	0	41	2	0	43	43	1	0	0	44	5	0	87
8:45 AM	2	42	1	0	45	29	1	1	0	31	3	0	76
Total	3	151	4	0	158	137	3	1	0	141	19	0	299
Approach %	1.9	95.6	2.5	-	-	97.2	2.1	0.7	-	-	-	-	-
Total %	1.0	50.5	1.3	-	52.8	45.8	1.0	0.3	-	47.2	-	0.0	-
PHF	0.375	0.899	0.500	-	0.878	0.797	0.750	0.250	-	0.801	-	0.000	0.859
Lights	3	141	4	-	148	123	3	1	-	127	-	0	275
% Lights	100.0	93.4	100.0	-	93.7	89.8	100.0	100.0	-	90.1	-	-	92.0
Buses	0	5	0	-	5	9	0	0	-	9	-	0	14
% Buses	0.0	3.3	0.0	-	3.2	6.6	0.0	0.0	-	6.4	-	-	4.7
Trucks	0	5	0	-	5	5	0	0	-	5	-	0	10
% Trucks	0.0	3.3	0.0	-	3.2	3.6	0.0	0.0	-	3.5	-	-	3.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	5.3	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	18	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	94.7	-	-

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Northampton St Eastbound					Northampton St Westbound					Union St Southbound		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Peds	App. Total	Int. Total
4:00 PM	1	46	0	0	47	56	0	1	0	57	10	0	104
4:15 PM	0	61	0	4	61	54	1	0	0	55	18	0	116
4:30 PM	3	45	0	1	48	64	1	0	4	65	8	0	113
4:45 PM	1	42	1	0	44	62	1	0	0	63	10	0	107
Total	5	194	1	5	200	236	3	1	4	240	46	0	440
Approach %	2.5	97.0	0.5	-	-	98.3	1.3	0.4	-	-	-	-	-
Total %	1.1	44.1	0.2	-	45.5	53.6	0.7	0.2	-	54.5	-	0.0	-
PHF	0.417	0.795	0.250	-	0.820	0.922	0.750	0.250	-	0.923	-	0.000	0.948
Lights	5	193	1	-	199	230	3	1	-	234	-	0	433
% Lights	100.0	99.5	100.0	-	99.5	97.5	100.0	100.0	-	97.5	-	-	98.4
Buses	0	1	0	-	1	2	0	0	-	2	-	0	3
% Buses	0.0	0.5	0.0	-	0.5	0.8	0.0	0.0	-	0.8	-	-	0.7
Trucks	0	0	0	-	0	4	0	0	-	4	-	0	4
% Trucks	0.0	0.0	0.0	-	0.0	1.7	0.0	0.0	-	1.7	-	-	0.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	3	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	6.5	-	-
Pedestrians	-	-	-	5	-	-	-	-	4	-	43	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	93.5	-	-

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Easton, PA
Pine St & Locust St
Tuesday, June 11, 2019
Location: 40.690446, -75.216577

Count Name: Pine St/Locust St
Site Code:
Start Date: 06/11/2019

Turning Movement Data

Start Time	Pine St Eastbound					Pine St Westbound					Locust St Northbound					Locust St Southbound		
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Int. Total
7:00 AM	1	1	0	1	2	0	1	0	0	1	1	2	0	0	3	0	0	6
7:15 AM	1	0	0	2	1	0	0	0	0	0	0	1	0	0	1	1	0	2
7:30 AM	0	0	0	0	0	1	0	0	0	1	0	1	2	0	3	0	0	4
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	3	0	1	3	0	0	4
Hourly Total	2	2	0	3	4	1	1	0	0	2	1	7	2	1	10	1	0	16
8:00 AM	1	0	0	0	1	1	0	0	1	1	0	1	0	1	1	0	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	2	0	1	2	2	1	0	0	3	0	3	0	0	3	0	0	8
8:45 AM	0	1	0	0	1	1	0	0	1	1	0	1	0	0	1	0	0	3
Hourly Total	1	3	0	1	4	4	1	0	2	5	0	5	0	1	5	0	0	14
9:00 AM	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
4:00 PM	1	1	0	1	2	0	0	0	0	0	0	1	0	0	1	0	0	3
4:15 PM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	3
4:30 PM	0	1	0	1	1	0	1	0	0	1	1	0	0	0	1	2	0	3
4:45 PM	0	3	0	2	3	1	0	0	0	1	0	1	1	0	2	3	0	6
Hourly Total	1	5	0	4	6	1	2	0	0	3	1	4	1	0	6	5	0	15
5:00 PM	1	1	0	1	2	0	0	0	1	0	0	0	0	1	0	1	0	2
5:15 PM	1	2	0	0	3	0	0	0	1	0	1	3	1	0	5	0	0	8
5:30 PM	1	1	0	0	2	0	0	0	1	0	0	1	1	2	2	0	0	4
5:45 PM	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1
Hourly Total	3	5	0	2	8	0	0	0	4	0	1	4	2	3	7	1	0	15
Grand Total	7	15	0	10	22	6	4	0	6	10	3	20	5	5	28	7	0	60
Approach %	31.8	68.2	0.0	-	-	60.0	40.0	0.0	-	-	10.7	71.4	17.9	-	-	-	-	-
Total %	11.7	25.0	0.0	-	36.7	10.0	6.7	0.0	-	16.7	5.0	33.3	8.3	-	46.7	-	0.0	-
Lights	7	12	0	-	19	4	4	0	-	8	3	18	5	-	26	-	0	53
% Lights	100.0	80.0	-	-	86.4	66.7	100.0	-	-	80.0	100.0	90.0	100.0	-	92.9	-	-	88.3
Buses	0	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	-	-	0.0
Trucks	0	3	0	-	3	2	0	0	-	2	0	2	0	-	2	-	0	7
% Trucks	0.0	20.0	-	-	13.6	33.3	0.0	-	-	20.0	0.0	10.0	0.0	-	7.1	-	-	11.7
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	0.0	-	-
Pedestrians	-	-	-	10	-	-	-	-	6	-	-	-	-	5	-	7	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	100.0	-	-

Pine St/Locust St - TMC

Tue Jun 11, 2019
Forced Peak (8 AM - 9 AM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 666839, Location: 40.690446, -75.216577

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg	Pine St					Pine St					Locust St					Locust St		
Direction	Eastbound					Westbound					Northbound					Southbound		
Time	L	T	U	App	Ped*	T	R	U	App	Ped*	L	T	R	App	Ped*	App	Ped*	Int
2019-06-11 8:00AM	1	0	0	**1**	0	1	0	0	**1**	1	0	1	0	**1**	1	**0**	0	**3**
8:15AM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**	0	**0**
8:30AM	0	2	0	**2**	1	2	1	0	**3**	0	0	3	0	**3**	0	**0**	0	**8**
8:45AM	0	1	0	**1**	0	1	0	0	**1**	1	0	1	0	**1**	0	**0**	0	**3**
Total	1	3	0	**4**	1	4	1	0	**5**	2	0	5	0	**5**	1	**0**	0	**14**
% Approach	25.0%	75.0%	0%	**-**	-	80.0%	20.0%	0%	**-**	-	0%	100%	0%	**-**	-	**-**	-	-
% Total	7.1%	21.4%	0%	**28.6%**	-	28.6%	7.1%	0%	**35.7%**	-	0%	35.7%	0%	**35.7%**	-	**0%**	-	-
PHF	0.250	0.375	-	**0.500**	-	0.500	0.250	-	**0.417**	-	-	0.417	-	**0.417**	-	**-**	-	0.438
Lights	1	0	0	**1**	-	2	1	0	**3**	-	0	4	0	**4**	-	**0**	-	8
% Lights	100%	0%	0%	**25.0%**	-	50.0%	100%	0%	**60.0%**	-	0%	80.0%	0%	**80.0%**	-	**-**	-	57.1%
Articulated Trucks and Single-Unit Trucks	0	3	0	**3**	-	2	0	0	**2**	-	0	1	0	**1**	-	**0**	-	6
% Articulated Trucks and Single-Unit Trucks	0%	100%	0%	**75.0%**	-	50.0%	0%	0%	**40.0%**	-	0%	20.0%	0%	**20.0%**	-	**-**	-	42.9%
Buses	0	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%
Pedestrians	-	-	-	-	1	-	-	-	-	2	-	-	-	-	1	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	100%	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-

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

Pine St/Locust St - TMC

Tue Jun 11, 2019
Forced Peak (4 PM - 5 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 666839, Location: 40.690446, -75.216577

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg / Direction	Pine St Eastbound					Pine St Westbound					Locust St Northbound					Locust St Southbound		
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	T	R	**App**	Ped*	**App**	Ped*	**Int**
2019-06-11 4:00PM	1	1	0	**2**	1	0	0	0	**0**	0	0	1	0	**1**	0	**0**	0	**3**
4:15PM	0	0	0	**0**	0	0	1	0	**1**	0	0	2	0	**2**	0	**0**	0	**3**
4:30PM	0	1	0	**1**	1	0	1	0	**1**	0	1	0	0	**1**	0	**0**	2	**3**
4:45PM	0	3	0	**3**	2	1	0	0	**1**	0	0	1	1	**2**	0	**0**	3	**6**
Total	1	5	0	**6**	4	1	2	0	**3**	0	1	4	1	**6**	0	**0**	5	**15**
% Approach	16.7%	83.3%	0%	**-**	-	33.3%	66.7%	0%	**-**	-	16.7%	66.7%	16.7%	**-**	-	**-**	-	-
% Total	6.7%	33.3%	0%	**40.0%**	-	6.7%	13.3%	0%	**20.0%**	-	6.7%	26.7%	6.7%	**40.0%**	-	**0%**	-	-
PHF	0.250	0.417	-	**0.500**	-	0.250	0.500	-	**0.750**	-	0.250	0.500	0.250	**0.750**	-	**-**	-	0.625
Lights	1	5	0	**6**	-	1	2	0	**3**	-	1	4	1	**6**	-	**0**	-	15
% Lights	100%	100%	0%	**100%**	-	100%	100%	0%	**100%**	-	100%	100%	100%	**100%**	-	**-**	-	100%
Articulated Trucks and Single-Unit Trucks	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	**0**	-	0
% Articulated Trucks and Single-Unit Trucks	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
% Buses	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	**-**	-	0%
Pedestrians	-	-	-	-	4	-	-	-	-	0	-	-	-	-	0	-	5	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-

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

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Easton, PA
Pine St & Walnut Ave
Tuesday, June 11, 2019
Location: 40.690415, -75.215077

Count Name: Pine St/Walnut Ave
Site Code:
Start Date: 06/11/2019

Turning Movement Data

Start Time	Walnut Ave Eastbound					Walnut Ave Westbound					Pine St Southbound					Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	1	3	0	0	4	2	0	0	0	2	0	1	0	0	1	7
7:15 AM	0	4	0	2	4	5	0	0	2	5	0	0	0	3	0	9
7:30 AM	0	1	0	0	1	2	0	0	0	2	1	1	0	1	2	5
7:45 AM	0	5	0	0	5	2	0	0	1	2	0	1	0	3	1	8
Hourly Total	1	13	0	2	14	11	0	0	3	11	1	3	0	7	4	29
8:00 AM	0	5	1	0	6	5	0	0	1	5	0	0	0	1	0	11
8:15 AM	0	7	0	0	7	1	0	0	0	1	1	0	0	1	1	9
8:30 AM	0	12	1	0	13	8	0	0	0	8	0	0	0	2	0	21
8:45 AM	0	5	0	0	5	10	0	0	0	10	1	0	0	2	1	16
Hourly Total	0	29	2	0	31	24	0	0	1	24	2	0	0	6	2	57
9:00 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	0	14	0	2	14	12	1	0	0	13	1	0	0	11	1	28
4:15 PM	0	7	0	0	7	13	1	1	0	15	0	0	0	3	0	22
4:30 PM	0	9	1	1	10	8	0	0	0	8	0	1	0	14	1	19
4:45 PM	0	7	0	0	7	10	1	0	0	11	1	1	0	1	2	20
Hourly Total	0	37	1	3	38	43	3	1	0	47	2	2	0	29	4	89
5:00 PM	0	10	0	1	10	11	1	0	0	12	0	1	0	6	1	23
5:15 PM	0	8	0	0	8	10	0	0	0	10	0	2	0	11	2	20
5:30 PM	0	12	0	0	12	13	1	0	0	14	0	2	0	11	2	28
5:45 PM	0	8	0	0	8	11	0	0	1	11	1	0	0	6	1	20
Hourly Total	0	38	0	1	38	45	2	0	1	47	1	5	0	34	6	91
Grand Total	1	117	3	6	121	123	5	1	5	129	6	10	0	76	16	266
Approach %	0.8	96.7	2.5	-	-	95.3	3.9	0.8	-	-	37.5	62.5	0.0	-	-	-
Total %	0.4	44.0	1.1	-	45.5	46.2	1.9	0.4	-	48.5	2.3	3.8	0.0	-	6.0	-
Lights	1	107	3	-	111	111	5	1	-	117	5	10	0	-	15	243
% Lights	100.0	91.5	100.0	-	91.7	90.2	100.0	100.0	-	90.7	83.3	100.0	-	-	93.8	91.4
Buses	0	9	0	-	9	6	0	0	-	6	0	0	0	-	0	15
% Buses	0.0	7.7	0.0	-	7.4	4.9	0.0	0.0	-	4.7	0.0	0.0	-	-	0.0	5.6
Trucks	0	1	0	-	1	6	0	0	-	6	1	0	0	-	1	8
% Trucks	0.0	0.9	0.0	-	0.8	4.9	0.0	0.0	-	4.7	16.7	0.0	-	-	6.3	3.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	6	-	-	-	-	5	-	-	-	-	76	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Easton, PA
Pine St & Walnut Ave
Tuesday, June 11, 2019
Location: 40.690415, -75.215077

Count Name: Pine St/Walnut Ave
Site Code:
Start Date: 06/11/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Walnut Ave Eastbound					Walnut Ave Westbound					Pine St Southbound					Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
8:00 AM	0	5	1	0	6	5	0	0	1	5	0	0	0	1	0	11
8:15 AM	0	7	0	0	7	1	0	0	0	1	1	0	0	1	1	9
8:30 AM	0	12	1	0	13	8	0	0	0	8	0	0	0	2	0	21
8:45 AM	0	5	0	0	5	10	0	0	0	10	1	0	0	2	1	16
Total	0	29	2	0	31	24	0	0	1	24	2	0	0	6	2	57
Approach %	0.0	93.5	6.5	-	-	100.0	0.0	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	0.0	50.9	3.5	-	54.4	42.1	0.0	0.0	-	42.1	3.5	0.0	0.0	-	3.5	-
PHF	0.000	0.604	0.500	-	0.596	0.600	0.000	0.000	-	0.600	0.500	0.000	0.000	-	0.500	0.679
Lights	0	26	2	-	28	20	0	0	-	20	1	0	0	-	1	49
% Lights	-	89.7	100.0	-	90.3	83.3	-	-	-	83.3	50.0	-	-	-	50.0	86.0
Buses	0	3	0	-	3	2	0	0	-	2	0	0	0	-	0	5
% Buses	-	10.3	0.0	-	9.7	8.3	-	-	-	8.3	0.0	-	-	-	0.0	8.8
Trucks	0	0	0	-	0	2	0	0	-	2	1	0	0	-	1	3
% Trucks	-	0.0	0.0	-	0.0	8.3	-	-	-	8.3	50.0	-	-	-	50.0	5.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Pine St/Walnut Ave - TMC

Tue Jun 11, 2019
Forced Peak (4 PM - 5 PM)
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 666840, Location: 40.690415, -75.215077

Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg / Direction	Walnut Ave Eastbound					Walnut Ave Westbound					Pine St Southbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2019-06-11 4:00PM	0	14	0	**14**	2	12	1	0	**13**	0	1	0	0	**1**	11	**28**
4:15PM	0	7	0	**7**	0	13	1	1	**15**	0	0	0	0	**0**	3	**22**
4:30PM	0	9	1	**10**	1	8	0	0	**8**	0	0	1	0	**1**	14	**19**
4:45PM	0	7	0	**7**	0	10	1	0	**11**	0	1	1	0	**2**	1	**20**
Total	0	37	1	**38**	3	43	3	1	**47**	0	2	2	0	**4**	29	**89**
% Approach	0%	97.4%	2.6%	**-**	-	91.5%	6.4%	2.1%	**-**	-	50.0%	50.0%	0%	**-**	-	-
% Total	0%	41.6%	1.1%	**42.7%**	-	48.3%	3.4%	1.1%	**52.8%**	-	2.2%	2.2%	0%	**4.5%**	-	-
PHF	-	0.661	0.250	**0.679**	-	0.827	0.750	0.250	**0.783**	-	0.500	0.500	-	**0.500**	-	0.795
Lights	0	35	1	**36**	-	41	3	1	**45**	-	2	2	0	**4**	-	85
% Lights	0%	94.6%	100%	**94.7%**	-	95.3%	100%	100%	**95.7%**	-	100%	100%	0%	**100%**	-	95.5%
Articulated Trucks and Single-Unit Trucks	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Buses	0	2	0	**2**	-	2	0	0	**2**	-	0	0	0	**0**	-	4
% Buses	0%	5.4%	0%	**5.3%**	-	4.7%	0%	0%	**4.3%**	-	0%	0%	0%	**0%**	-	4.5%
Pedestrians	-	-	-	-	3	-	-	-	-	0	-	-	-	-	29	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

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

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Dutchtown Commons	**Organization:**	Maser Consulting
Project Location:	Easton, PA	**Performed By:**	CAL
Scenario Description:		**Date:**	7/1/2019
Analysis Year:	2021	**Checked By:**	MRB
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	850	13,479 SF		46	27	19
Restaurant				0		
Cinema/Entertainment				0		
Residential	221		39	13	4	9
Hotel				0		
All Other Land Uses[2]				0		
				59	31	28

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	59	31	28
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[5]	59	31	28
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	0%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Dutchtown Commons
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	27	27	1.00	19	19
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	4	4	1.00	9	9
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	6		2	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	2	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	27	27	27	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	4	4	4	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	19	19	19	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	9	9	9	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Dutchtown Commons	**Organization:**	Maser Consulting
Project Location:	Easton, PA	**Performed By:**	CAL
Scenario Description:		**Date:**	7/1/2019
Analysis Year:	2021	**Checked By:**	MRB
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	850	13,479 SF		113	58	55
Restaurant				0		
Cinema/Entertainment				0		
Residential	221		39	15	9	6
Hotel				0		
All Other Land Uses[2]				0		
				128	67	61

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	128	67	61
Internal Capture Percentage	11%	10%	11%
External Vehicle-Trips[5]	114	60	54
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	5%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	44%	50%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Dutchtown Commons
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	58	58	1.00	55	55
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	9	9	1.00	6	6
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		16	2	14	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	1	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	0		0	0	4	0
Restaurant	0	29		0	1	0
Cinema/Entertainment	0	2	0		0	0
Residential	0	6	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	3	55	58	55	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	5	9	5	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	4	51	55	51	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	3	6	3	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

DUTCHTOWN COMMONS
TRAFFIC IMPACT STUDY

APPENDIX C

TRIP GENERATION CALCULATIONS

Multifamily Housing (Mid-Rise)

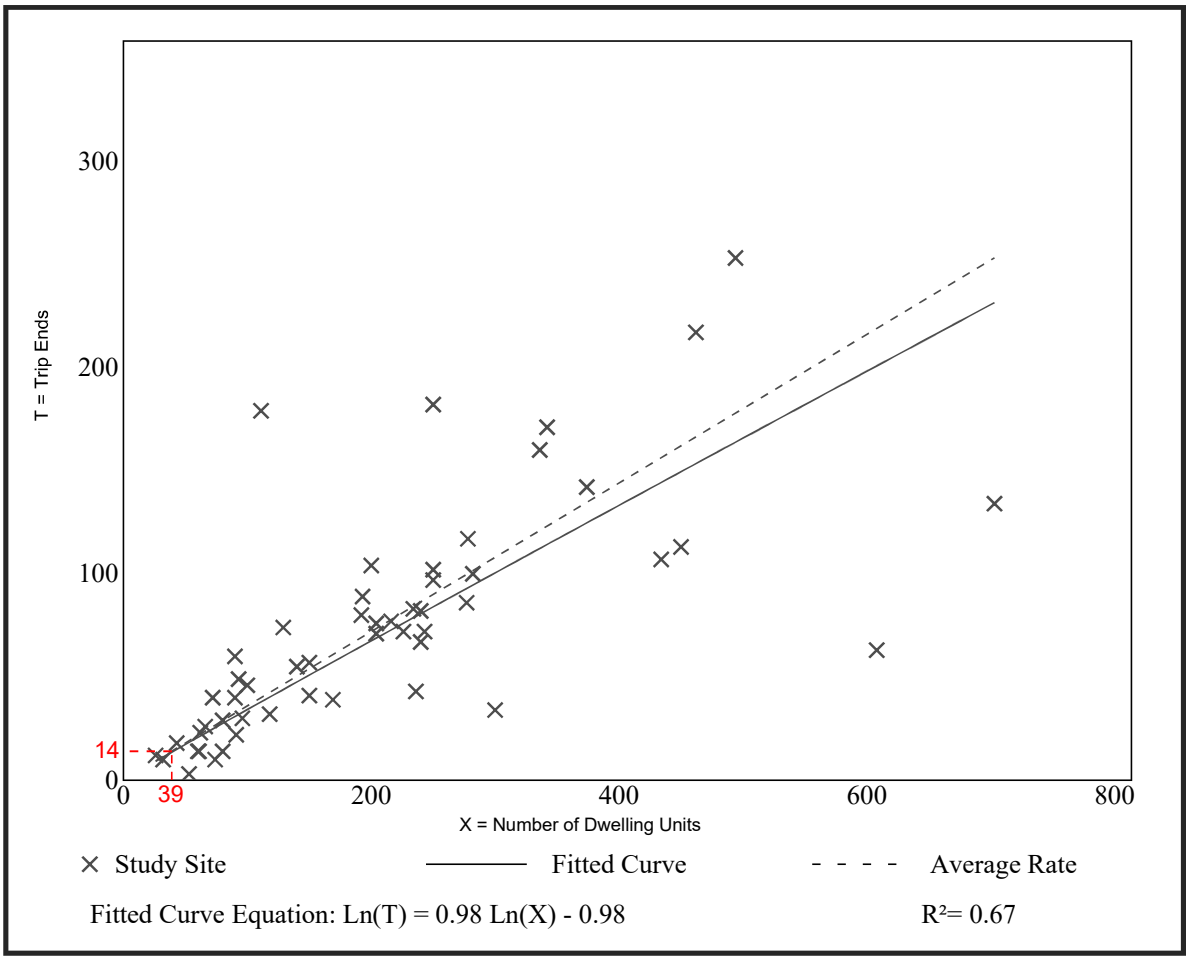
(221)

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:	53
Avg. Num. of Dwelling Units:	207
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



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Multifamily Housing (Mid-Rise)

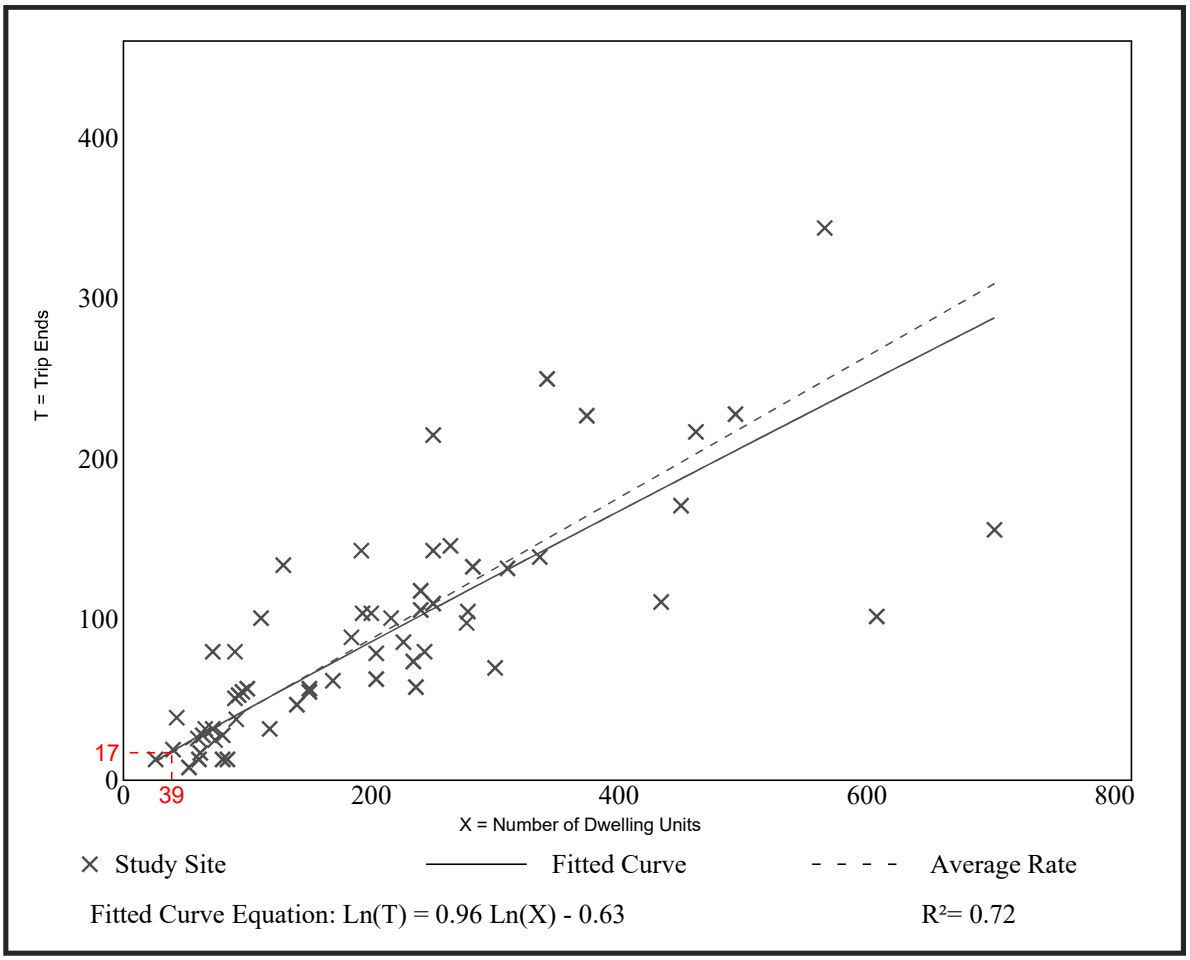
(221)

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:	60
Avg. Num. of Dwelling Units:	208
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



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Supermarket

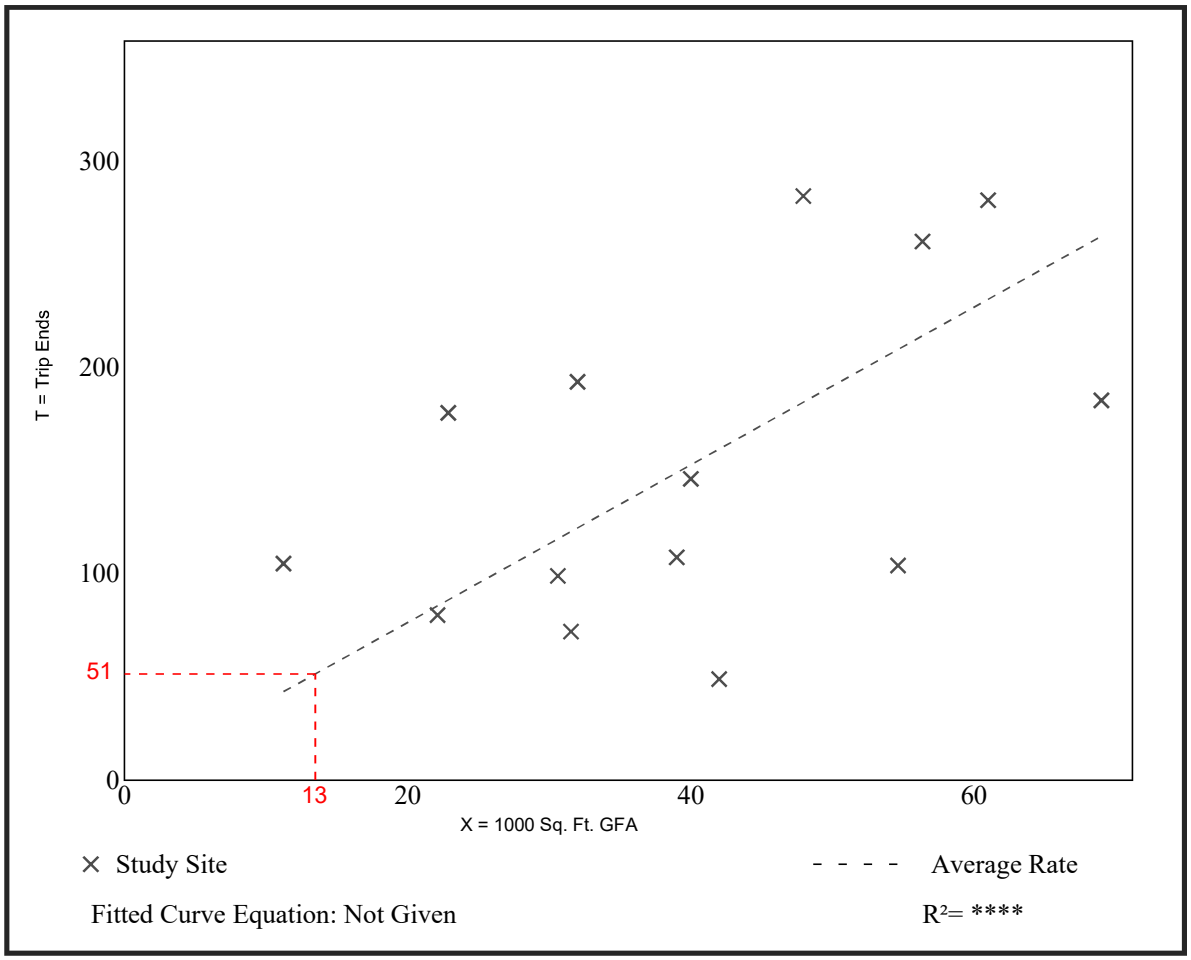
(850)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
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:	14
Avg. 1000 Sq. Ft. GFA:	40
Directional Distribution:	60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.82	1.17 - 9.35	1.89

Data Plot and Equation



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Supermarket

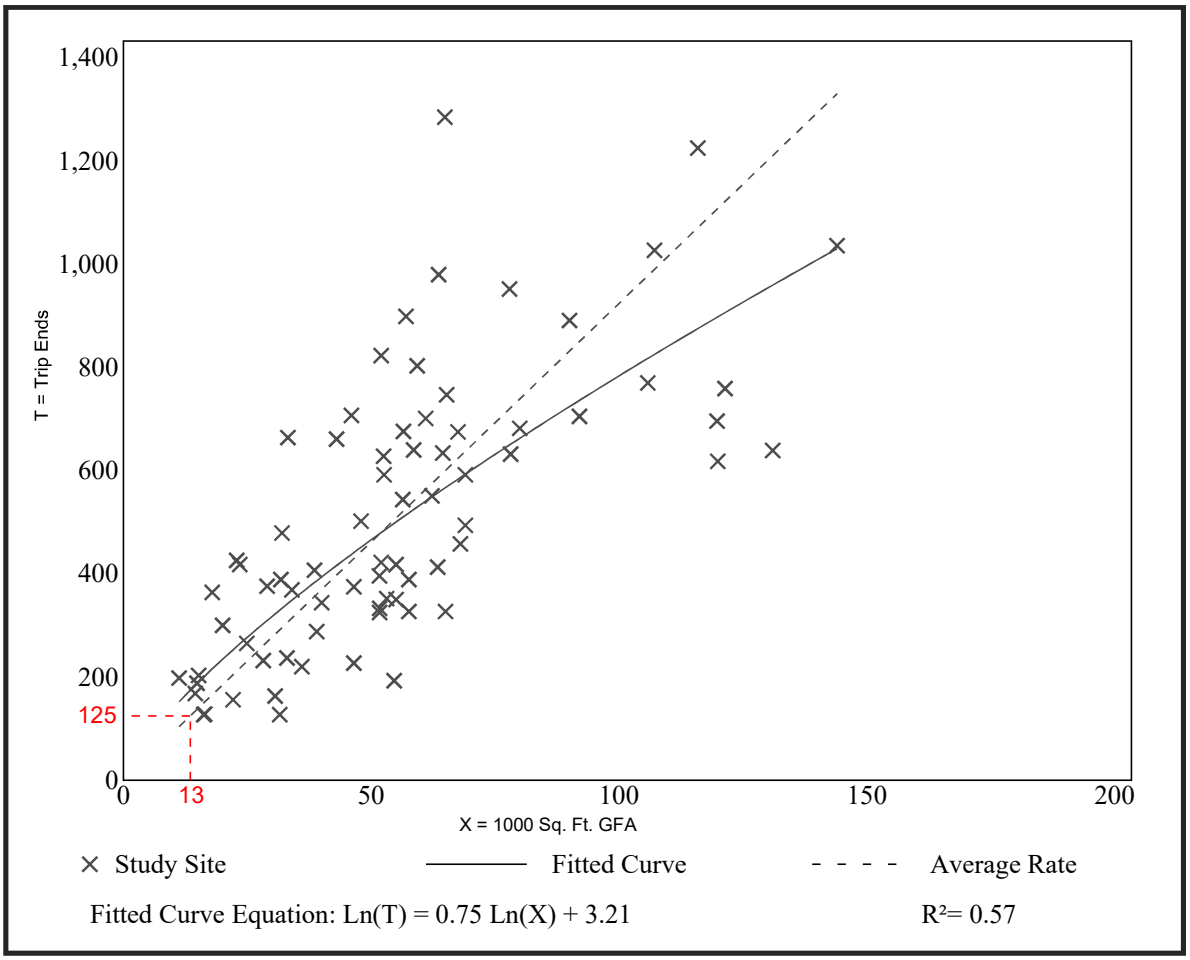
(850)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
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:	73
Avg. 1000 Sq. Ft. GFA:	55
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.24	3.53 - 20.30	3.69

Data Plot and Equation



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DUTCHTOWN COMMONS
TRAFFIC IMPACT STUDY

APPENDIX D

SYNCHRO HCM CAPACITY ANALYSIS SUMMARY SHEETS

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↕			↕	
Traffic Vol, veh/h	0	151	0	0	146	0	3	0	4	5	0	7
Future Vol, veh/h	0	151	0	0	146	0	3	0	4	5	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	6	2	0	10	0	0	0	25	0	0	0
Mvmt Flow	0	180	0	0	174	0	4	0	5	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	358	354	180	357	354	174
Stage 1	-	-	-	-	-	-	180	180	-	174	174	-
Stage 2	-	-	-	-	-	-	178	174	-	183	180	-
Critical Hdwy	-	-	-	-	-	-	7.1	6.5	6.45	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	4	3.525	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	601	574	807	602	574	875
Stage 1	0	-	0	0	-	0	826	754	-	833	759	-
Stage 2	0	-	0	0	-	0	828	759	-	823	754	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	595	574	807	598	574	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	595	574	-	598	574	-
Stage 1	-	-	-	-	-	-	826	754	-	833	759	-
Stage 2	-	-	-	-	-	-	820	759	-	818	754	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.2	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	700	-	-	733
HCM Lane V/C Ratio	0.012	-	-	0.019
HCM Control Delay (s)	10.2	-	-	10
HCM Lane LOS	B	-	-	B
HCM 95th %tile Q(veh)	0	-	-	0.1

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	0	4	1	1	5	1	0	0	0
Future Vol, veh/h	1	3	0	0	4	1	1	5	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	44	44	44	44	44	44	44	44	44	44	44	44
Heavy Vehicles, %	0	100	0	0	50	0	0	20	0	0	0	0
Mvmt Flow	2	7	0	0	9	2	2	11	2	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	22	17	-	-	16	12	0	0	0
Stage 1	0	0	-	-	16	-	-	-	-
Stage 2	22	17	-	-	0	-	-	-	-
Critical Hdwy	7.1	7.5	-	-	7	6.2	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	6	-	-	-	-
Critical Hdwy Stg 2	6.1	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.9	-	-	4.45	3.3	2.2	-	-
Pot Cap-1 Maneuver	995	717	0	0	792	1074	-	-	-
Stage 1	-	-	0	0	796	-	-	-	-
Stage 2	1002	721	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	984	717	-	-	792	1074	-	-	-
Mov Cap-2 Maneuver	984	717	-	-	792	-	-	-	-
Stage 1	-	-	-	-	796	-	-	-	-
Stage 2	988	721	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.7	9.4	
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	769	836
HCM Lane V/C Ratio	-	-	-	0.012	0.014
HCM Control Delay (s)	-	-	-	9.7	9.4
HCM Lane LOS	-	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	1	29	24	1
Future Vol, veh/h	2	1	1	29	24	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	50	0	0	10	16	0
Mvmt Flow	3	1	1	43	35	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	81	36	36	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.9	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	816	1042	1588	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	815	1042	1588	-	-	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1588	-	879	-	-
HCM Lane V/C Ratio	0.001	-	0.005	-	-
HCM Control Delay (s)	7.3	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↕			↕	
Traffic Vol, veh/h	0	201	0	0	238	0	4	0	3	5	0	7
Future Vol, veh/h	0	201	0	0	238	0	4	0	3	5	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	1	0	0	3	0	0	0	0	20	0	0
Mvmt Flow	0	223	0	0	264	0	4	0	3	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	491	487	223	489	487	264
Stage 1	-	-	-	-	-	-	223	223	-	264	264	-
Stage 2	-	-	-	-	-	-	268	264	-	225	223	-
Critical Hdwy	-	-	-	-	-	-	7.1	6.5	6.2	7.3	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	4	3.3	3.68	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	491	484	822	461	484	780
Stage 1	0	-	0	0	-	0	784	723	-	703	694	-
Stage 2	0	-	0	0	-	0	742	694	-	739	723	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	486	484	822	459	484	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	486	484	-	459	484	-
Stage 1	-	-	-	-	-	-	784	723	-	703	694	-
Stage 2	-	-	-	-	-	-	735	694	-	736	723	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.2	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	589	-	-	604
HCM Lane V/C Ratio	0.013	-	-	0.022
HCM Control Delay (s)	11.2	-	-	11.1
HCM Lane LOS	B	-	-	B
HCM 95th %tile Q(veh)	0	-	-	0.1

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	5	0	0	1	2	1	4	1	0	0	0
Future Vol, veh/h	1	5	0	0	1	2	1	4	1	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	8	0	0	2	3	2	6	2	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	14	12	-	-	11	7	0	0	0
Stage 1	0	0	-	-	11	-	-	-	-
Stage 2	14	12	-	-	0	-	-	-	-
Critical Hdwy	7.1	6.5	-	-	6.5	6.2	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	-	-	4	3.3	2.2	-	-
Pot Cap-1 Maneuver	1007	887	0	0	888	1081	-	-	-
Stage 1	-	-	0	0	890	-	-	-	-
Stage 2	1011	890	0	0	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	1003	887	-	-	888	1081	-	-	-
Mov Cap-2 Maneuver	1003	887	-	-	888	-	-	-	-
Stage 1	-	-	-	-	890	-	-	-	-
Stage 2	1006	890	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9	8.6	
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	904	1008
HCM Lane V/C Ratio	-	-	-	0.011	0.005
HCM Control Delay (s)	-	-	-	9	8.6
HCM Lane LOS	-	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	1	37	43	3
Future Vol, veh/h	2	2	1	37	43	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	5	5	0
Mvmt Flow	3	3	1	46	54	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	104	56	58	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	899	1016	1559	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	980	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	898	1016	1559	-	-	-
Mov Cap-2 Maneuver	898	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	980	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1559	-	953	-	-
HCM Lane V/C Ratio	0.001	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↕			↕	
Traffic Vol, veh/h	0	167	0	0	156	0	8	0	11	5	0	7
Future Vol, veh/h	0	167	0	0	156	0	8	0	11	5	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	6	2	0	10	0	0	0	25	0	0	0
Mvmt Flow	0	199	0	0	186	0	10	0	13	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	389	385	199	392	385	186
Stage 1	-	-	-	-	-	-	199	199	-	186	186	-
Stage 2	-	-	-	-	-	-	190	186	-	206	199	-
Critical Hdwy	-	-	-	-	-	-	7.1	6.5	6.45	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	4	3.525	3.5	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	574	552	787	571	552	861
Stage 1	0	-	0	0	-	0	807	740	-	820	750	-
Stage 2	0	-	0	0	-	0	816	750	-	801	740	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	568	552	787	561	552	861
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	552	-	561	552	-
Stage 1	-	-	-	-	-	-	807	740	-	820	750	-
Stage 2	-	-	-	-	-	-	808	750	-	788	740	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.5	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	677	-	-	704
HCM Lane V/C Ratio	0.033	-	-	0.02
HCM Control Delay (s)	10.5	-	-	10.2
HCM Lane LOS	B	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	0	4	10	1	5	0	0	0	0
Future Vol, veh/h	4	0	0	0	4	10	1	5	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	44	44	44	44	44	44	44	44	44	44	44	44
Heavy Vehicles, %	0	100	0	0	50	0	0	20	0	0	0	0
Mvmt Flow	9	0	0	0	9	23	2	11	0	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	31	-	-	-	15	11	0	0	-
Stage 1	0	-	-	-	15	-	-	-	-
Stage 2	31	-	-	-	0	-	-	-	-
Critical Hdwy	7.1	-	-	-	7	6.2	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	6	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	-	-	4.45	3.3	2.2	-	-
Pot Cap-1 Maneuver	982	0	0	0	793	1076	-	-	0
Stage 1	-	0	0	0	796	-	-	-	0
Stage 2	991	0	0	0	-	-	-	-	0
Platoon blocked, %								-	
Mov Cap-1 Maneuver	953	-	-	-	793	1076	-	-	-
Mov Cap-2 Maneuver	953	-	-	-	793	-	-	-	-
Stage 1	-	-	-	-	796	-	-	-	-
Stage 2	959	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	8.8	8.8	
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1
Capacity (veh/h)	-	-	953	976
HCM Lane V/C Ratio	-	-	0.01	0.033
HCM Control Delay (s)	-	-	8.8	8.8
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	2	29	24	2
Future Vol, veh/h	0	0	2	29	24	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	50	0	0	10	16	0
Mvmt Flow	0	0	3	43	35	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	86	37	38	0	-	0
Stage 1	37	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.9	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.95	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	810	1041	1585	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	808	1041	1585	-	-	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1585	-	-	-	-
HCM Lane V/C Ratio	0.002	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Vol, veh/h	3	161	14	13	138	3	10	1	9	0	0	0
Future Vol, veh/h	3	161	14	13	138	3	10	1	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	92	92	86	86	92	92	92	86	92	86
Heavy Vehicles, %	0	7	2	2	10	0	2	2	2	0	2	0
Mvmt Flow	3	187	15	14	160	3	11	1	10	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	163	0	0	202	0	0	391	392	195
Stage 1	-	-	-	-	-	-	201	201	-
Stage 2	-	-	-	-	-	-	190	191	-
Critical Hdwy	4.1	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1428	-	-	1370	-	-	613	544	846
Stage 1	-	-	-	-	-	-	833	735	-
Stage 2	-	-	-	-	-	-	842	742	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1428	-	-	1370	-	-	605	0	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	605	0	-
Stage 1	-	-	-	-	-	-	822	0	-
Stage 2	-	-	-	-	-	-	842	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.1	0.6	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	699	1428	-	-	1370	-	-
HCM Lane V/C Ratio	0.031	0.002	-	-	0.01	-	-
HCM Control Delay (s)	10.3	7.5	0	-	7.7	0	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	4	0	9
Future Vol, veh/h	0	0	1	4	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1	4	0	10

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	3
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	1081
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	1081
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	8.4
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1081
HCM Lane V/C Ratio	-	-	0.009
HCM Control Delay (s)	-	-	8.4
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↕			↕	
Traffic Vol, veh/h	0	220	0	0	254	0	6	0	9	5	0	7
Future Vol, veh/h	0	220	0	0	254	0	6	0	9	5	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	1	0	0	3	0	0	0	0	20	0	0
Mvmt Flow	0	244	0	0	282	0	7	0	10	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	530	526	244	531	526	282
Stage 1	-	-	-	-	-	-	244	244	-	282	282	-
Stage 2	-	-	-	-	-	-	286	282	-	249	244	-
Critical Hdwy	-	-	-	-	-	-	7.1	6.5	6.2	7.3	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.3	5.5	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	4	3.3	3.68	4	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	463	460	800	432	460	762
Stage 1	0	-	0	0	-	0	764	708	-	687	681	-
Stage 2	0	-	0	0	-	0	726	681	-	717	708	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	458	460	800	427	460	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	458	460	-	427	460	-
Stage 1	-	-	-	-	-	-	764	708	-	687	681	-
Stage 2	-	-	-	-	-	-	719	681	-	708	708	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	616	-	-	574
HCM Lane V/C Ratio	0.027	-	-	0.023
HCM Control Delay (s)	11	-	-	11.4
HCM Lane LOS	B	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	0	0	1	5	1	4	0	0	0	0
Future Vol, veh/h	6	0	0	0	1	5	1	4	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	0	0	0	2	8	2	6	0	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	15	-	-	-	10	6	0	0	-
Stage 1	0	-	-	-	10	-	-	-	-
Stage 2	15	-	-	-	0	-	-	-	-
Critical Hdwy	7.1	-	-	-	6.5	6.2	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	5.5	-	-	-	-
Critical Hdwy Stg 2	6.1	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	-	-	4	3.3	2.2	-	-
Pot Cap-1 Maneuver	1006	0	0	0	889	1083	-	-	0
Stage 1	-	0	0	0	891	-	-	-	0
Stage 2	1010	0	0	0	-	-	-	-	0
Platoon blocked, %								-	
Mov Cap-1 Maneuver	997	-	-	-	889	1083	-	-	-
Mov Cap-2 Maneuver	997	-	-	-	889	-	-	-	-
Stage 1	-	-	-	-	891	-	-	-	-
Stage 2	1001	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	8.6	8.5	
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	WBLn1
Capacity (veh/h)	-	-	997	1045
HCM Lane V/C Ratio	-	-	0.01	0.009
HCM Control Delay (s)	-	-	8.6	8.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	2	38	43	6
Future Vol, veh/h	0	0	2	38	43	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	0	5	5	0
Mvmt Flow	0	0	3	48	54	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	112	58	62	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	890	1014	1554	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	888	1014	1554	-	-	-
Mov Cap-2 Maneuver	888	-	-	-	-	-
Stage 1	968	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1554	-	-	-	-
HCM Lane V/C Ratio	0.002	-	-	-	-
HCM Control Delay (s)	7.3	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Vol, veh/h	5	203	18	18	238	3	16	1	16	0	0	0
Future Vol, veh/h	5	203	18	18	238	3	16	1	16	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	92	92	95	95	92	92	92	95	92	95
Heavy Vehicles, %	0	1	2	2	3	0	2	2	2	0	2	0
Mvmt Flow	5	214	20	20	251	3	17	1	17	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	254	0	0	234	0	0	527	528	224
Stage 1	-	-	-	-	-	-	234	234	-
Stage 2	-	-	-	-	-	-	293	294	-
Critical Hdwy	4.1	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1323	-	-	1333	-	-	512	456	815
Stage 1	-	-	-	-	-	-	805	711	-
Stage 2	-	-	-	-	-	-	757	670	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1323	-	-	1333	-	-	501	0	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	501	0	-
Stage 1	-	-	-	-	-	-	788	0	-
Stage 2	-	-	-	-	-	-	757	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0.6	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	621	1323	-	-	1333	-	-
HCM Lane V/C Ratio	0.058	0.004	-	-	0.015	-	-
HCM Control Delay (s)	11.2	7.7	0	-	7.7	0	-
HCM Lane LOS	B	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	3	5	0	3
Future Vol, veh/h	0	0	3	5	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	3	5	0	3

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	6
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	1077
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	1077
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	8.4
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	1077
HCM Lane V/C Ratio	-	-	0.003
HCM Control Delay (s)	-	-	8.4
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0