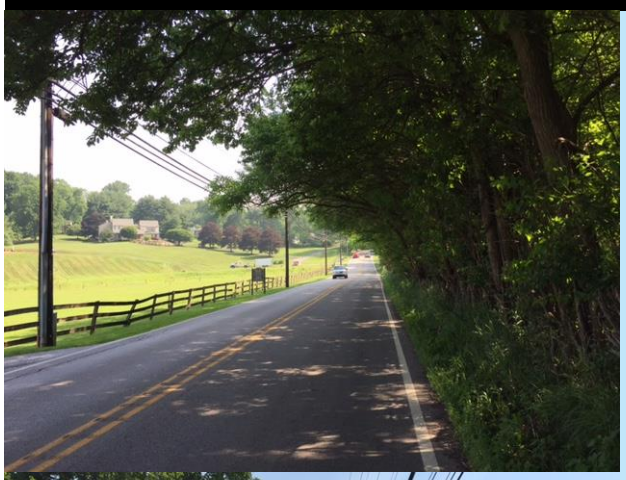
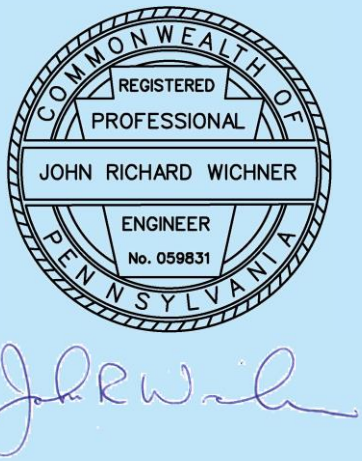
Transportation Impact Study
for
Tigue Property Residential Development

East Bradford Township, Chester County, PA





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Executive Summary

Toll Brothers proposes to develop a 91-unit residential development (64 Age-Targeted carriage homes and 27 single-family detached homes, including an existing home on the property) located on a parcel bound by Lenape Road (S.R. 0052) and Tigue Road in East Bradford Township, Chester County, PA. Access to the site is proposed to be provided via two (2) full-access driveways along Tigue Road, with the option of an additional one (1) full access driveway along Lenape Road (S.R. 0052). An existing home on the property is anticipated to remain.

The purpose of this study is to determine the impact of traffic on the adjacent roadways and intersections due to the proposed development. This study focuses on the existing (2015) conditions, as well as the projected (2018) future conditions and PennDOT design year (2023) conditions both without and with the development of the site at the proposed site access and the following study intersections:

- Lenape Road (S.R. 0052) and Tigue Road
- Tigue Road and Access 1
- Tigue Road and Access 2
- Lenape Road (S.R. 0052) and Access 3

The evaluation of traffic conditions associated with the proposed redevelopment reveals the following findings and conclusions.

- **Trip Generation** – Based on trip generation data compiled for Single Family - Detached Housing and Senior Adult Housing - Attached contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation, 9th Edition,* the proposed development will generate approximately 42 total "new" trips (inbound and outbound) during the weekday morning peak hour and approximately 49 total "new" trips (inbound and outbound) during the weekday afternoon peak hour.

- **Capacity/Level-of-Service Results for Off-Site Intersections** – The study intersections were evaluated to determine the operational characteristics under existing and future without- and with-development conditions.

- **Site Access Recommendations** – Access to the site will be provided via two (2) full-access driveways along Tigue Road, with the option of an additional one (1) full access driveway along Lenape Road (S.R. 0052).

- **Proposed Traffic Improvements –** Per the traffic evaluation, the following on-site and off-site traffic improvements are recommended as measures to help mitigate the proposed development impacts. Since some of these improvements are within the state's right-of-way, coordination with PennDOT will be required to implement these improvements:

Scenario 1

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

Access 3 (Lenape Road S.R. 0052)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway
- Remove vegetation along the site frontage of Lenape Road (S.R. 0052), and perform a detailed sight distance analysis during full engineering of the access driveway

Scenario 2

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

The traffic analyses contained herein reveal that safe and efficient access to and from the proposed development can be provided, and furthermore, site-generated traffic can be accommodated at the access intersection with the construction of the recommended improvements. Matrix tables summarizing the results of the level-of-service and queuing analyses for each of the study area intersections are contained in **Appendix A**.

Introduction

Toll Brothers proposes to develop a 91-unit residential development (64 Age-Targeted carriage homes and 27 single-family detached homes, including an existing home on the property) located on a parcel bound by Lenape Road (S.R. 0052) and Tigue Road in East Bradford Township, Chester County, PA (**Figure 1**). Access to the site is proposed to be provided via two (2) full-access driveways along Tigue Road, with the option of an additional one (1) full access driveway along Lenape Road (S.R. 0052). A reduced version of the site plan is illustrated in **Figure 2**. An existing home on the property is anticipated to remain.

The purpose of this Transportation Impact Study is to present an evaluation of the incremental traffic impacts of the proposed development within the study area in East Bradford Township, as well as to provide recommendations regarding the proposed site access design in order to provide safe and efficient access to the site. The scope of this Transportation Impact Study is based on PennDOT guidelines entitled, *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits*, dated January 28, 2009, revised October 21, 2013 (SOL 494-13-13).

Manual turning movement traffic counts were completed at one study intersection during the weekday morning peak period (7:00 AM to 9:00 AM) and the weekday afternoon peak period (4:00 PM to 6:00 PM). In order to assess the existing traffic conditions, these existing traffic volumes were subjected to detailed capacity/level-of-service and queuing analysis, in accordance with accepted methodologies, for the highest peak hour during each peak period, which serves as the basis for this evaluation.

Next, future traffic volumes without the proposed development were projected utilizing an annual traffic growth rate to account for regional traffic growth, as well as known development projects in the area (if applicable). The future traffic volumes were then projected to the future build-out years (2018) and PennDOT design year (2023) at the study area intersections and site access driveway. The future traffic volumes without the proposed development were then subjected to detailed capacity/level-of-service and queuing analysis.

Finally, the traffic generated by the proposed development was established based on accepted methodologies, and assigned to the roadway network and site access, as necessary. The site-generated traffic volumes were then added to future without-development traffic volumes, and subjected to detailed capacity/level-of-service and queuing analysis to assess the future traffic conditions with the development.

Existing Transportation Setting & Conditions

The proposed development will be located on a parcel bound by Lenape Road (S.R. 0052) and Tigue Road in East Bradford Township, Chester County, PA. The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The characteristics of the study roadways surrounding the parcel are described below in **Table 1**.

Table 1 - Existing Roadway Characteristics

Roadway	Average Daily Traffic Volumes (vehicles per day)	Roadway Classification		Travel Lanes (per direction)	Speed Limit (mph)	Roadway Width (ft)
		Smart Transportation (1)	PennDOT/Township (2)			
Lenape Road (S.R. 0052)	9,577 (3)	Community Arterial	Urban, Minor Arterial	1	45	22-24
Tigue Road	N/A	Local	N/A	1	25	16-20

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook*.
(2) Based on the roadway classifications provided on PennDOT's internet Traffic Monitoring System (iTMS) website.
(3) Based on average daily traffic volume provided on PennDOT's internet Traffic Monitoring System (iTMS) website.

The following key intersections in the vicinity of the site comprise the study area:

- Lenape Road (S.R. 0052) and Tigue Road
- Tigue Road and Access 1
- Tigue Road and Access 2
- Lenape Road (S.R. 0052) and Access 3

The existing characteristics of the study intersections, including field sketches and photographs, are summarized in **Appendix B**.

Land Use Context

The proposed development is to be located on a parcel bound by Lenape Road (S.R. 0052) and Tigue Road. This area is within the Residential (R-2 and R-3) Zone of the Township where housing developments are permitted.

Transit Services

Transit services are not currently provided in the study area.

Pedestrian Facilities

Sidewalk is not currently provided along the site frontage along Lenape Road (S.R. 0052) and Tigue Road.

Traffic Count Data

Daily traffic counts were obtained from PennDOT's Internet Traffic Monitoring System (iTMS) website for Lenape Road (S.R. 0052) in the vicinity of the site to determine vehicular traffic volumes. The PennDOT iTMS traffic count data is provided in **Appendix C**.

Manual turning movement traffic counts were conducted at the one study intersection in September 2015 during the weekday morning peak period (7:00 AM to 9:00 AM) and the weekday afternoon peak period (4:00 PM to 6:00 PM). The results of these traffic counts are tabulated by 15-minute intervals in **Appendix D**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis. The resultant 2015 existing weekday morning and weekday afternoon peak hours that are the basis of this analysis are depicted in **Figure 3A.**

Capacity/Level-of-Service Analysis

The peak hour traffic volumes were analyzed to determine the existing operating conditions and future operating conditions, both without and with development of the site in accordance with the standard techniques contained in the current *Highway Capacity Manual (2010)*. These standard capacity/level-of-service analysis techniques, which calculate total control delay, are more thoroughly described in **Appendix E** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type. The results of the capacity/level-of-service analyses are illustrated in **Figure 3B** for the existing peak hour traffic conditions, and the detailed capacity/level-of-service analysis worksheets are contained in **Appendix F**. Specific details regarding the analysis results and traffic operations are provided later in this report.

Site Characteristics

This section presents the details regarding the proposed development, including the incremental increase in traffic volumes generated by the development during the peak hours and the distribution of this site traffic to the study area roadways, as well as the proposed site access configuration, traffic control, and sight distance requirements.

Trip Generation

Traffic volumes generated by the proposed development were prepared based on trip generation data compiled from numerous traffic studies in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation, 9th Edition*. Specifically the rates for Land Use Code 210: Single-Family Detached Housing and Land Use Code 252: Senior Adult Housing - Attached were utilized.

Table 2 presents the anticipated vehicular trip generation resulting from the proposed 27 unit single-family detached housing (including existing house) and 64 unit senior adult attached housing. The proposed development will generate approximately 42 total "new" trips (inbound and outbound) during the weekday morning peak hour and approximately 49 "new" total trips (inbound and outbound) during the weekday afternoon peak hour.

Table 2 – Proposed Vehicular Trip Generation(1)

Description	Size	Weekday Morning			Weekday Afternoon		
		In	Out	Total	In	Out	Total
Single Family Detached (2)	27 units	7	22	29	20	12	32
Senior Adult Attached (3)(4)	64 units	4	9	13	9	8	17
Total "New" Trips		**11**	**31**	**42**	**29**	**20**	**49**

(1) Based on ITE's *Trip Generation Ninth Edition*
(2) Based on rates for ITE Land Use Code 210 – Single-Family Detached Housing
(3) Based on rates for ITE Land Use Code 252 - Senior Adult Housing – Attached
(4) It should be noted that if these units were classified as market-rate (ITE Land Use Code 230 – Residential Condominium/Townhouse), the trip generation for these units would be 28 trips during the weekday morning peak hour and 33 trips during the weekday afternoon peak hour.

Trip Distribution and Assignment

Site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site access. The distribution percentages for the anticipated directions of approach and departure are illustrated in **Figure 4A and 4C for each of the Scenarios**, while the application of the percentages in Figure 4A and 4C to the trip generation contained above in Table 2 for the weekday morning and weekday afternoon peak hours for the proposed site are illustrated in **Figure 4B and 4D for each of the scenarios**.

Site Access Configuration and Traffic Control

The proposed recommendations for the access design, including auxiliary turn lanes, traffic control and geometric design, were based on criteria and guidelines accepted by PennDOT.

Additionally, the geometric design of the proposed site access driveways were preliminarily evaluated based on guidelines contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveway and Local Roads,* as well as local PennDOT District polices. Based on the results of this evaluation, the following access configurations and traffic controls are recommended for the proposed driveways and are subject to detailed engineering:

Scenario 1

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

Access 3 (Lenape Road S.R. 0052)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Scenario 2

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

Sight Distance

Sight distance field measurements and an evaluation were performed for the proposed access intersections. Generally, the prevailing travel speeds, posted speed limit, roadway grades and profiles, and the number of travel lanes play a role in determining if safe sight distances are available for egress and ingress at a driveway. The existing sight distances at the new driveways were measured and compared to PennDOT's requirements, which are contained in the PennDOT publication *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*. **Tables 3 through 5** summarize the available sight distance measurements, as well as the required sight distances.

Table 3 - Sight Distance Evaluation
Tigue Road and Access 1

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)(1)		Available Sight Distance (feet)
				Desirable	Minimum	
Exiting	Looking Left	25	+4%	250	142	500+
	Looking Right	25	+5%	195	140	260
Left turn Entering	Looking Ahead	25	+4%	190	142	500+
	From the Rear	25	+5%	190	140	500+

(1) Based on posted speed limit of 25 mph along Tigue Road

As shown in Table 3, the existing available sight distance measurements exceed minimum PennDOT requirements based upon the posted speed limit.

Table 4 - Sight Distance Evaluation
Tigue Road and Access 2

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)(1)		Available Sight Distance (feet)
				Desirable	Minimum	
Exiting	Looking Left	25	-4%	250	153	300+
	Looking Right	25	+4%	195	142	300+
Left turn Entering	Looking Ahead	25	-4%	190	153	300+
	From the Rear	25	+4%	190	142	300+

(1) Based on posted speed limit of 25 mph along Tigue Road

As shown in Table 4, the existing available sight distance measurements exceed minimum PennDOT requirements based upon the posted speed limit.

Table 5 - Sight Distance Evaluation
Lenape Road (S.R. 0052) and Access 3

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)[1]		Available Sight Distance (feet)
				Desirable	Minimum	
Exiting	Looking Left	45	+4%	635	358	290
	Looking Right	45	+1%	570	376	700
Left turn Entering	Looking Ahead	45	+4%	445	358	258
	From the Rear	45	+1%	445	376	670

(1) Based on posted speed limit of 45 mph along Lenape Road

As shown in Table 5, the existing available sight distance measurements do not exceed minimum PennDOT requirements based upon the posted speed limit for vehicles exiting looking left and entering looking ahead. Vegetation removal is recommended along the site frontage of Lenape Road (S.R. 0052), and a detailed sight distance analysis is recommended during full engineering of the access driveway, in order to obtain minimum PennDOT sight distance requirements.

Future Build-Out Year (2018) Traffic Conditions

This section presents the future build-out year traffic conditions, both without and with the proposed development, which is anticipated to be completed by 2018. The future 2018 build-out year without-development traffic volumes were estimated by increasing the existing 2015 traffic volumes to account for regional growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the future 2018 build-out year with-development traffic volumes.

Regional and Local Growth

According to the traffic growth rates compiled by PennDOT's Bureau of Planning and Research *Growth Factors for August 2015 to July 2016,* the anticipated growth for urban, non-interstate, roadways in Chester County is 1.75 percent per year. To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 1.75 percent per year compounded for three years, or 5.34 percent total. This growth rate is consistent with the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2015 to July 2016* for similar roadways in Chester County. The growth rate table is provided in **Appendix G**.

The total background growth was then added to the existing 2015 traffic volumes. The resultant future 2018 build-out year peak hour traffic volumes are illustrated in **Figure 5A** for the weekday morning and weekday afternoon peak hours.

Future 2018 With-Development Traffic Volumes

The site generated traffic volumes, as shown in Figure 4B and 4D, were added to the future 2018 without-development traffic volumes (Figure 5A). The resultant future 2018 with-development peak hour traffic volumes are illustrated in **Figure 5B and 5C** for the weekday morning and weekday afternoon peak hours. Detailed spreadsheets summarizing the without-development regional and local growth along with the assignment of the trips associated with the redevelopment of the site for each intersection are provided in **Appendix H and I**.

The future 2018 peak hour traffic volumes, as illustrated in Figures 5A, 5B, and 5C, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 5D, 5E, and 5F**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices J, K, and L**. Specific details regarding the analysis results and traffic operations are provided later in this report.

Future Horizon Year (2023) Traffic Conditions

This section presents the future (5-year) build-out year traffic conditions, both without and with the proposed development, which is anticipated to be completed by 2023. The future 2023 build-out year without-development traffic volumes were estimated by increasing the existing 2015 traffic volumes to account for regional growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the future 2023 build-out year with-development traffic volumes.

Regional and Local Growth

According to the traffic growth rates compiled by PennDOT's Bureau of Planning and Research *Growth Factors for August 2015 to July 2016,* the anticipated growth for urban, non-interstate, roadways in Chester County is 1.75 percent per year. To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 1.75 percent per year compounded for eight years, or 14.89 percent total. This growth rate is consistent with the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2015 to July 2016* for similar roadways in Chester County. The growth rate table is provided in **Appendix G**.

The total background growth was then added to the existing 2015 traffic volumes. The resultant future 2023 build-out year peak hour traffic volumes are illustrated in **Figure 6A** for the weekday morning and weekday afternoon peak hours.

Future 2023 With-Development Traffic Volumes

The site generated traffic volumes, as shown in Figure 4B and 4D, were added to the future 2023 without-development traffic volumes (Figure 6A). The resultant future 2023 with-development peak hour traffic volumes are illustrated in **Figure 6B and 6C** for the weekday morning and weekday afternoon peak hours. Detailed spreadsheets summarizing the without-development regional and local growth along with the assignment of the trips associated with the redevelopment of the site for each intersection are provided in **Appendix M and N**.

The future 2023 peak hour traffic volumes, as illustrated in Figures 6A, 6B, and 6C, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 6D, 6E, and 6F**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices O, P, and Q**. Specific details regarding the analysis results and traffic operations are provided later in this report.

Capacity/Level-of-Service and Queuing Analyses

This section presents a detailed summary of the traffic analysis results for the existing and future traffic conditions, both without and with the proposed development of the site, for the two peak hours at each of the site access driveways and the study area intersections.

According to PennDOT's *Policies and Procedures for Transportation Impact Studies related to Highway Occupancy Permit Plans,* no mitigation requirements are required for an overall level-of-service drop from without- to with-development conditions (i.e., LOS D to LOS E), if the increase in overall delay per vehicle is less than 10 seconds (i.e., 48.2 to 56.5 seconds per vehicle); however, PennDOT reserves the right to look at individual movements where level-of-service drops occur.

Scenario 1

Lenape Road (S.R. 0052) and Tigue Road

Under existing, future (2018), and future (2023) without-development conditions, this stop-controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours. With development of the site, the same overall levels-of-service will exist during the weekday morning and weekday afternoon peak hours.

A review of the peak hour volumes indicates that this intersection would satisfy PennDOT traffic signal warrants at this location during one peak hour only during 2015 existing conditions, 2023 future no-build conditions, and 2023 future build conditions. Traffic signal warrants are provided in **Appendix R.** No mitigation measures are recommended.

Tigue Road and Access 1

Under future (2018) and Future (2023) with-development conditions, this stop controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours.

Tigue Road and Access 2

Under future (2018) and Future (2023) with-development conditions, this stop controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours.

Lenape Road (S.R. 0052) and Access 3

Under future (2018) and Future (2023) with-development conditions, this stop controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours.

Scenario 2

Lenape Road (S.R. 0052) and Tigue Road

Under existing, future (2018), and future (2023) without-development conditions, this stop-controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours. With development of the site, the same overall levels-of-service will exist during the weekday morning and weekday afternoon peak hours.

A review of the peak hour volumes indicates that this intersection would satisfy PennDOT traffic signal warrants at this location during one peak hour only during 2015 existing conditions, 2023 future no-build conditions, and 2023 future build conditions. Traffic signal warrants are provided in **Appendix R.** No mitigation measures are recommended.

Tigue Road and Access 1

Under future (2018) and Future (2023) with-development conditions, this stop controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours.

Tigue Road and Access 2

Under future (2018) and Future (2023) with-development conditions, this stop controlled intersection operates at acceptable conditions (LOS A) overall during the weekday morning and weekday afternoon peak hours.

Conclusion

Based on the results of the capacity/level-of-service and queuing analyses discussed above, safe and efficient access to and from the proposed redevelopment can be provided, and furthermore, site-generated traffic can be accommodated at the study area intersections with implementation of the recommended roadway improvements.

Mitigation Identification and Recommendations

The following site access design is proposed to serve the development:

Scenario 1

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

Access 3 (Lenape Road S.R. 0052)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway
- Remove vegetation along the site frontage of Lenape Road (S.R. 0052), and perform a detailed sight distance analysis during full engineering of the access driveway

Scenario 2

Access 1 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane for the site driveway

Access 2 (Tigue Road)

- Provide cartway width of 24 feet with one ingress lane and one egress lane for the driveway
- Provide appropriate corner radius length, which will be verified based on the largest vehicle anticipated to utilize the driveway
- Provide stop-control on the egress lane of the site driveway

FIGURE 1

Site Location Map

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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FIGURE 2

Site Plan (prepared by ESE)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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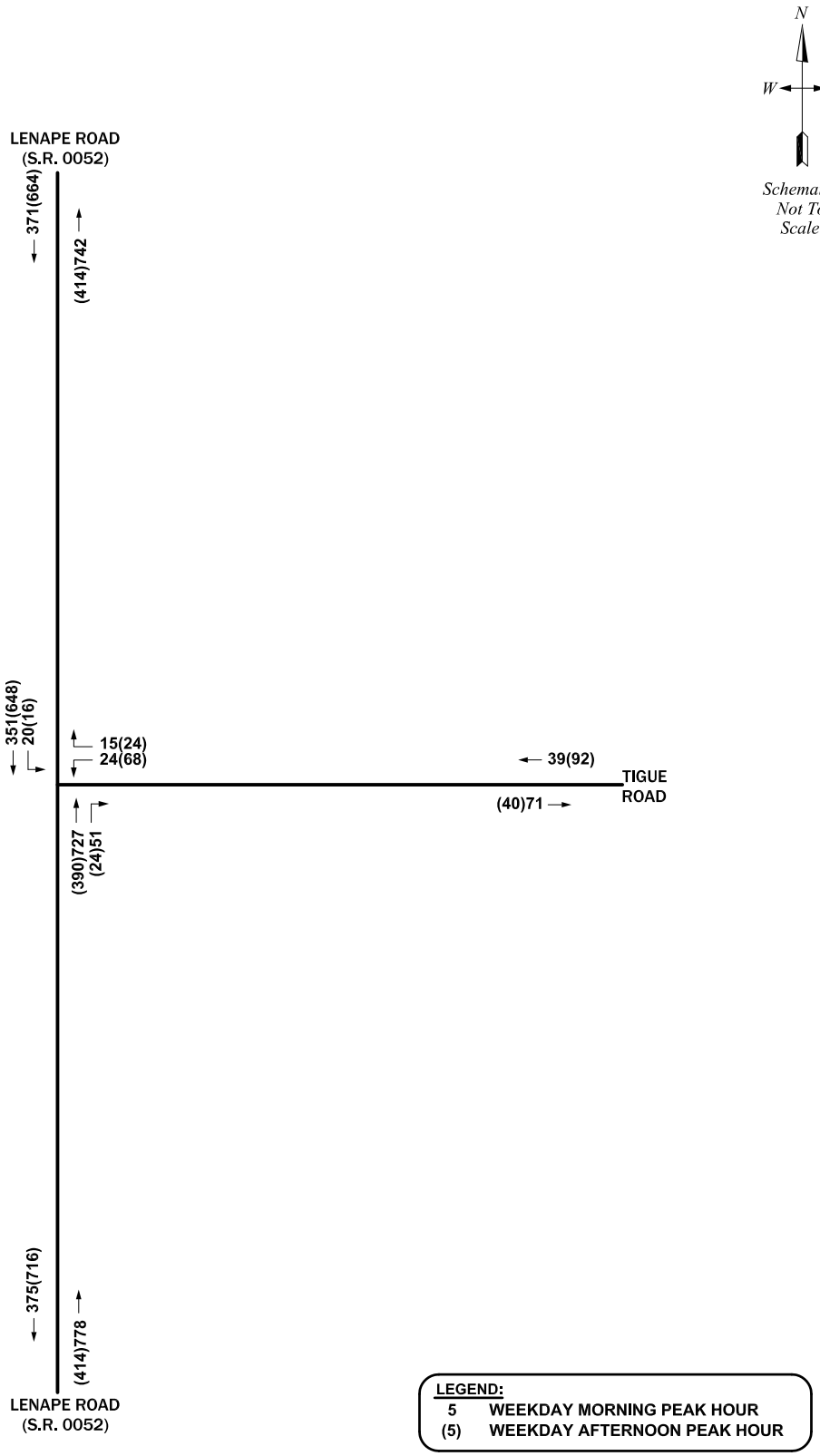

FIGURE 3A

2015 Existing Peak Hour Traffic Volumes

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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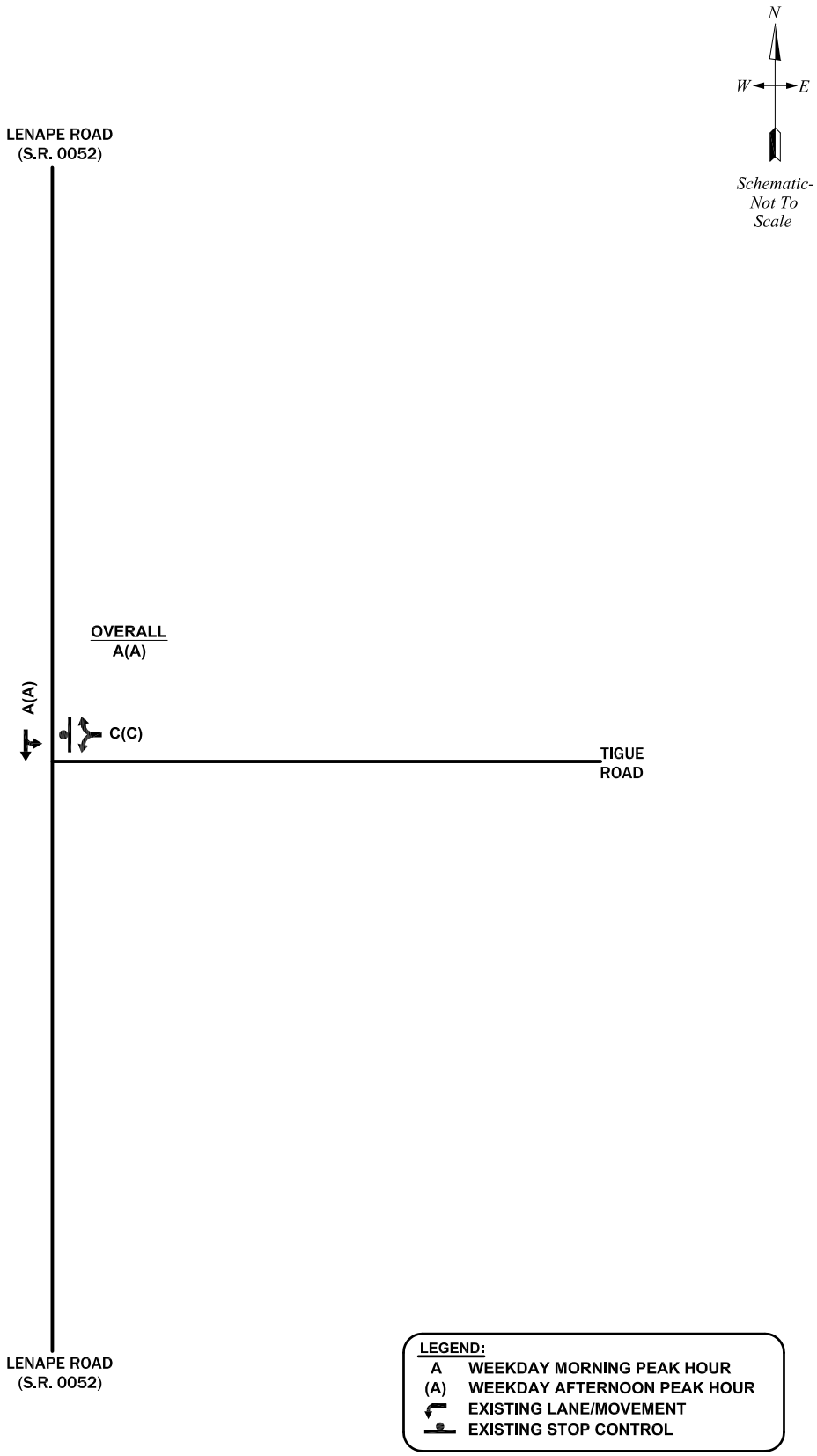

FIGURE 3B

2015 Existing Levels of Service

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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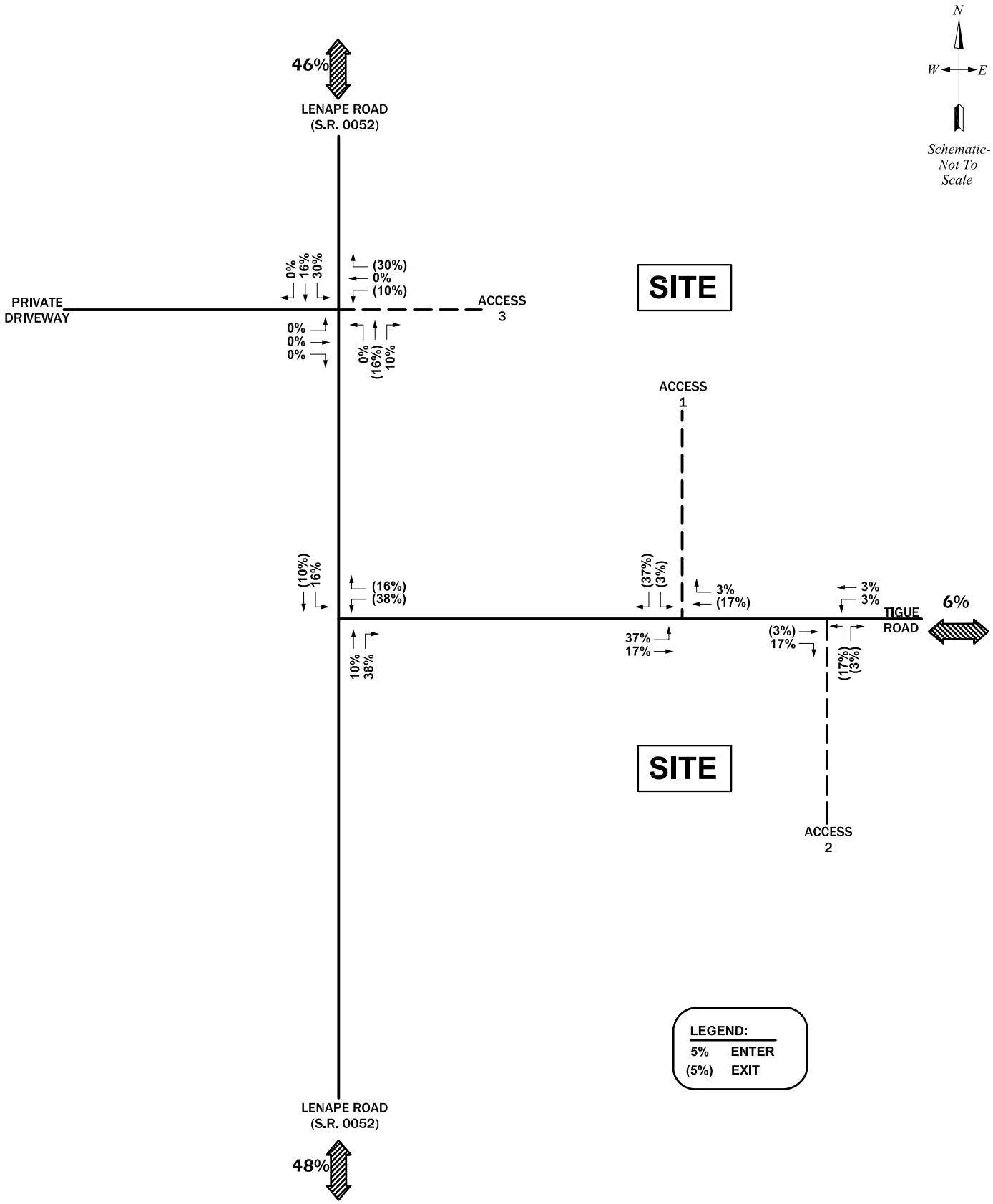

FIGURE 4A

"New" Trip Distribution (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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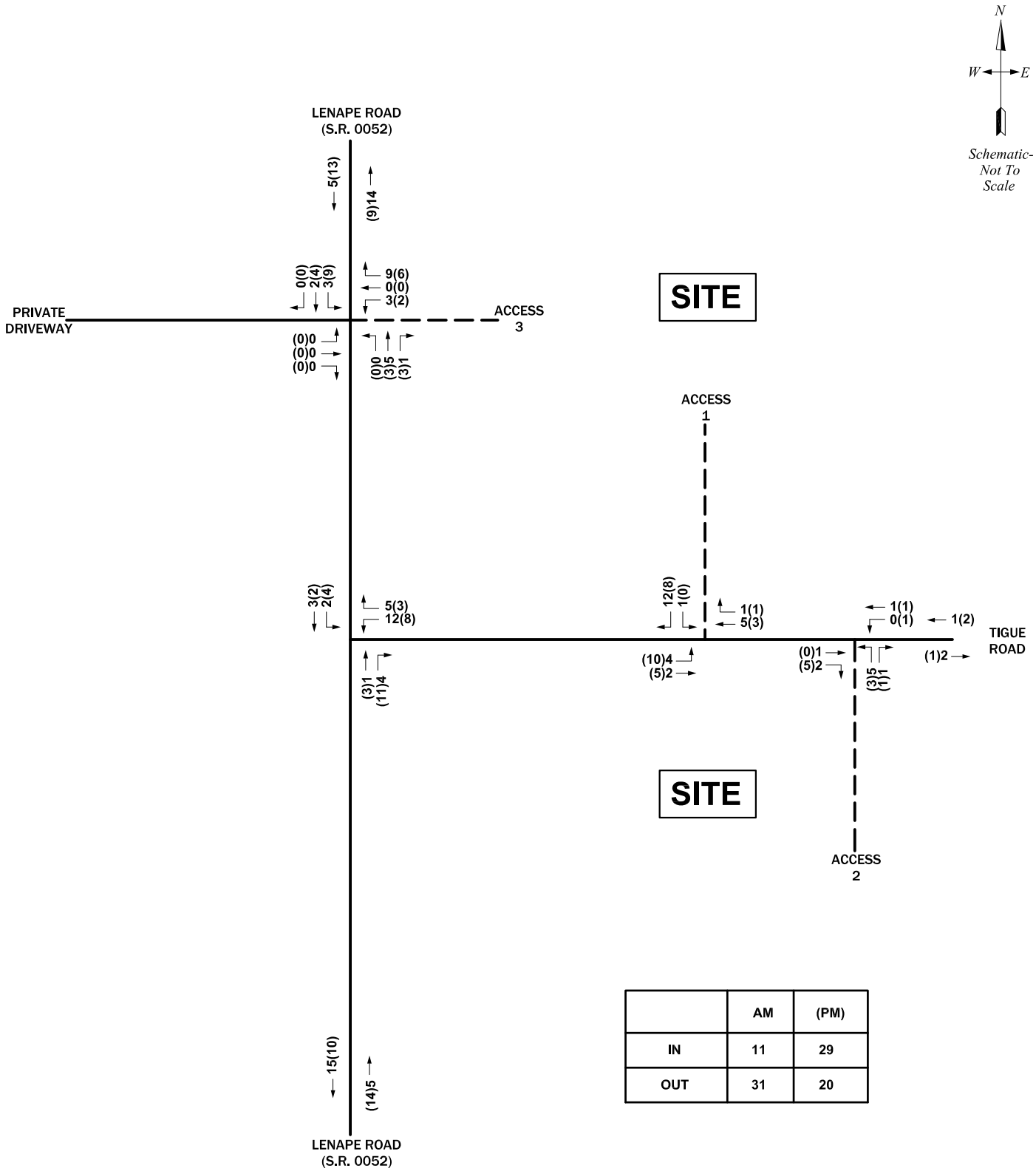


	AM	(PM)
IN	11	29
OUT	31	20

FIGURE 4B

"New" Trip Assignment (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu

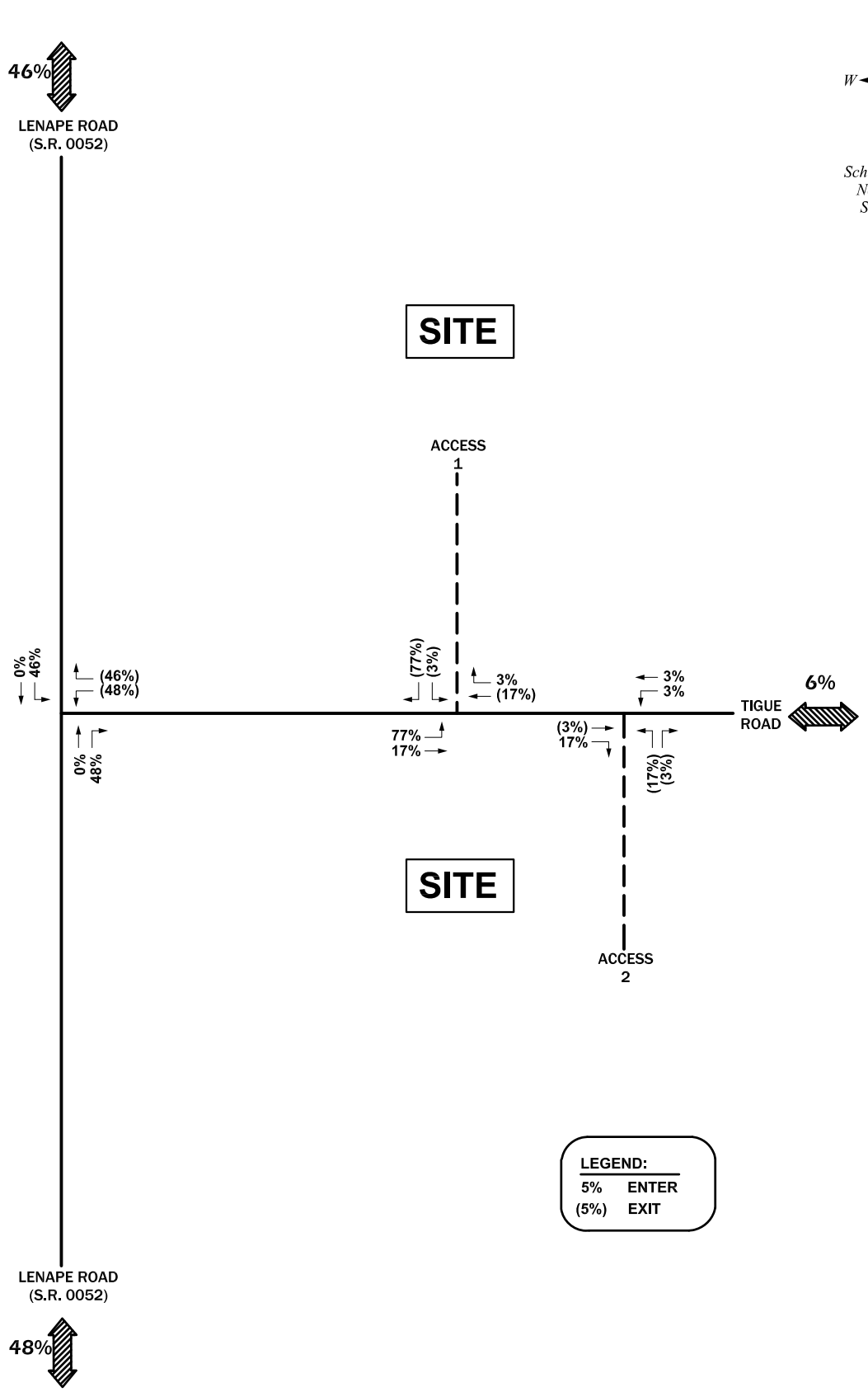


FIGURE 4C

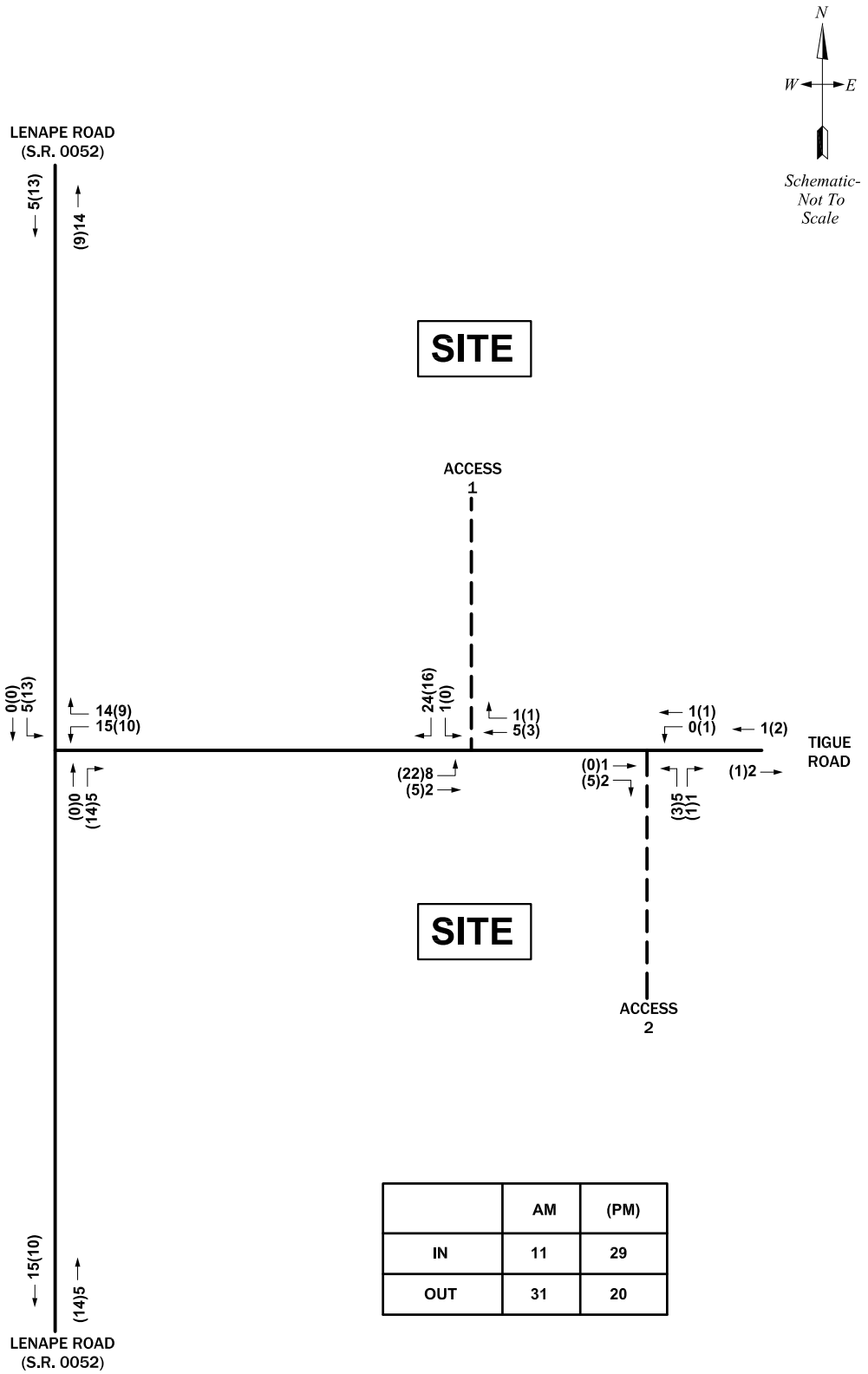
"New" Trip Distribution (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu



	AM	(PM)
IN	11	29
OUT	31	20

Figure 4D

"New" Trip Assignment (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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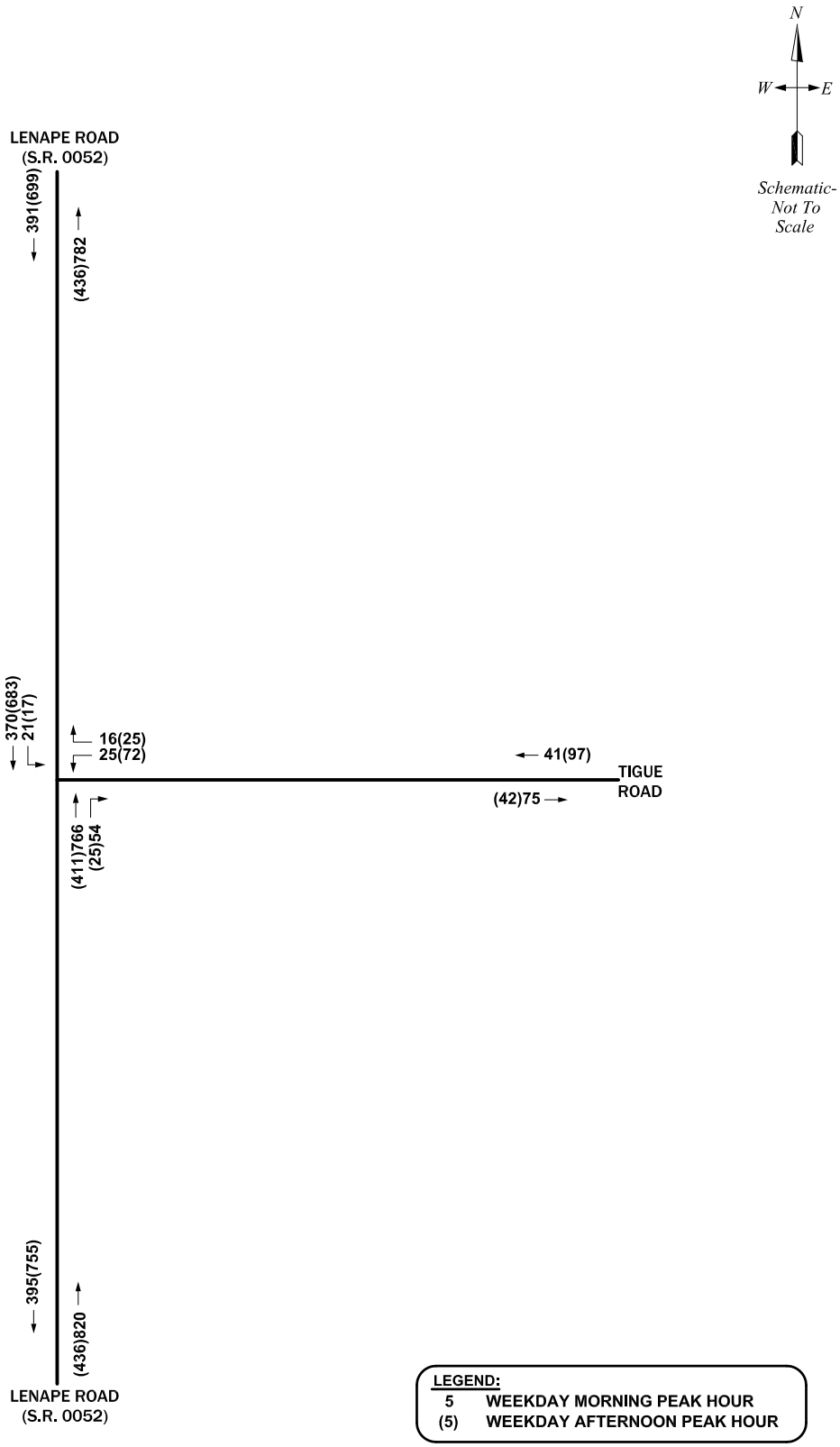

FIGURE 5A

2018 Future Peak Hour Traffic Volumes without Development

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu

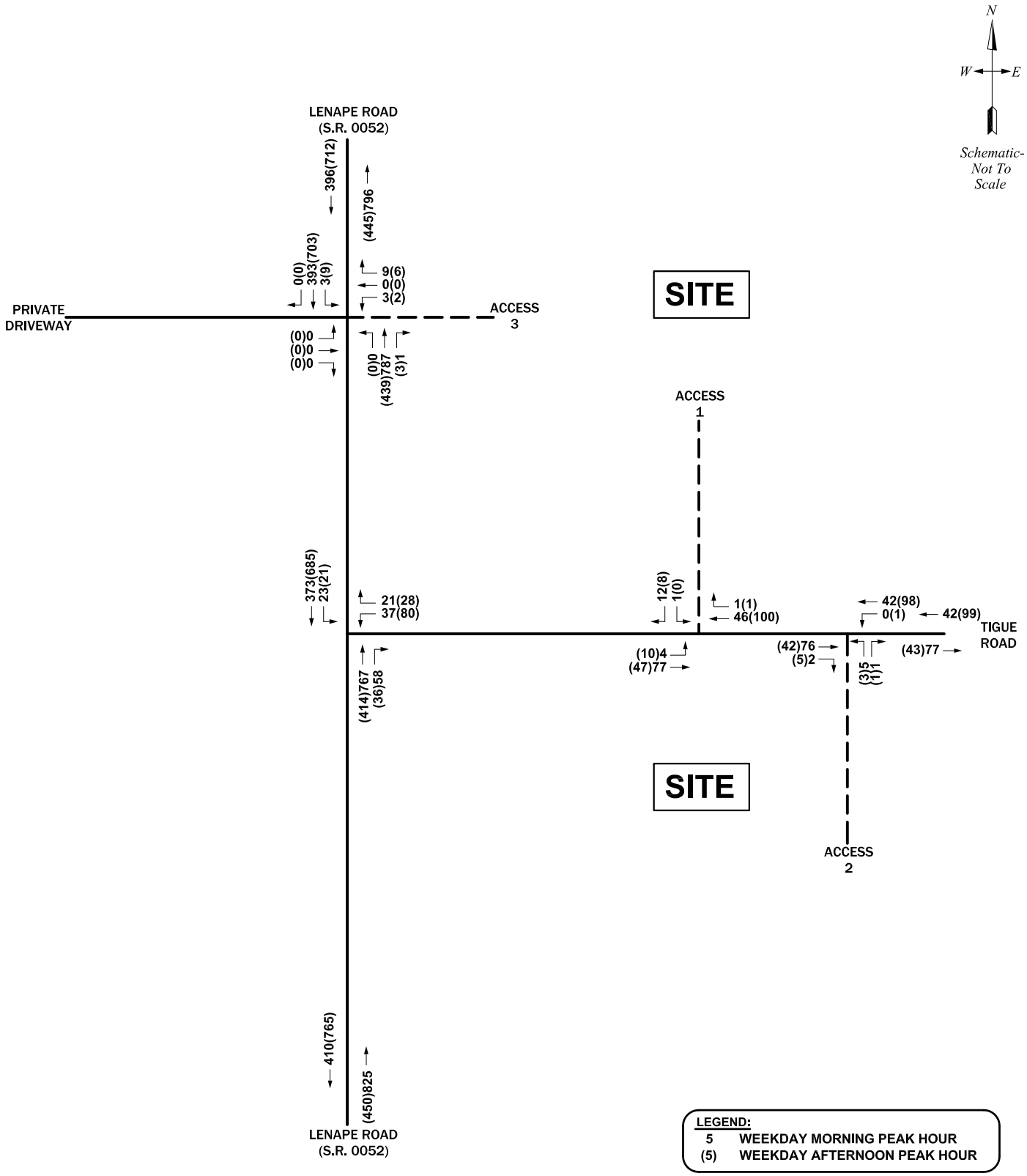

FIGURE 5B

2018 Future Peak Hour Traffic Volumes with Development (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu

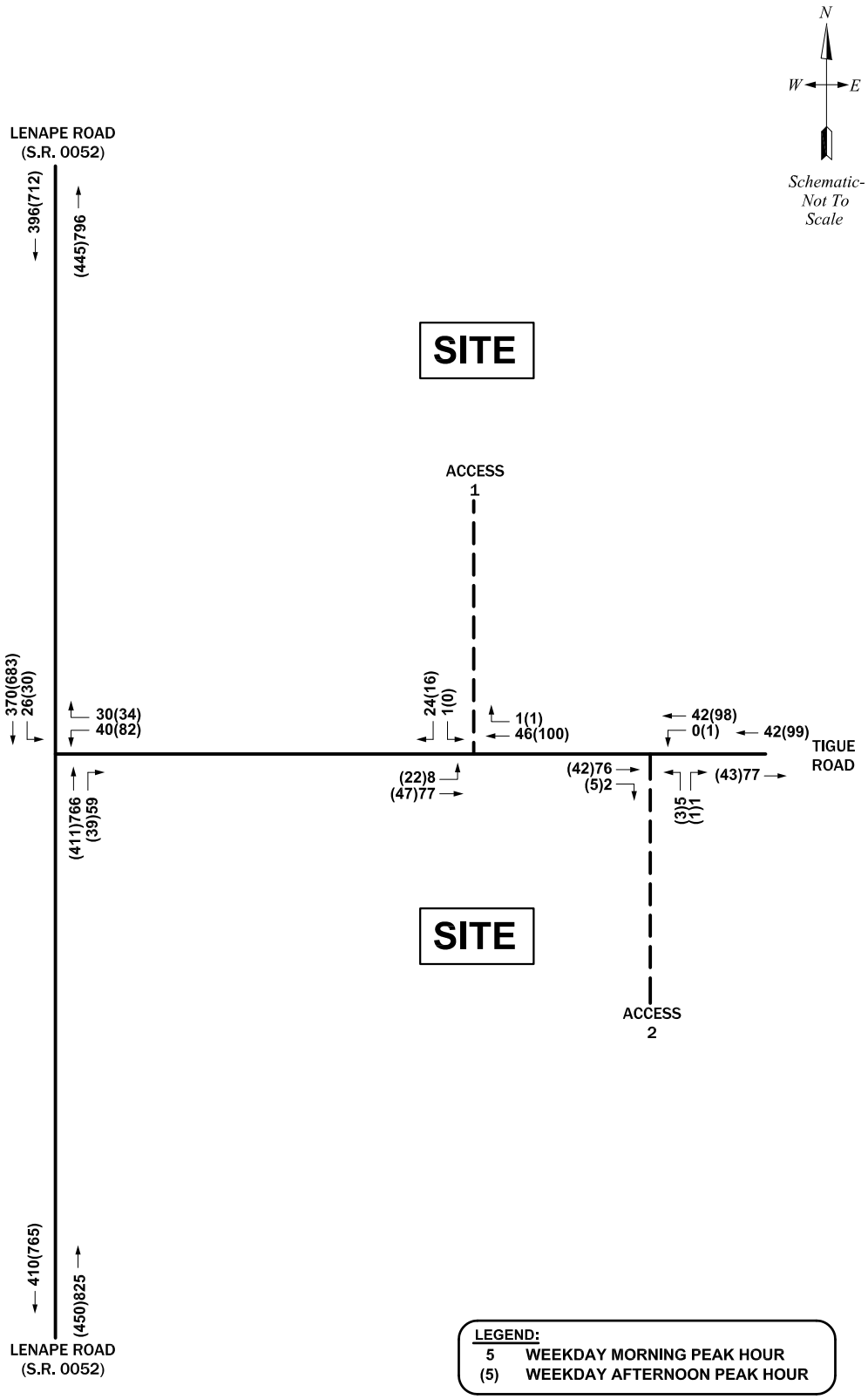

FIGURE 5C

2018 Future Peak Hour Traffic Volumes with Development (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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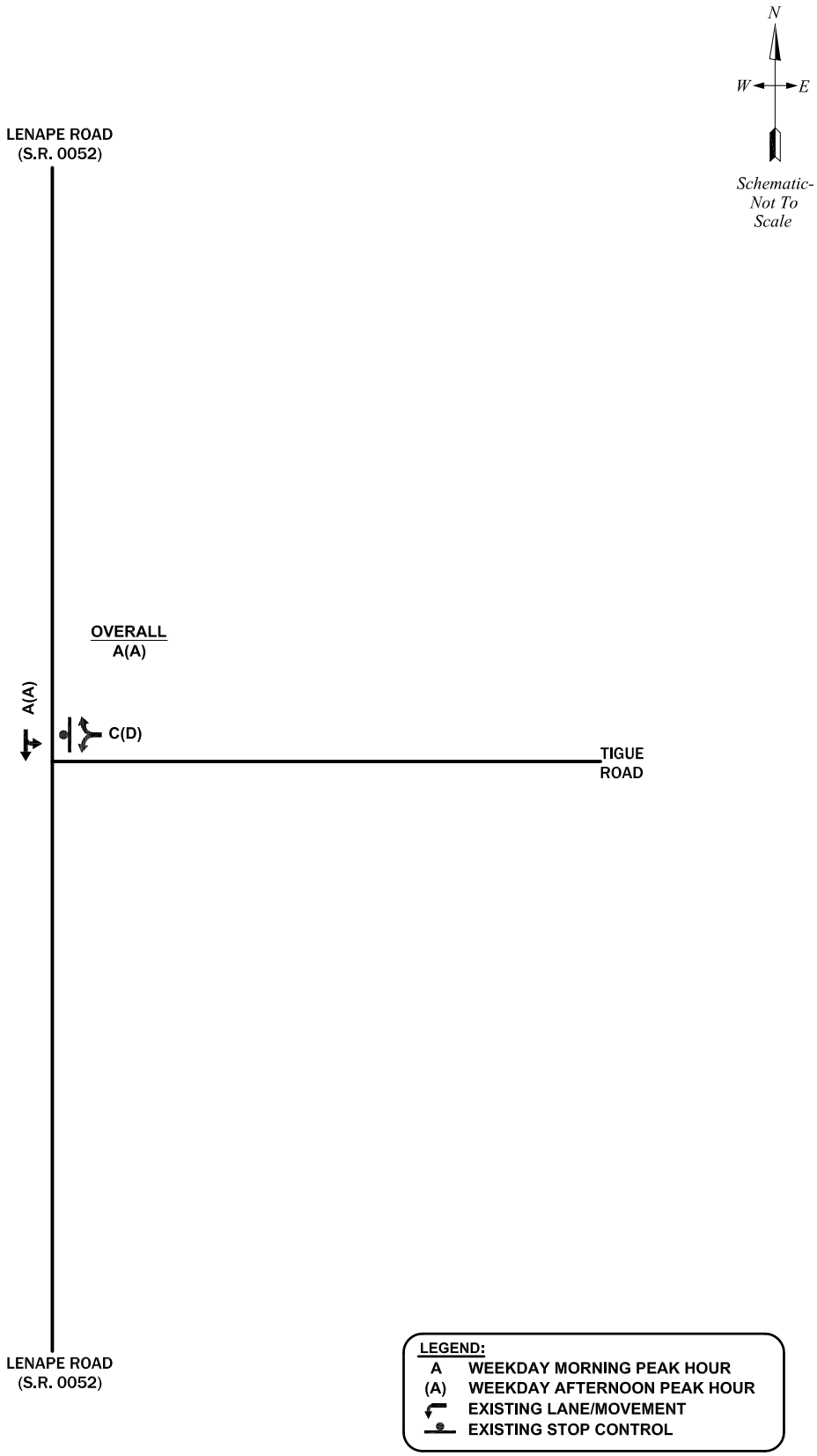

FIGURE 5D

2018 Future Levels of Service without Development

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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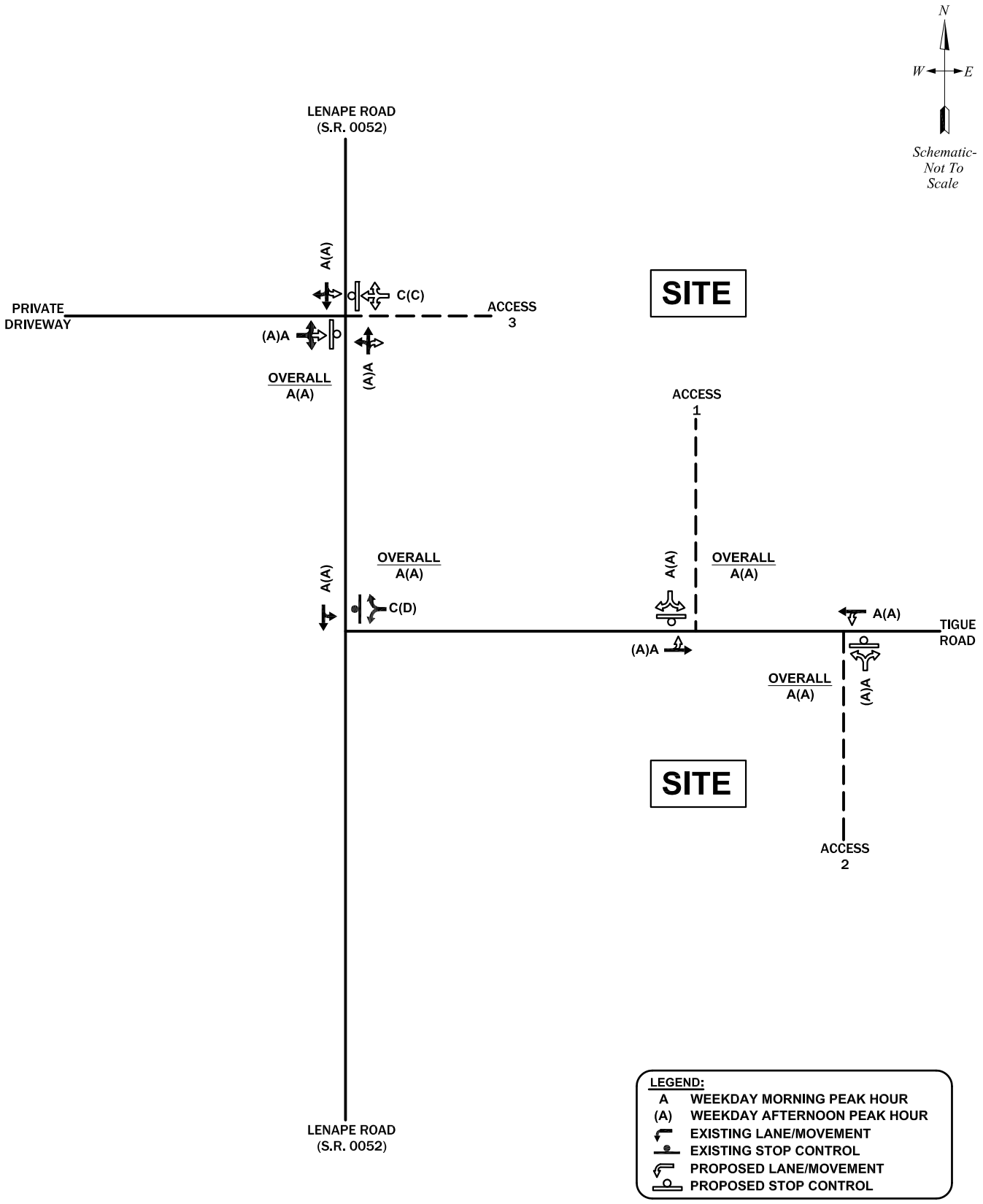

FIGURE 5E

2018 Future Levels of Service with Development (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu

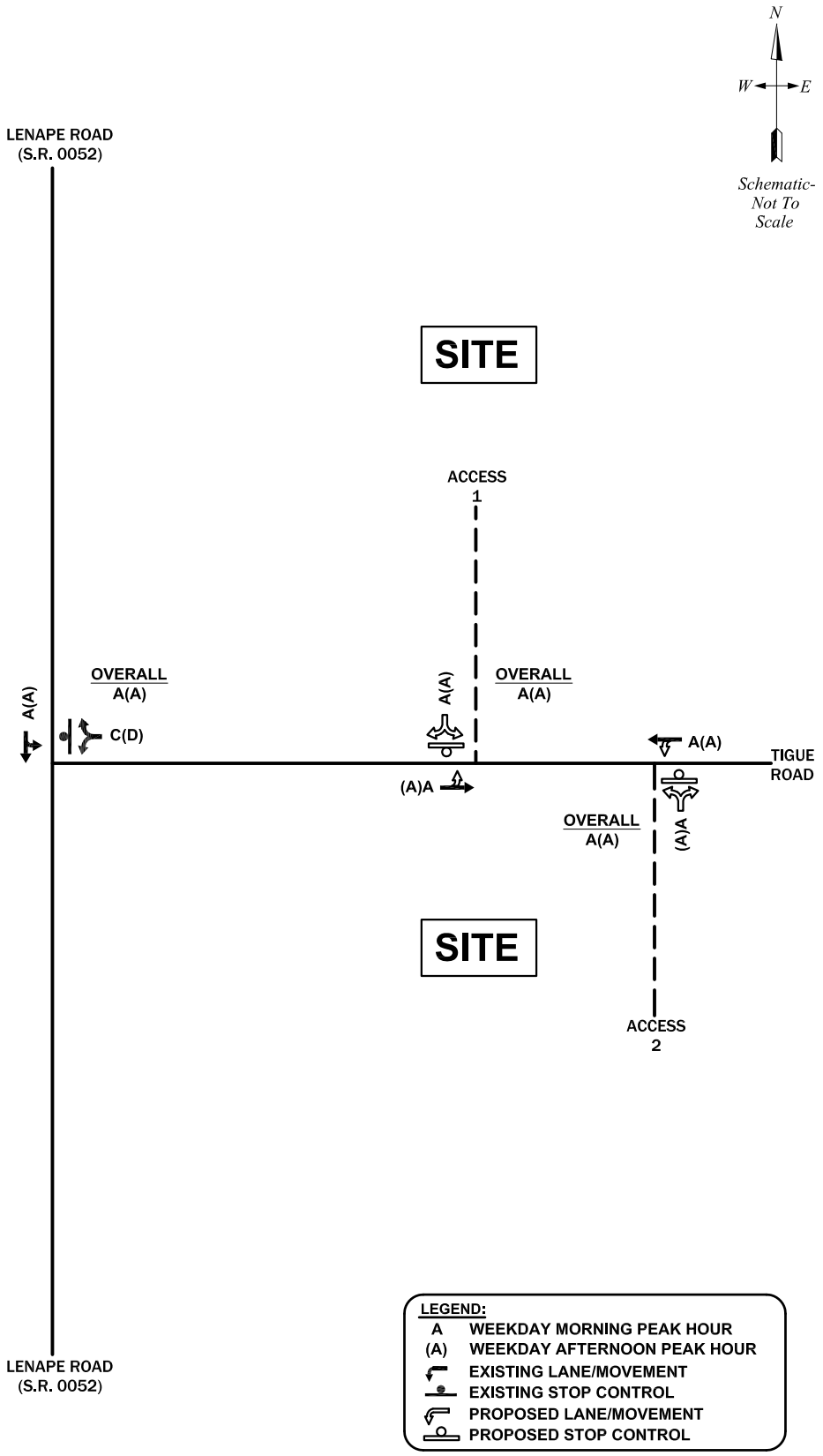

FIGURE 5F

2018 Future Levels of Service with Development (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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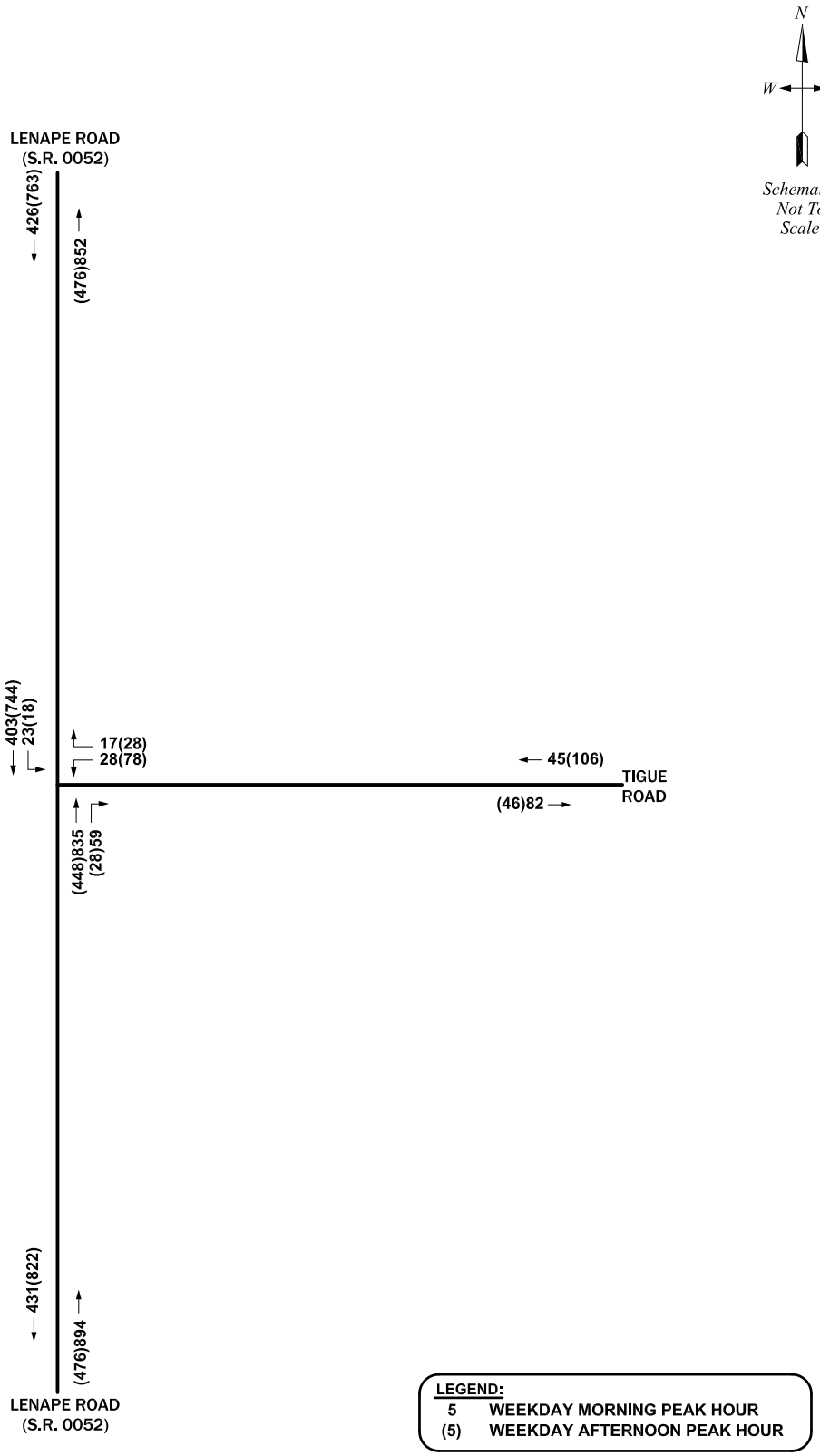

FIGURE 6A

2023 Future Peak Hour Traffic Volumes without Development

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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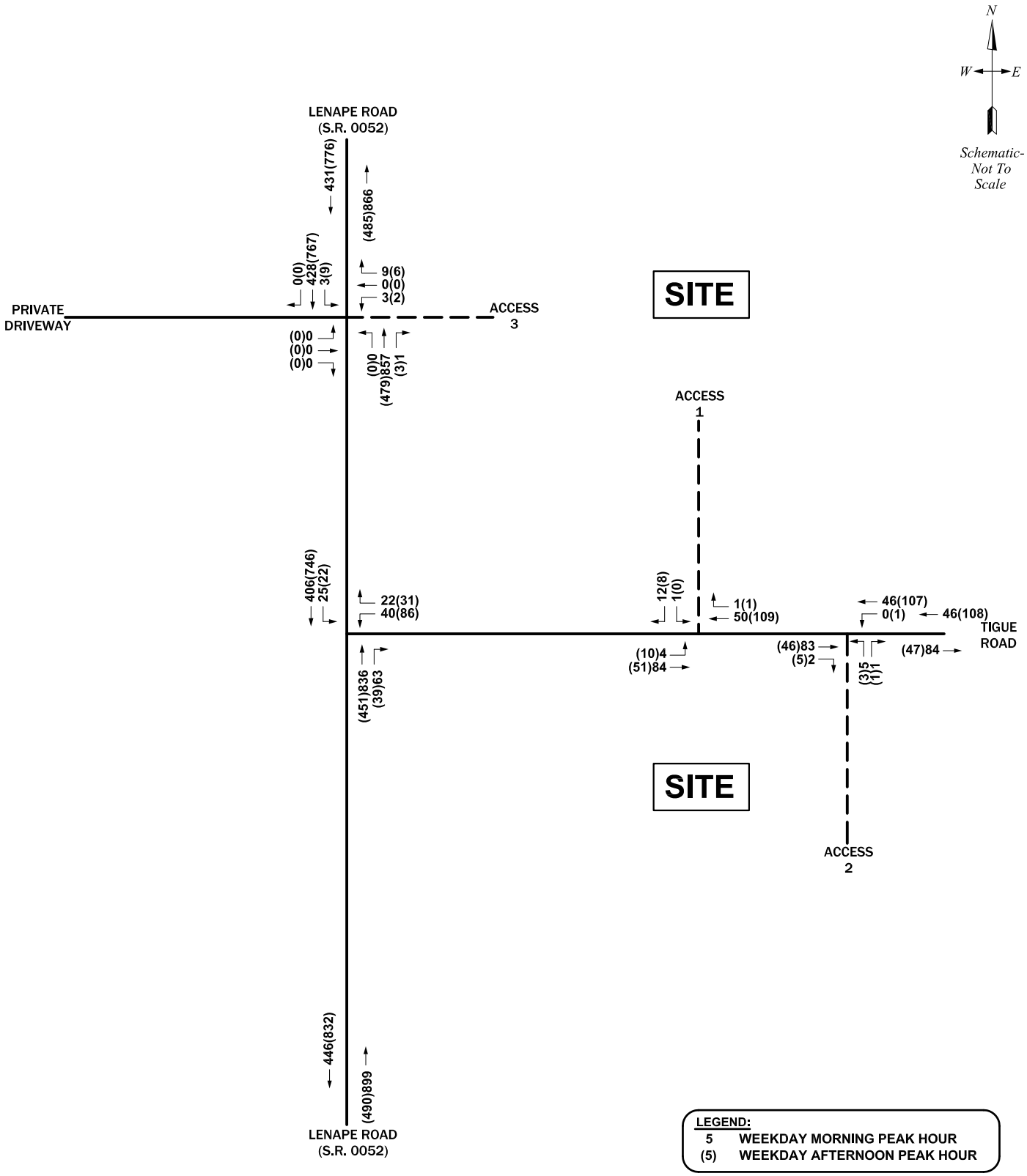

FIGURE 6B

2023 Future Peak Hour Traffic Volumes with Development (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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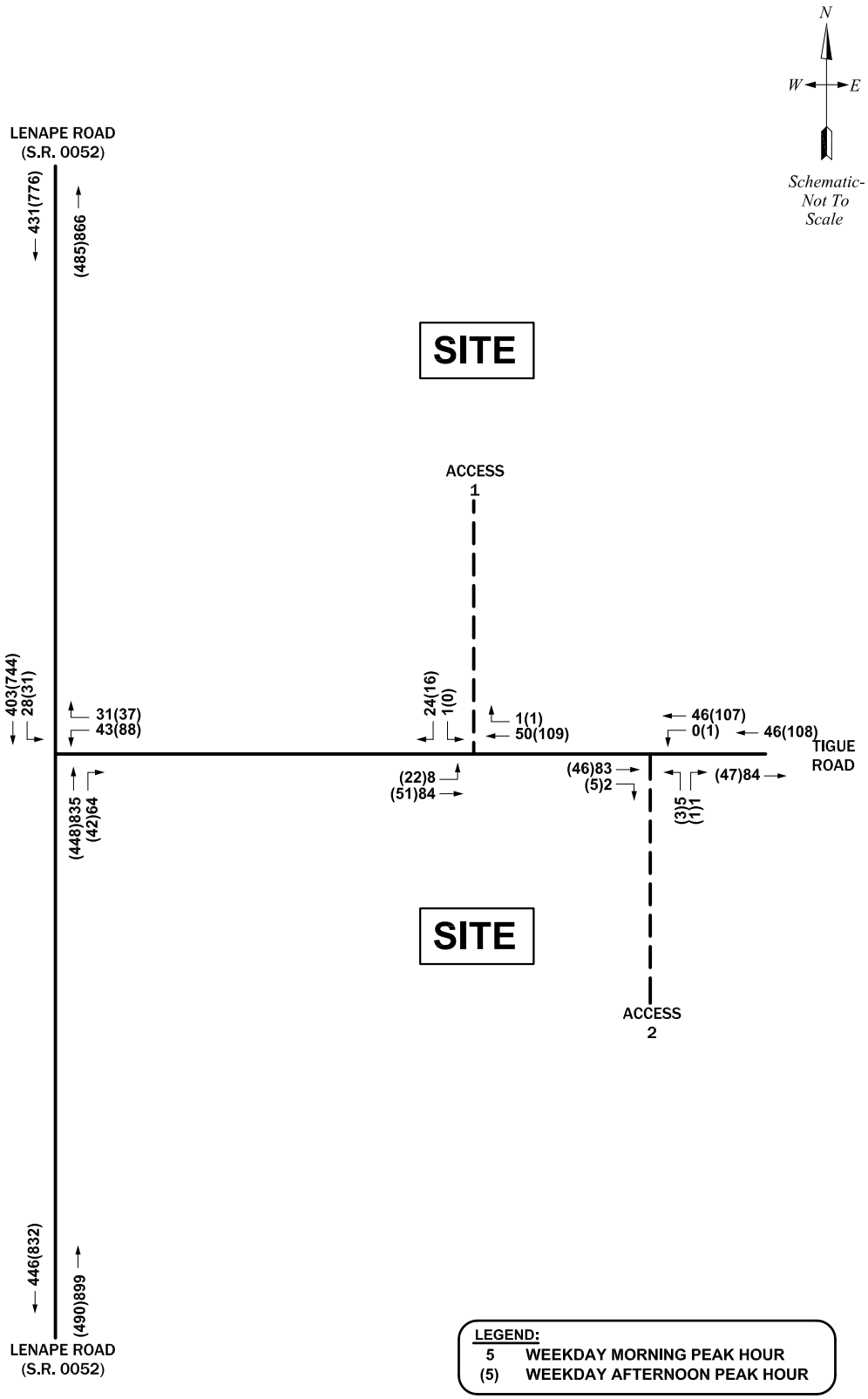

FIGURE 6C

2023 Future Peak Hour Traffic Volumes with Development (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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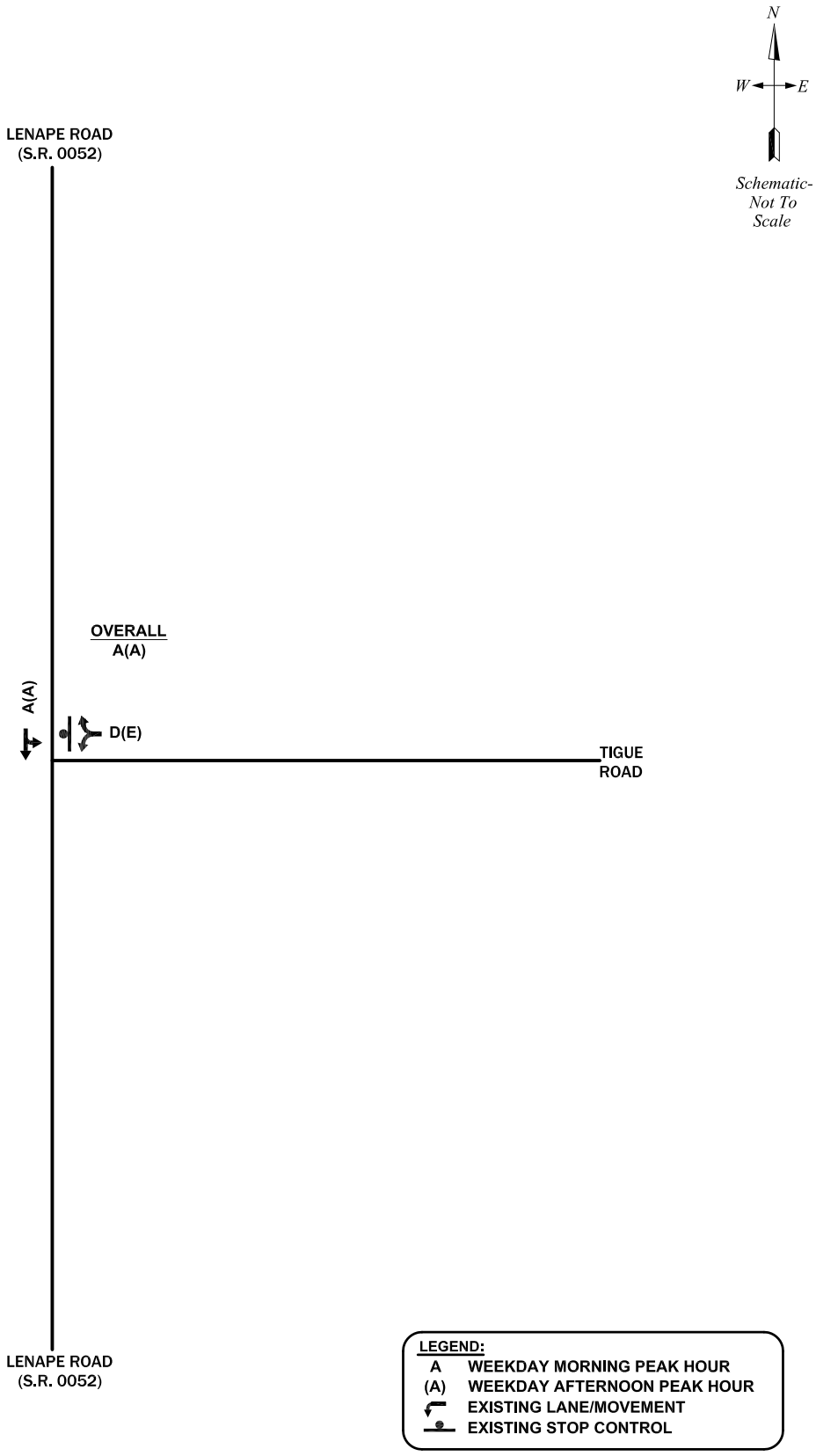

FIGURE 6D

2023 Future Levels of Service without Development

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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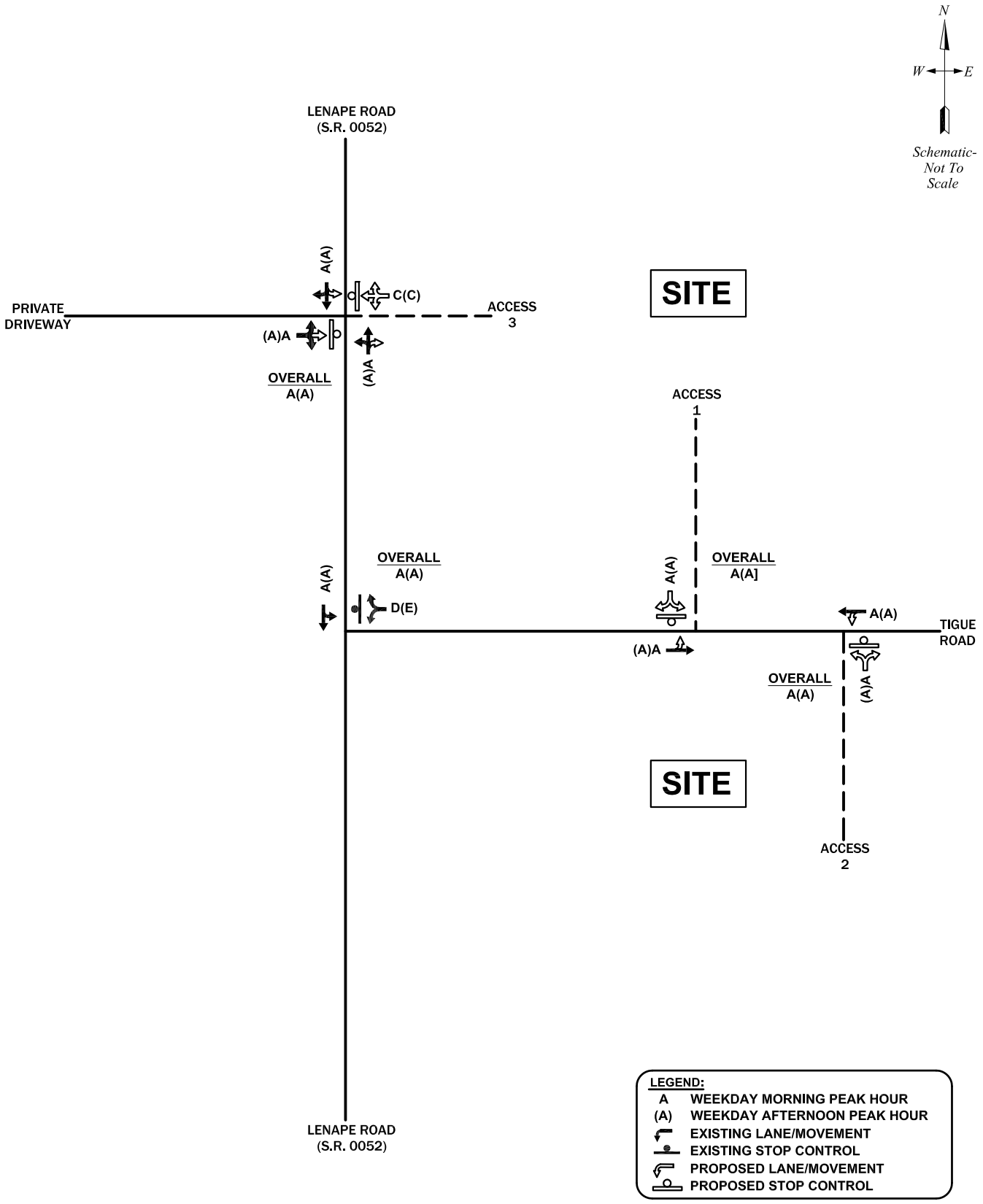

FIGURE 6E

2023 Future Levels of Service with Development (Scenario 1)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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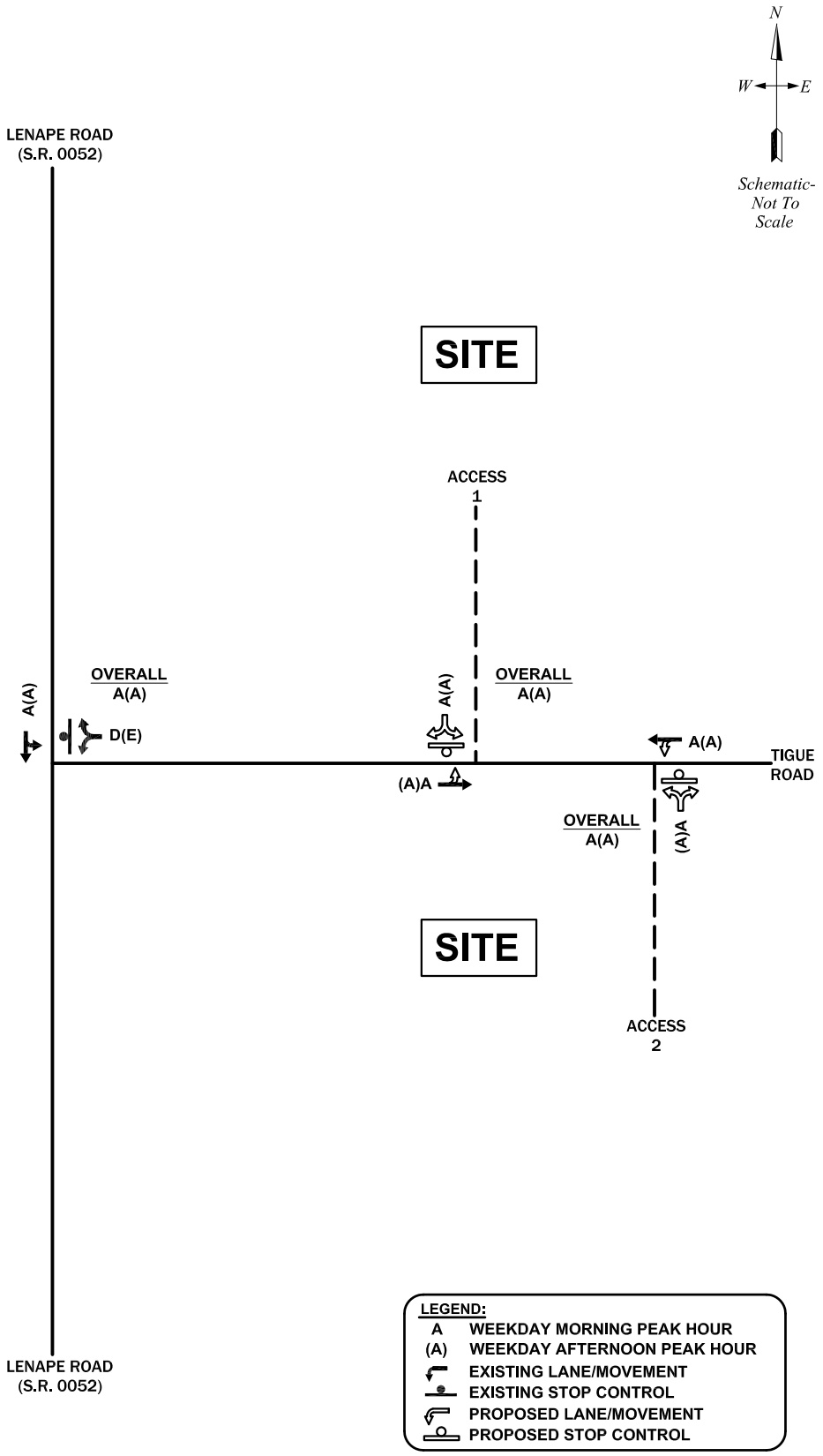


FIGURE 6F

2023 Future Levels of Service with Development (Scenario 2)

TIGUE PROPERTY RESIDENTIAL DEVELOPMENT

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815336 - Tigue Property Residential Development\Dwg\Figu

APPENDIX A

Level-of-Service and Queue Matrix Tables

Table 1 - Level of Service Matrices

1. Lenape Road (S.R. 0052) and Tigue Road

Time Period			Weekday Morning Peak Hour									Weekday Afternoon Peak Hour								
Design Year			2015	2018 Build-Out Year				2023 Design Year				2015	2018 Build-Out Year				2023 Design Year			
Development Condition			Existing	w/o Dev	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/o Dev	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	Existing	w/o Dev	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/o Dev	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps
Tigue Road	WB	Left	C	C	C	C	- - -	D	D	D	- - -	C	D	D	D	- - -	E	E	E	- - -
		Right	20.1	21.7	24.0	24.3	- - -	25.7	29.0	29.8	- - -	24.7	28.4	31.8	33.9	- - -	37.5	43.2	48.7	- - -
Lenape Road (S.R. 0052)	NB	Thru / Right	(1)	(1)	(1)	(1)	- - -	(1)	(1)	(1)	- - -	(1)	(1)	(1)	(1)	- - -	(1)	(1)	(1)	- - -
	SB	Left	A	A	A	A	- - -	A	A	A	- - -	A	A	A	A	- - -	A	A	A	- - -
		Thru	0.6	0.6	0.6	0.7	- - -	0.6	0.7	0.8	- - -	0.2	0.2	0.3	0.4	- - -	0.2	0.3	0.4	- - -
Overall			A	A	A	A	- - -	A	A	A	- - -	A	A	A	A	- - -	A	A	A	- - -
			0.8	0.9	1.3	1.5	- - -	1.0	1.5	1.8	- - -	2.1	2.3	2.9	3.3	- - -	3.1	3.8	4.6	- - -

(1) Movement operates at free-flow conditions.

Table 1 - Level of Service Matrices

2. Tigue Road and Access 1

Time Period			Weekday Morning Peak Hour						Weekday Afternoon Peak Hour					
Design Year			2018 Build-Out Year			2023 Design Year			2018 Build-Out Year			2023 Design Year		
Development Condition			w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps
Tigue Road	EB	Left	A	A	- - -	A	A	- - -	A	A	- - -	A	A	- - -
		Thru	0.4	0.8	- - -	0.4	0.7	- - -	1.5	2.7	- - -	1.4	2.5	- - -
	WB	Thru / Right	(1)	(1)	- - -	(1)	(1)	- - -	(1)	(1)	- - -	(1)	(1)	- - -
Access 1	SB	Left	A	A	- - -	A	A	- - -	A	A	- - -	A	A	- - -
		Right	8.4	8.4	- - -	8.4	8.4	- - -	8.6	8.7	- - -	8.7	8.7	- - -
Overall			A 1.0	A 1.8	- - -	A 1.0	A 1.6	- - -	A 0.9	A 1.8	- - -	A 0.9	A 1.6	- - -

(1) Movement operates at free-flow conditions.

Table 1 - Level of Service Matrices

3. Tigue Road and Access 2

Time Period			Weekday Morning Peak Hour						Weekday Afternoon Peak Hour					
Design Year			2018 Build-Out Year			2023 Design Year			2018 Build-Out Year			2023 Design Year		
Development Condition			w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps
Tigue Road	EB	Thru	(1)	(1)	- - -	(1)	(1)	- - -	(1)	(1)	- - -	(1)	(1)	- - -
		Right												
	WB	Left	A	A	- - -	A	A	- - -	A	A	- - -	A	A	- - -
		Thru	0.0	0.0	- - -	0.0	0.0	- - -	0.1	0.1	- - -	0.1	0.1	- - -
Access 2	NB	Left	A	A	- - -	A	A	- - -	A	A	- - -	A	A	- - -
		Right	8.6	8.6	- - -	8.7	8.7	- - -	8.6	8.6	- - -	8.7	8.7	- - -
Overall			A	A	- - -	A	A	- - -	A	A	- - -	A	A	- - -
			0.4	0.4	- - -	0.4	0.4	- - -	0.3	0.3	- - -	0.3	0.3	- - -

(1) Movement operates at free-flow conditions.

Table 1 - Level of Service Matrices

4. Lenape Road (S.R. 0052) and Access 3/Private Driveway

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year			2018 Build-Out Year		2023 Design Year		2018 Build-Out Year		2023 Design Year	
Development Condition			w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps
Access 3/Private Driveway	EB	Left	A	- - -	A	- - -	A	- - -	A	- - -
		Thru								
		Right	0.0	- - -	0.0	- - -	0.0	- - -	0.0	- - -
	WB	Left	C	- - -	C	- - -	C	- - -	C	- - -
		Thru								
		Right	19.3	- - -	21.8	- - -	15.7	- - -	17.3	- - -
Lenape Road (S.R. 0052)	NB	Left	A	- - -	A	- - -	A	- - -	A	- - -
		Thru								
		Right	0.0	- - -	0.0	- - -	0.0	- - -	0.0	- - -
	SB	Left	A	- - -	A	- - -	A	- - -	A	- - -
		Thru								
		Right	0.1	- - -	0.1	- - -	0.1	- - -	0.1	- - -
Overall			A	- - -	A	- - -	A	- - -	A	- - -
			0.2	- - -	0.2	- - -	0.2	- - -	0.2	- - -

Table 2 - 95th Percentile Queue Matrices

1. Lenape Road (S.R. 0052) and Tigue Road

Time Period			Current Storage (1)	Future Storage (2)	Weekday Morning Peak Hour									Weekday Afternoon Peak Hour								
Design Year					2015	2018 Build-Out Year				2023 Design Year				2015	2018 Build-Out Year				2023 Design Year			
Development Condition					Existing	w/o Dev	w/Dev Base (Option 1)	w/Dev Base (Option 2)	w/Dev Imps	w/o Dev	w/Dev Base (Option 1)	w/Dev Base (Option 2)	w/Dev Imps	Existing	w/o Dev	w/Dev Base (Option 1)	w/Dev Base (Option 2)	w/Dev Imps	w/o Dev	w/Dev Base (Option 1)	w/Dev Base (Option 2)	w/Dev Imps
Tigue Road	WB	Left	1000+		25	25	25	28	- - -	25	30	38	- - -	40	48	60	68	- - -	68	83	98	- - -
		Right							- - -				- - -					- - -				- - -
Lenape Road (S.R. 0052)	NB	Thru	950		(3)	(3)	(3)	(3)	- - -	(3)	(3)	(3)	- - -	(3)	(3)	(3)	(3)	- - -	(3)	(3)	(3)	- - -
		Right																				
	SB	Left	725		25	25	25	25	- - -	25	25	25	- - -	25	25	25	25	- - -	25	25	25	- - -
		Thru							- - -				- - -					- - -				- - -

(1) Distance to adjacent intersections shown in italics.

(2) Future storage/distance to adjacent intersections shown if different/improved from existing conditions.

(3) Movement operates at free-flow conditions.

Table 2 - 95th Percentile Queue Matrices

2. Tigue Road and Access 1

Time Period				Weekday Morning Peak Hour						Weekday Afternoon Peak Hour					
Design Year				2018 Build-Out Year			2023 Design Year			2018 Build-Out Year			2023 Design Year		
Development Condition			Current Storage (1)	Future Storage (2)	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps
Tigue Road	EB	Left		200+	0	0	- - -	0	0	- - -	0	25	- - -	0	25	- - -
		Thru					- - -			- - -			- - -			- - -
	WB	Thru		200+	(3)	(3)	- - -	(3)	(3)	- - -	(3)	(3)	- - -	(3)	(3)	- - -
		Right														
Access 1	SB	Left		100	0	25	- - -	0	25	- - -	0	25	- - -	0	25	- - -
		Right					- - -			- - -			- - -			- - -

(1) Distance to adjacent intersections shown in italics.

(2) Future storage/distance to adjacent intersections shown if different/improved from existing conditions.

(3) Movement operates at free-flow conditions.

Table 2 - 95th Percentile Queue Matrices

3. Tigue Road and Access 2

Time Period			Current Storage (1)	Future Storage (2)	Weekday Morning Peak Hour						Weekday Afternoon Peak Hour					
Design Year					2018 Build-Out Year			2023 Design Year			2018 Build-Out Year			2023 Design Year		
Development Condition					w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Base (option 2)	w/Dev Imps
Tigue Road	EB	Thru Right		200+	(3)	(3)	- - -	(3)	(3)	- - -	(3)	(3)	- - -	(3)	(3)	- - -
Tigue Road	WB	Left Thru		200+	0	0	- - - - - -	0	0	- - - - - -	0	0	- - - - - -	0	0	- - - - - -
Access 2	NB	Left Right		100	0	0	- - - - - -	0	0	- - - - - -	0	0	- - - - - -	0	0	- - - - - -

(1) Distance to adjacent intersections shown in italics.

(2) Future storage/distance to adjacent intersections shown if different/improved from existing conditions.

(3) Movement operates at free-flow conditions.

Table 2 - 95th Percentile Queue Matrices

4. Lenape Road (S.R. 0052) and Access 3/Private Driveway

Time Period					Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year			Current Storage (1)	Future Storage (2)	2018 Build-Out Year		2023 Design Year		2018 Build-Out Year		2023 Design Year	
Development Condition					w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps	w/Dev Base (option 1)	w/Dev Imps
Access 3/Private Driveway	EB	Left				---		---		---		---
		Thru		100	0		0		0		0	
		Right				---		---		---		---
	WB	Left				---		---		---		---
		Thru		100	25		25		25		25	
		Right				---		---		---		---
Lenape Road (S.R. 0052)	NB	Left				---		---		---		---
		Thru		200+	0		0		0		0	
		Right				---		---		---		---
	SB	Left				---		---		---		---
		Thru		200+	0		0		0		0	
		Right				---		---		---		---

(1) Distance to adjacent intersections shown in italics.

(2) Future storage/distance to adjacent intersections shown if different/improved from existing conditions.

APPENDIX B

Study Area Sketches and Photographs

Tigue Road v Access 1

M-950S (3-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS
(FOR LOCAL ROADS, USE PENNDOT PUB 70)

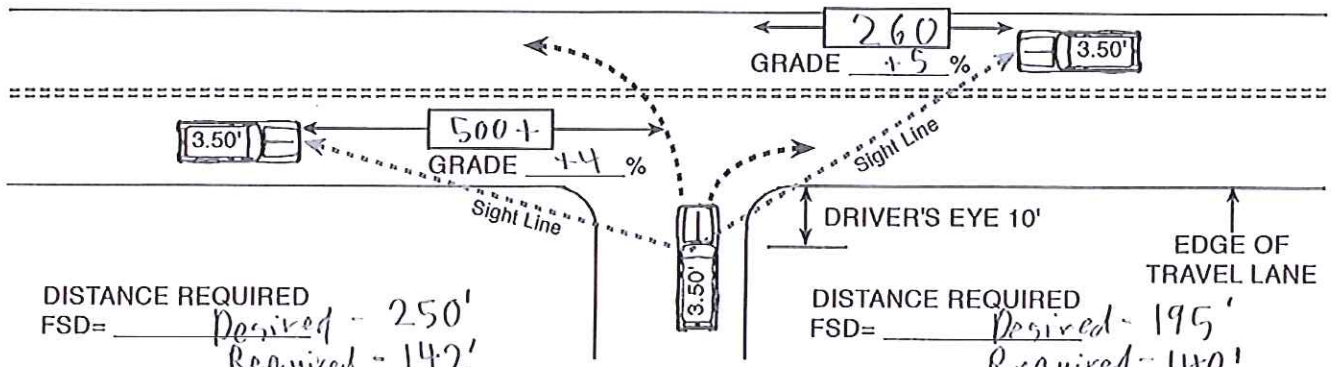
APPLICANT _____ APPLICATION NO. _____

S.R. _____ SEG. _____ OFFSET _____ LEGAL SPEED LIMIT 25mph

MEASURED BY AGR DATE 6/11/2015

FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A

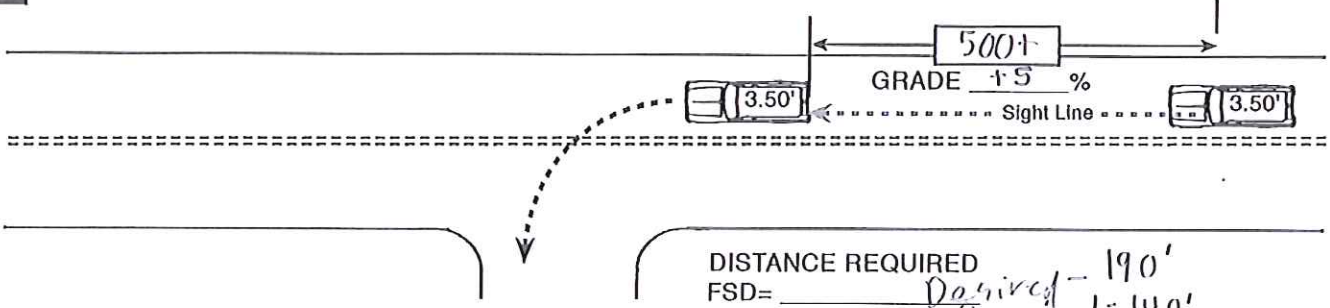


DISTANCE REQUIRED
FSD= Desired - 250'
Required - 142'

DISTANCE REQUIRED
FSD= Desired - 195'
Required - 140'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

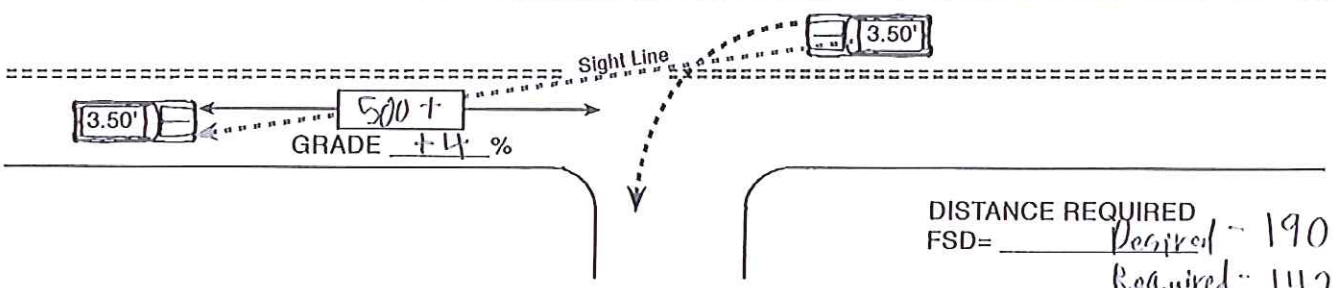
B



DISTANCE REQUIRED
FSD= Desired - 190'
Required - 140'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



DISTANCE REQUIRED
FSD= Desired - 190'
Required - 142'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

Tigue Road & Access 2

M-950S (3-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

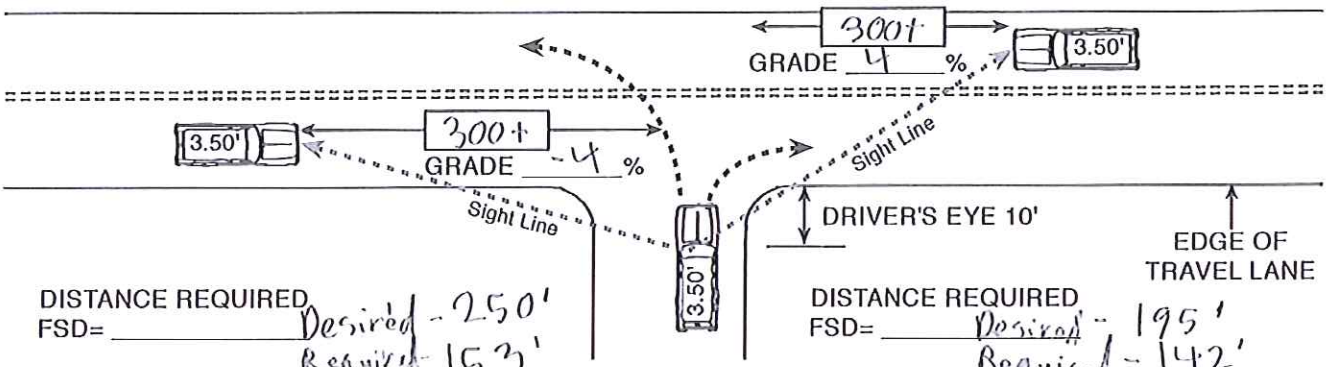
APPLICANT _____ APPLICATION NO. _____

S.R. _____ SEG. _____ OFFSET _____ LEGAL SPEED LIMIT 25mph

MEASURED BY AGR DATE _____

FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A

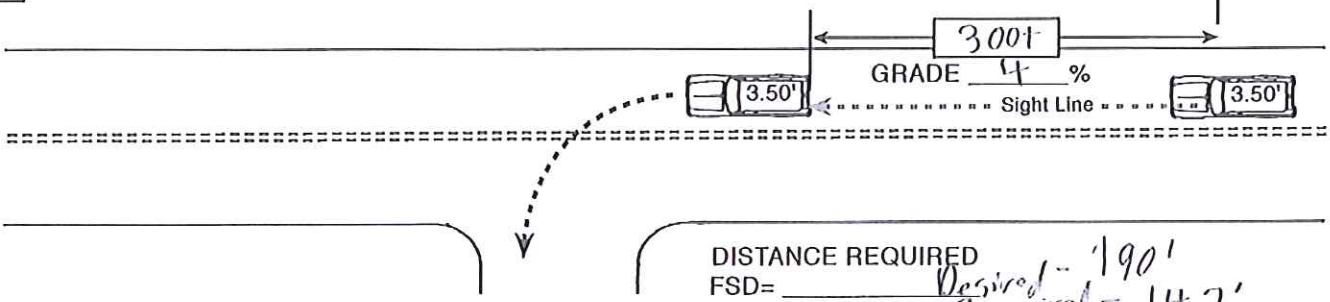


DISTANCE REQUIRED FSD= Desired - 250' Required - 153'

DISTANCE REQUIRED FSD= Desired - 195' Required - 142'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

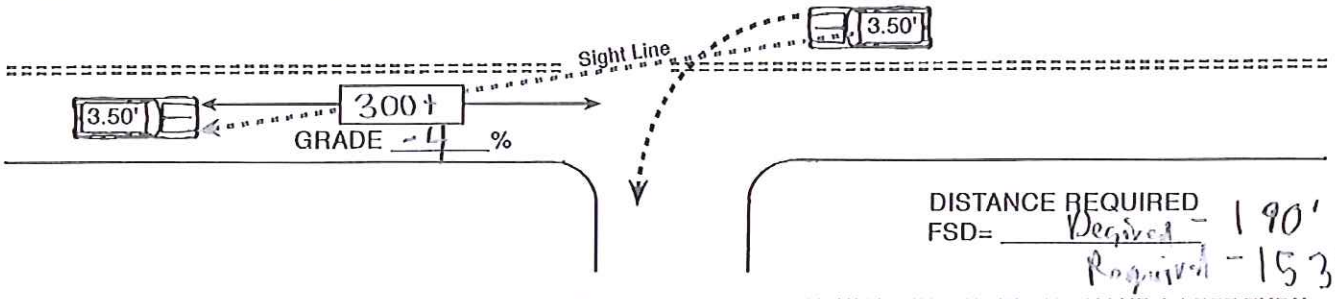
B



DISTANCE REQUIRED FSD= Desired - 190' Required - 142'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



DISTANCE REQUIRED FSD= Desired - 190' Required - 153'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

Lenape Road (S.R.0052) + Access 3

M-950S (3-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

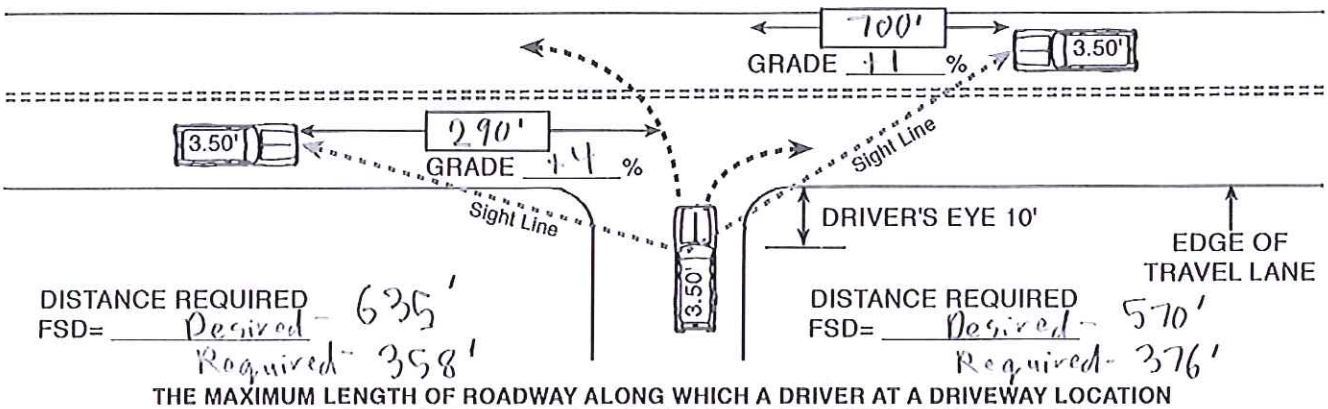
APPLICANT _____ APPLICATION NO. _____

S.R. _____ SEG. _____ OFFSET _____ LEGAL SPEED LIMIT 45mph

MEASURED BY AGR DATE 6/11/2015

FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A

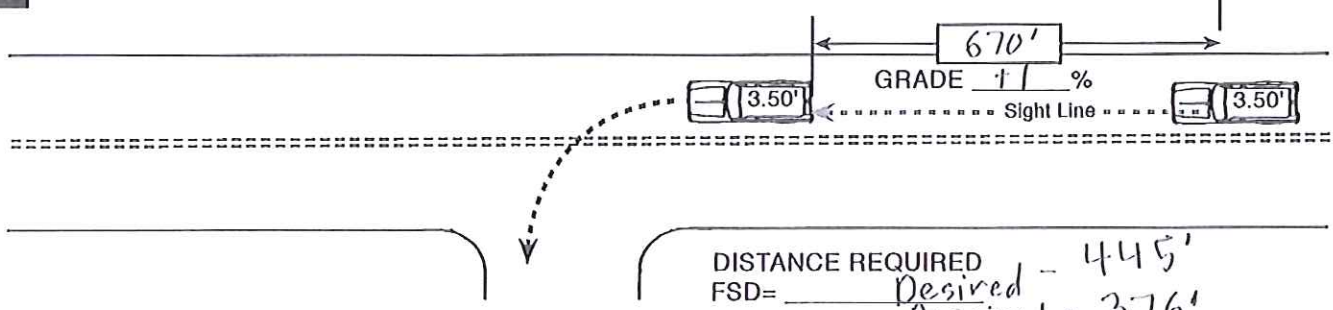


DISTANCE REQUIRED FSD= Desired - 635' Required - 358'

DISTANCE REQUIRED FSD= Desired - 570' Required - 376'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

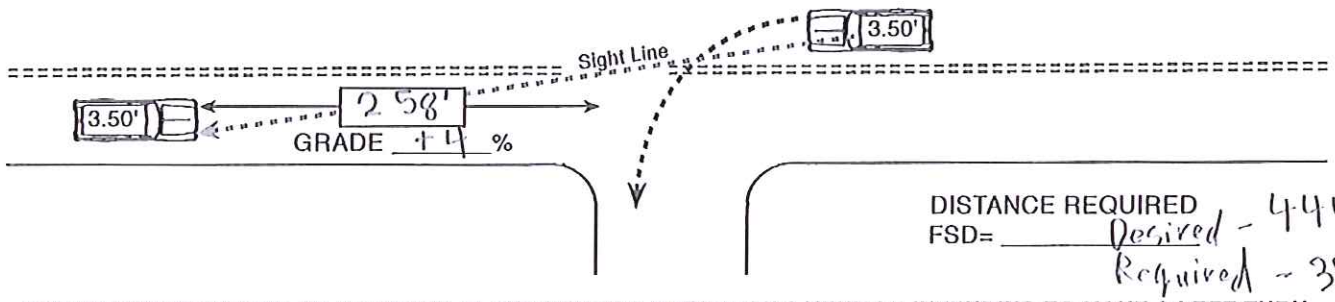
B



DISTANCE REQUIRED FSD= Desired - 445' Required - 376'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



DISTANCE REQUIRED FSD= Desired - 445' Required - 358'

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

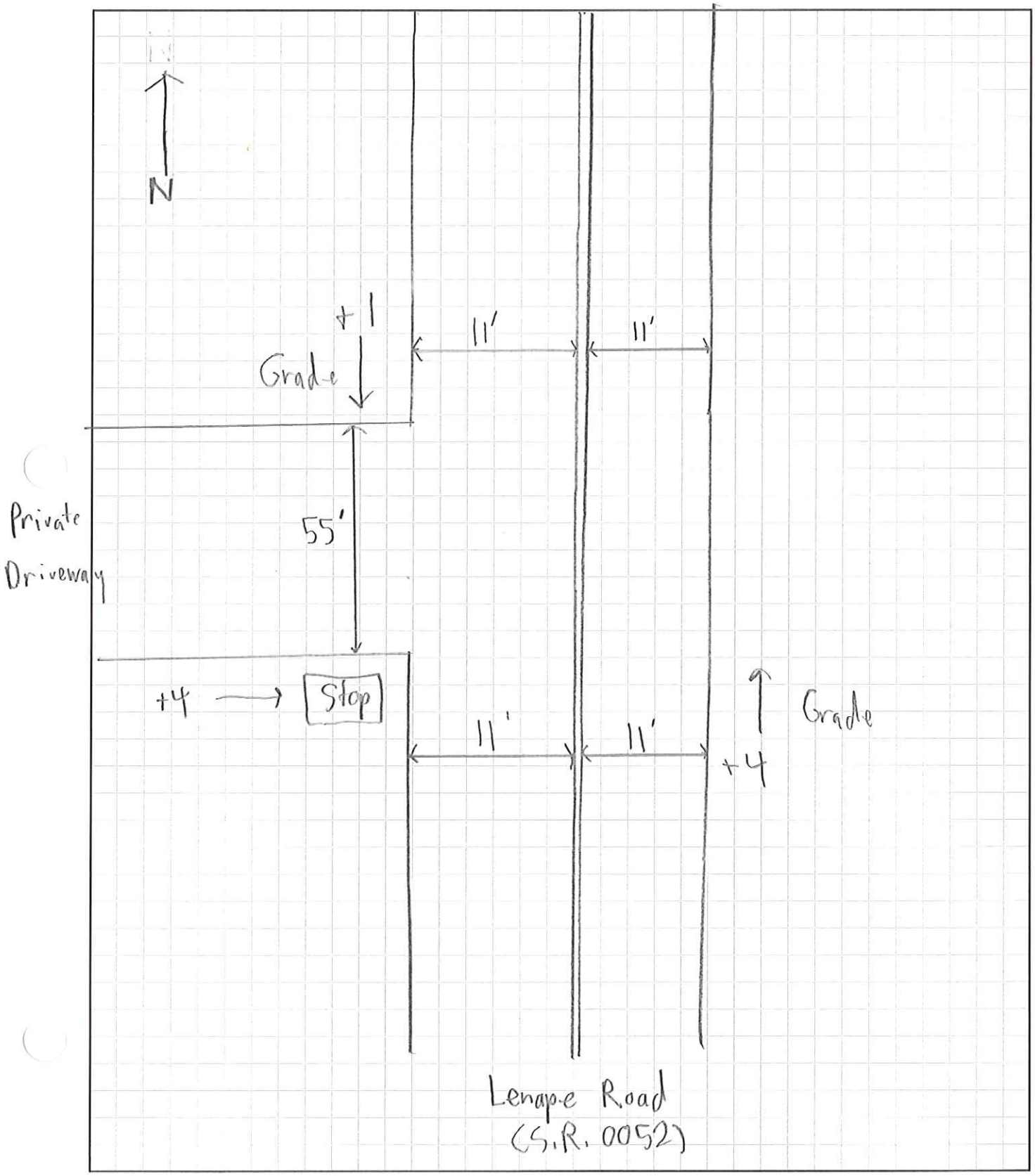
McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Lenape Road
(S.R. 0052)

Job _____ McMahon Project No. _____ Sheet _____ of _____

Description _____ Designed By _____ Date _____

_____ Checked By _____ Date _____



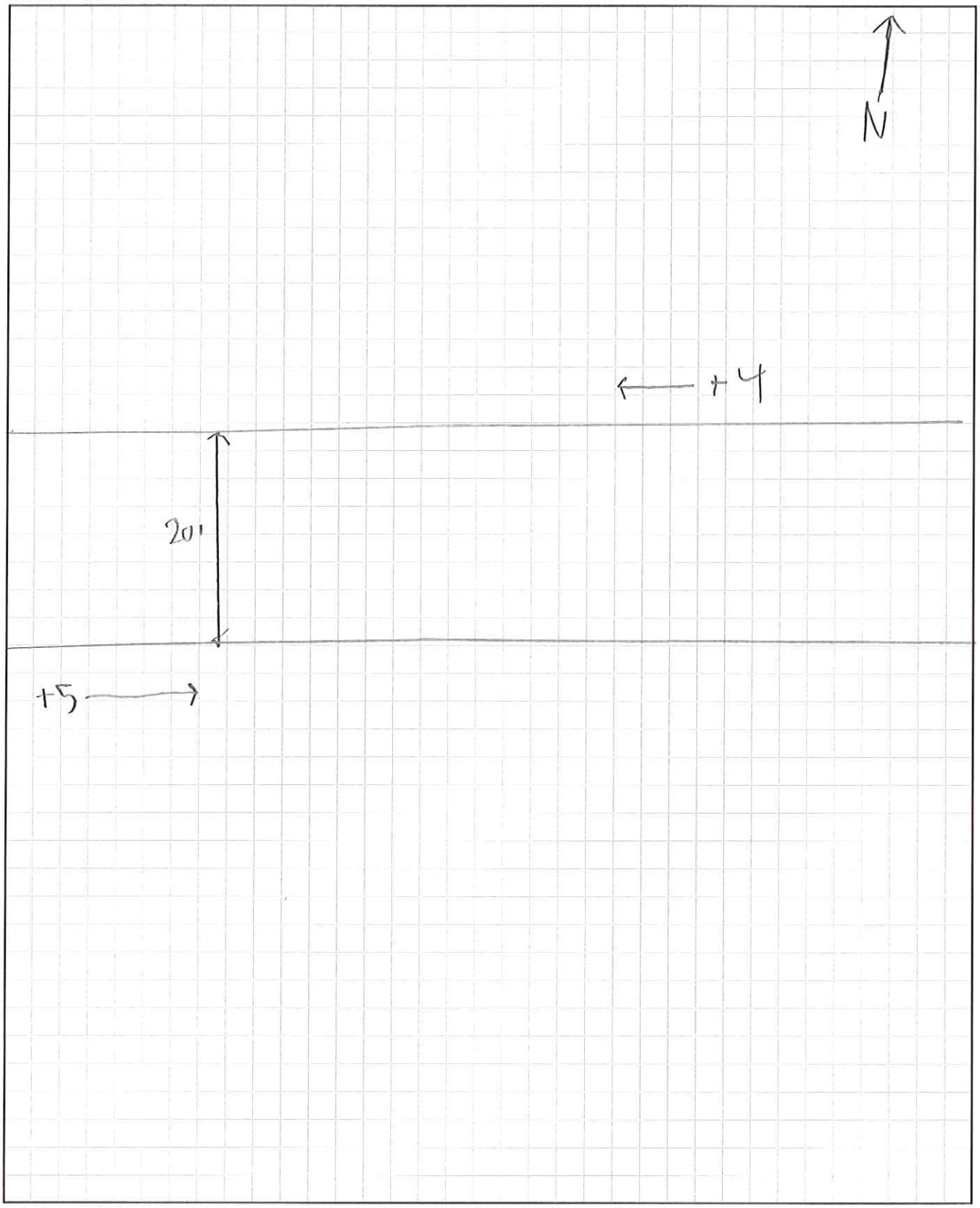
McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Tigue Road

Job _____ McMahon Project No. _____ Sheet _____ of _____

Description _____ Designed By _____ Date _____

_____ Checked By _____ Date _____



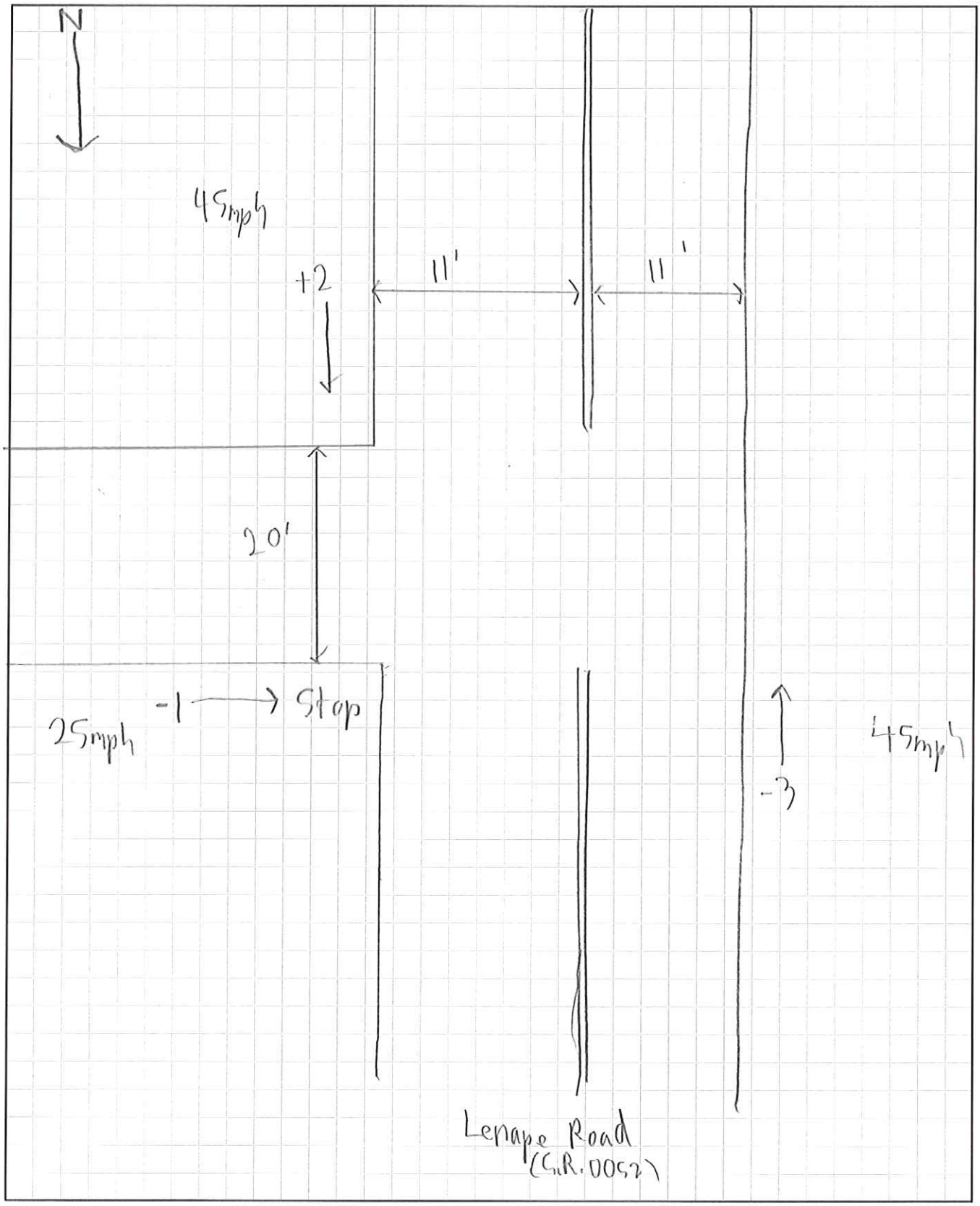
McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Lenape Road (S.R. 0052)
& Tigue Road

Job _____ McMahon Project No. _____ Sheet ____ of ____

Description _____ Designed By _____ Date _____

_____ Checked By _____ Date _____



EB on Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking in along Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking in along Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking left along Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking left along Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking out along Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking out along Tigue Rd.JPG

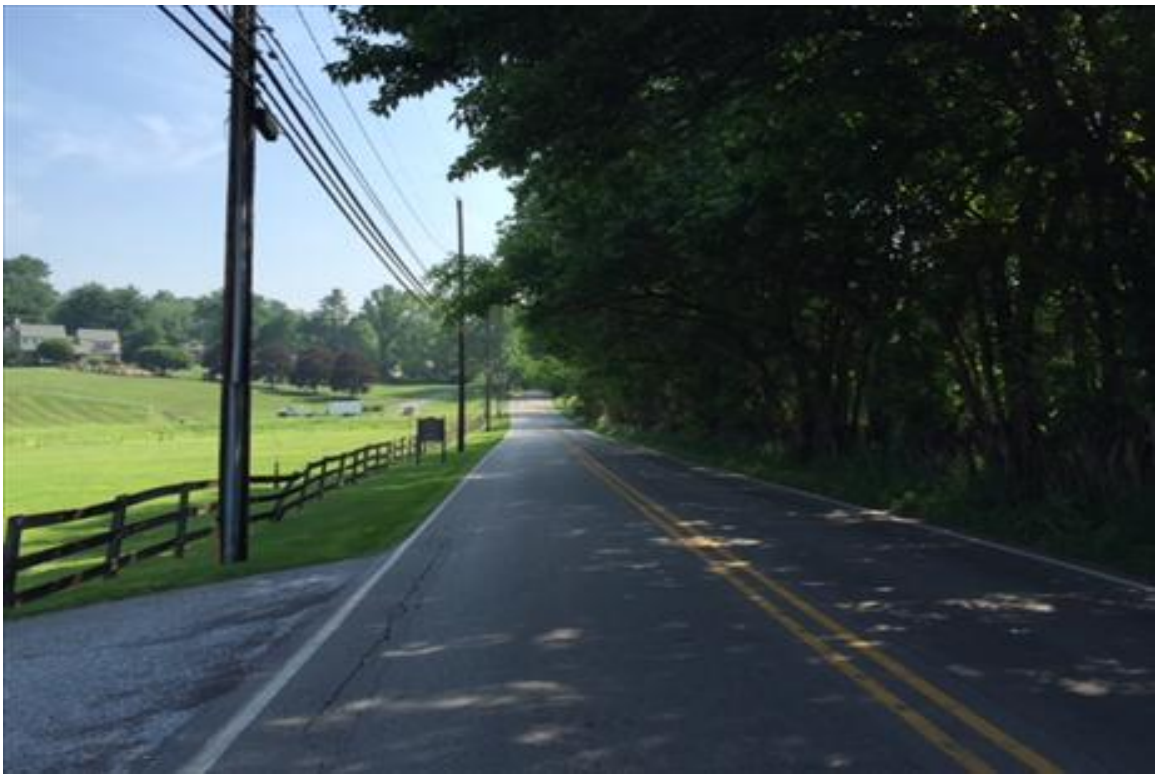
East Bradford Township, Chester County, Pennsylvania

Looking right along Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Looking right along Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania



NB on Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

SB on Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Speed limit along Lenape Rd.JPG

East Bradford Township, Chester County, Pennsylvania

Speed limit along Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania

WB on Tigue Rd.JPG

East Bradford Township, Chester County, Pennsylvania

APPENDIX C

PennDOT iTMS Traffic Counts

Lenape Road (S.R. 0052)

SITE NO: 25593	
County	CHESTER (15)
Route	0052
Segment	0180
Dir	B
Current Avg Daily Traffic	9577
Current Avg Daily Truck Volume	271
K Factor	10
D Factor	65
T Factor	2
Truck Percent	3
Base Traffic Year	2010
Traffic Pattern Group	URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS

APPENDIX D

Manual Turning Movement (MTM) Counts

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: East Bradford Twp
Location: Route 52 (Lenape Road)
& Tigue Road
Counter/Board #: HP

File Name : tigue01w
Site Code : 00000000
Start Date : 9/29/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Rt 52 (Lenape Rd) Southbound		Tigue Rd Westbound		Rt 52 (Lenape Rd) Northbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	4	70	2	1	130	10	217
07:15	3	75	1	1	161	15	256
07:30	8	74	1	2	176	17	278
07:45	8	80	9	6	180	13	296
Total	23	299	13	10	647	55	1047
08:00	3	93	6	3	180	8	293
08:15	1	77	6	2	175	10	271
08:30	6	83	8	0	142	9	248
08:45	6	75	8	1	135	12	237
Total	16	328	28	6	632	39	1049
16:00	3	111	17	7	80	7	225
16:15	4	136	13	5	93	2	253
16:30	6	168	19	3	93	5	294
16:45	3	167	12	4	94	4	284
Total	16	582	61	19	360	18	1056
17:00	3	139	19	7	84	6	258
17:15	4	169	18	10	109	8	318
17:30	4	134	18	10	109	3	278
17:45	5	123	21	5	111	4	269
Total	16	565	76	32	413	21	1123
Grand Total	71	1774	178	67	2052	133	4275
Apprch %	3.8	96.2	72.7	27.3	93.9	6.1	
Total %	1.7	41.5	4.2	1.6	48	3.1	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: East Bradford Twp
Location: Route 52 (Lenape Road)
& Tigue Road
Counter/Board #: HP

File Name : tigue01w
Site Code : 00000000
Start Date : 9/29/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Rt 52 (Lenape Rd) Southbound		Tigue Rd Westbound		Rt 52 (Lenape Rd) Northbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	1	0	0	3	0	4
07:15	0	2	1	1	2	0	6
07:30	0	13	2	0	5	1	21
07:45	0	3	0	1	3	2	9
Total	0	19	3	2	13	3	40
08:00	0	4	0	0	3	0	7
08:15	0	7	0	1	5	0	13
08:30	0	5	0	0	3	0	8
08:45	0	1	0	0	3	0	4
Total	0	17	0	1	14	0	32
16:00	0	2	0	0	4	1	7
16:15	0	5	2	0	3	0	10
16:30	0	2	0	0	3	1	6
16:45	0	0	0	0	3	0	3
Total	0	9	2	0	13	2	26
17:00	0	1	0	0	1	0	2
17:15	0	2	0	0	3	0	5
17:30	0	1	0	0	2	0	3
Total	0	4	0	0	6	0	10
Grand Total	0	49	5	3	46	5	108
Apprch %	0	100	62.5	37.5	90.2	9.8	
Total %	0	45.4	4.6	2.8	42.6	4.6	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: East Bradford Twp
Location: Route 52 (Lenape Road)
& Tigue Road
Counter/Board #: HP

File Name : tigue01w
Site Code : 00000000
Start Date : 9/29/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Rt 52 (Lenape Rd) Southbound		Tigue Rd Westbound		Rt 52 (Lenape Rd) Northbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	4	71	2	1	133	10	221
07:15	3	77	2	2	163	15	262
07:30	8	87	3	2	181	18	299
07:45	8	83	9	7	183	15	305
Total	23	318	16	12	660	58	1087
08:00	3	97	6	3	183	8	300
08:15	1	84	6	3	180	10	284
08:30	6	88	8	0	145	9	256
08:45	6	76	8	1	138	12	241
Total	16	345	28	7	646	39	1081
16:00	3	113	17	7	84	8	232
16:15	4	141	15	5	96	2	263
16:30	6	170	19	3	96	6	300
16:45	3	167	12	4	97	4	287
Total	16	591	63	19	373	20	1082
17:00	3	140	19	7	85	6	260
17:15	4	171	18	10	112	8	323
17:30	4	135	18	10	111	3	281
17:45	5	123	21	5	111	4	269
Total	16	569	76	32	419	21	1133
Grand Total	71	1823	183	70	2098	138	4383
Apprch %	3.7	96.3	72.3	27.7	93.8	6.2	
Total %	1.6	41.6	4.2	1.6	47.9	3.1	
Passenger Vehicles	71	1774	178	67	2052	133	4275
% Passenger Vehicles	100	97.3	97.3	95.7	97.8	96.4	97.5
Heavy Vehicles	0	49	5	3	46	5	108
% Heavy Vehicles	0	2.7	2.7	4.3	2.2	3.6	2.5

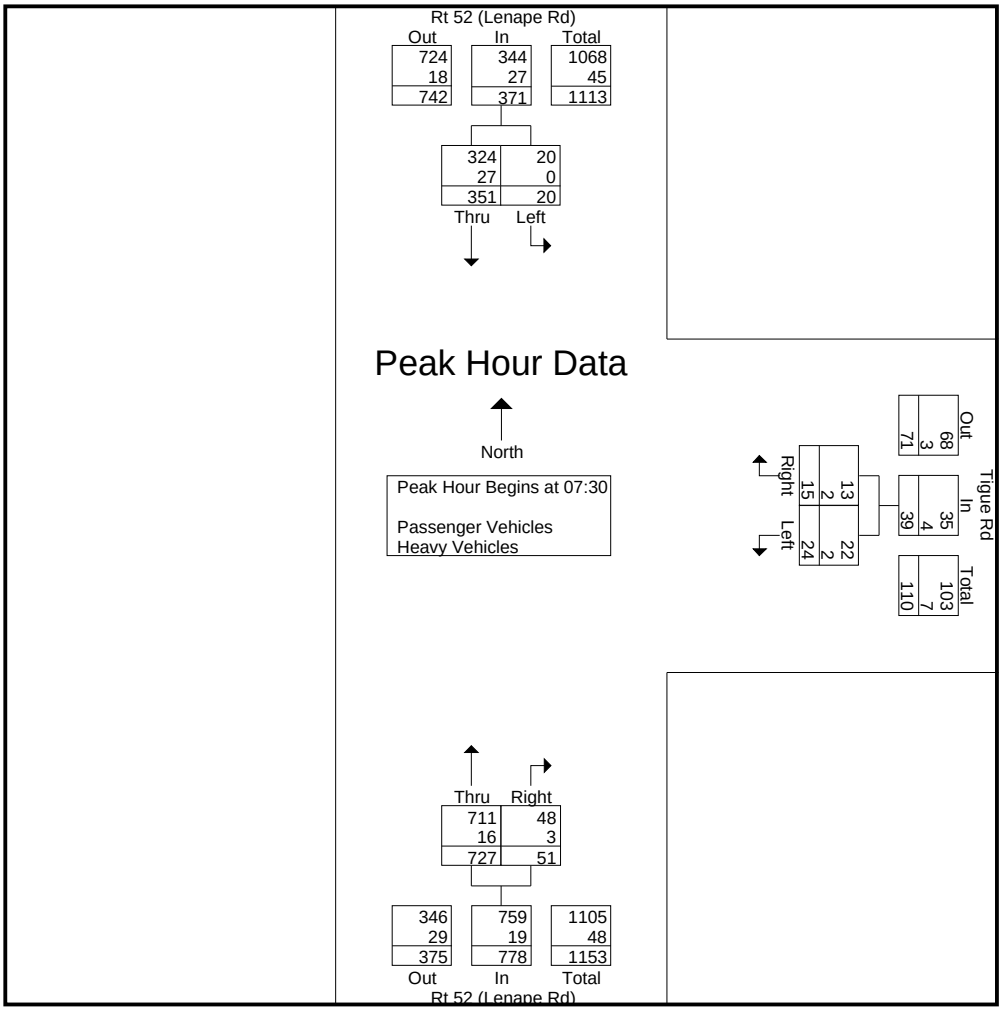
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: East Bradford Twp
Location: Route 52 (Lenape Road)
& Tigue Road
Counter/Board #: HP

File Name : tigue01w
Site Code : 00000000
Start Date : 9/29/2015
Page No : 2

	Rt 52 (Lenape Rd) Southbound			Tigue Rd Westbound			Rt 52 (Lenape Rd) Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30										
07:30	**8**	87	95	3	2	5	181	**18**	**199**	299
07:45	8	83	91	**9**	**7**	**16**	**183**	15	198	**305**
08:00	3	**97**	**100**	6	3	9	183	8	191	300
08:15	1	84	85	6	3	9	180	10	190	284
Total Volume	20	351	371	24	15	39	727	51	778	1188
% App. Total	5.4	94.6		61.5	38.5		93.4	6.6		
PHF	.625	.905	.928	.667	.536	.609	.993	.708	.977	.974
Passenger Vehicles	20	324	344	22	13	35	711	48	759	1138
% Passenger Vehicles	100	92.3	92.7	91.7	86.7	89.7	97.8	94.1	97.6	95.8
Heavy Vehicles	0	27	27	2	2	4	16	3	19	50
% Heavy Vehicles	0	7.7	7.3	8.3	13.3	10.3	2.2	5.9	2.4	4.2



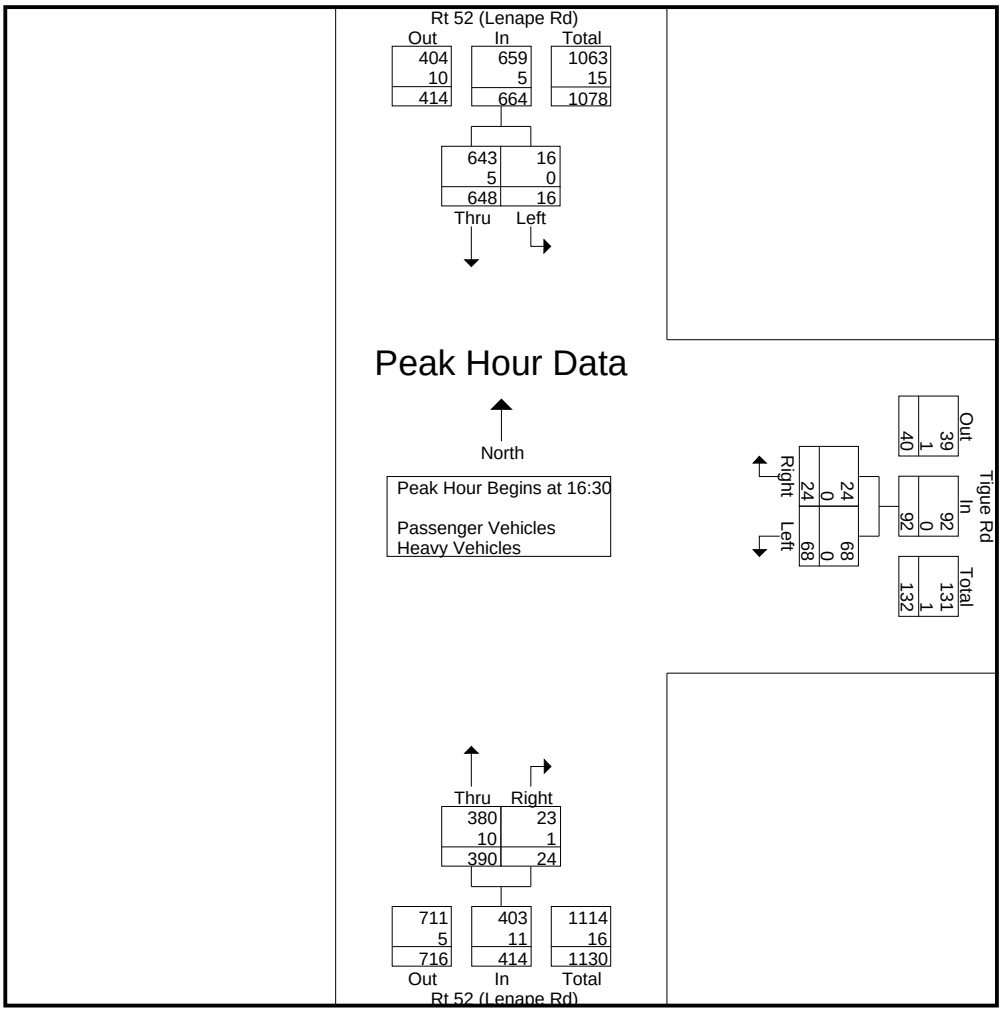
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: East Bradford Twp
Location: Route 52 (Lenape Road)
& Tigue Road
Counter/Board #: HP

File Name : tigue01w
Site Code : 00000000
Start Date : 9/29/2015
Page No : 3

	Rt 52 (Lenape Rd) Southbound			Tigue Rd Westbound			Rt 52 (Lenape Rd) Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	**6**	170	**176**	**19**	3	22	96	6	102	300
16:45	3	167	170	12	4	16	97	4	101	287
17:00	3	140	143	19	7	26	85	6	91	260
17:15	4	**171**	175	18	**10**	**28**	**112**	**8**	**120**	**323**
Total Volume	16	648	664	68	24	92	390	24	414	1170
% App. Total	2.4	97.6		73.9	26.1		94.2	5.8		
PHF	.667	.947	.943	.895	.600	.821	.871	.750	.863	.906
Passenger Vehicles	16	643	659	68	24	92	380	23	403	1154
% Passenger Vehicles	100	99.2	99.2	100	100	100	97.4	95.8	97.3	98.6
Heavy Vehicles	0	5	5	0	0	0	10	1	11	16
% Heavy Vehicles	0	0.8	0.8	0	0	0	2.6	4.2	2.7	1.4



APPENDIX E

HCM Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this transportation impact study was performed in accordance with the standard techniques contained in the *Highway Capacity Manual 2010.* By definition, capacity represents "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." The level at which an intersection or a uniform section of a lane or roadway function can be expressed in terms of a level of service. Level of service (LOS) is defined as "a quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst."

Stop-Controlled Intersections

At unsignalized stop-controlled intersections, such as two-way stop-controlled (TWSC) or all-way stop-controlled (AWSC), a methodology for evaluating the relative functioning of these intersections is based upon the control delay. For these types of unsignalized intersections, the analysis of the control delay is based upon the following data:

- Number and configuration of lanes on each approach;
- Percentage of heavy vehicles on each approach;
- Demand flow rate for each entering vehicular movement and pedestrian crossing movement;
- Unique geometric factors such as, channelization aspects; two-way left-turn lanes, raised or striped median storage; approach grades, flared approaches on the minor street; and upstream signals within 0.25 miles.

At TWSC intersections, only drivers on the minor street approaches are required to stop before proceeding into the intersection and left-turning drivers from the major street may have to yield to on-coming major street through or right-turning traffic, but are not required to stop in the absence of on-coming traffic. The capacity at stop-controlled legs is based primarily on three factors: the distribution of gaps in the major stream, driver judgment in selecting the gaps, and the follow-up headways required by each driver in a queue.

At AWSC intersections, every vehicle is required to stop at the intersection before proceeding, and as a result, the decision to proceed is a function of the traffic conditions on the other approaches. Each driver proceeds only after determining that no vehicles are currently in the intersection and that it is the driver's turn to proceed. Capacity at an AWSC intersection is described by the saturation headway or time between departures of successive vehicles on a given approach for a particular case assuming a continuous queue; departure headway or the average time between departures of successive vehicles on a given approach accounting for the probability of each possible case; and service time or the average time sent by a vehicle in first position waiting to depart.

At both TWSC and AWSC intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. For TWSC intersections, the level of service is not calculated for major-street approaches or for the intersection as a whole; however, the intersection-wide level of service is calculated for AWSC intersections. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for TWSC and AWSC intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	**v/c > 1.0**
≤ 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Signalized Intersections

At three or four-legged signalized intersections, a methodology for evaluating the capacity and quality of service provided to road users traveling through the signalized intersection. For signalized intersections, the level of service can be characterized for the entire intersection, each approach, and each lane group. The level of service is based upon the control delay and volume-to-capacity ratio. The delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption, while the volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. Input data in determining the delay and volume-to-capacity ratio include:

- Demand flow rate for each entering vehicular movement and pedestrian crossing movement, including right-turn on red volumes and percent of heavy vehicles;
- Initial queue for each lane group;
- Number and configuration of lanes on each approach;
- Type of signal control and phase sequence;
- Allocation of minimum/maximum green times and clearance intervals (Yellow plus All Red phases); and
- Phase recall.

At signalized intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for signalized intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	**v/c > 1.0**
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

APPENDIX F

2015 Existing Capacity/Level-of-Service Analysis Worksheets

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	15	727	51	20	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.949		0.991			
Flt Protected	0.970					0.997
Satd. Flow (prot)	1493	0	1762	0	0	1728
Flt Permitted	0.970					0.997
Satd. Flow (perm)	1493	0	1762	0	0	1728
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	25	15	749	53	21	362
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	802	0	0	383
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	24	15	727	51	20	351
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	25	15	749	53	21	362

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1179	776	0	0	802	0
Stage 1	776	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	241	416	-	-	631	-
Stage 1	522	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	231	416	-	-	631	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.1	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	279	631	-
HCM Lane V/C Ratio	-	-	0.144	0.033	-
HCM Control Delay (s)	-	-	20.1	10.9	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	68	24	390	24	16	648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.965		0.992			
Flt Protected	0.964					0.999
Satd. Flow (prot)	1658	0	1750	0	0	1844
Flt Permitted	0.964					0.999
Satd. Flow (perm)	1658	0	1750	0	0	1844
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	75	26	429	26	18	712
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	455	0	0	730
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	68	24	390	24	16	648
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	75	26	429	26	18	712

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1189	442	0	0	455	0
Stage 1	442	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	244	660	-	-	837	-
Stage 1	758	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	235	660	-	-	837	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	282	837	-
HCM Lane V/C Ratio	-	-	0.359	0.021	-
HCM Control Delay (s)	-	-	24.7	9.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

APPENDIX G

Background Growth Rate Chart

Growth Factors for August 2015 to July 2016				
County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	1.72	0.93
ALLEGHENY	1.22	*	0.09	0.52
ARMSTRONG	1.31	*	0.13	0.54
BEAVER	1.21	2.33	0.10	0.52
BEDFORD	*	2.40	*	0.60
BERKS	1.47	2.45	0.61	0.65
BLAIR	0.75	1.92	0.00	0.36
BRADFORD	1.30	*	0.25	0.50
BUCKS	2.01	2.63	1.32	0.80
BUTLER	1.91	2.85	0.97	0.83
CAMBRIA	0.33	*	0.00	0.23
CAMERON	*	*	*	0.32
CARBON	1.90	2.86	1.14	0.84
CENTRE	1.93	2.65	1.17	0.82
CHESTER	2.48	3.04	1.75	1.01
CLARION	1.33	2.32	0.37	0.55
CLEARFIELD	*	2.55	0.06	0.57
CLINTON	1.37	2.13	0.56	0.54
COLUMBIA	1.75	2.26	1.15	0.68
CRAWFORD	1.02	2.23	0.00	0.47
CUMBERLAND	1.68	2.12	1.25	0.68
DAUPHIN	1.43	2.31	0.65	0.61
DELAWARE	1.30	*	0.41	*
ELK	*	*	0.01	0.41
ERIE	0.91	1.88	0.05	0.41
FAYETTE	1.05	*	0.00	0.48
FOREST	*	*	*	0.70
FRANKLIN	2.42	2.75	1.85	0.96
FULTON	*	2.54	*	0.78
GREENE	0.95	2.12	0.00	0.44
HUNTINGDON	*	2.23	0.25	0.51
INDIANA	1.60	*	0.50	0.65
JEFFERSON	*	2.63	0.15	0.61
JUNIATA	*	*	*	0.70
LACKAWANNA	1.25	2.38	0.10	0.52
LANCASTER	1.99	2.53	1.31	0.81
LAWRENCE	1.19	2.30	0.08	0.50
LEBANON	*	2.44	0.98	0.70
LEHIGH	1.89	2.97	1.01	0.85
LUZERNE	1.23	2.39	0.09	0.53
LYCOMING	0.99	1.75	0.18	0.39
MCKEAN	1.01	*	0.00	0.44
MERCER	1.03	1.96	0.10	0.42
MIFFLIN	1.25	*	0.12	0.54
MONROE	2.27	2.92	1.73	0.98
MONTGOMERY	1.48	2.41	0.64	0.63
MONTOUR	*	3.02	1.34	0.92
NORTHAMPTON	2.14	*	1.42	0.93
NORTHUMBERLAND	1.18	1.98	0.16	0.43
PERRY	*	*	1.79	0.82
PHILADELPHIA	1.04	*	0.00	*
PIKE	*	3.13	*	1.14
POTTER	*	*	*	0.45
SCHUYLKILL	*	2.06	0.04	0.43
SNYDER	1.57	*	0.90	0.61
SOMERSET	1.01	2.07	0.01	0.44
SULLIVAN	*	*	*	0.51
SUSQUEHANNA	1.50	2.52	0.56	0.64
TIOGA	*	*	*	0.46
UNION	*	2.39	1.41	0.75
VENANGO	1.05	1.93	0.11	0.42
WARREN	*	*	0.01	0.54
WASHINGTON	1.47	2.81	0.21	0.66
WAYNE	*	2.51	1.04	0.75
WESTMORELAND	1.34	2.46	0.24	0.57
WYOMING	*	*	0.42	0.45
YORK	1.91	2.48	1.39	0.79

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2014), as well as Woods and Poole demographic and economic data. The factors should be compounded when calculating future values. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.

pennsylvania
DEPARTMENT OF TRANSPORTATION

APPENDIX H

2018 Volume Spreadsheets
(Scenario 1)

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	727	51	24	0	15	20	351	0
Seasonal Adjustment Factor	1.000	0	0	0	0	727	51	24	0	15	20	351	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**727**	**51**	**24**	**0**	**15**	**20**	**351**	**0**
Background Growth	5.34 %	0	0	0	0	39	3	1	0	1	1	19	0
EXISTING W/ BACKGROUND		0	0	0	0	766	54	25	0	16	21	370	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**766**	**54**	**25**	**0**	**16**	**21**	**370**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**1**	**4**	**12**	**0**	**5**	**2**	**3**	**0**
Single-Family Detached		0	0	0	0	1	2	9	0	4	1	2	0
Senior Adult Attached		0	0	0	0	0	2	3	0	1	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**767**	**58**	**37**	**0**	**21**	**23**	**373**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.1	6.9	32.4	0.0	23.8	8.7	0.8	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	4	0	0	0	0	0	2	0	0	0	0
EXISTING W/ BACKGROUND		0	75	0	0	0	0	0	41	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**75**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**4**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**1**	**0**	**12**
Single-Family Detached		3	1	0	0	0	0	0	3	1	1	0	9
Senior Adult Attached		1	1	0	0	0	0	0	2	0	0	0	3
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**4**	**77**	**0**	**0**	**0**	**0**	**0**	**46**	**1**	**1**	**0**	**12**
"New" Site Traffic % of Total	####	100.0	2.6	0.0	0.0	0.0	0.0	0.0	10.9	100.0	100.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	4	0	0	0	0	0	2	0	0	0	0
EXISTING W/ BACKGROUND		0	75	0	0	0	0	0	41	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**75**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**1**	**2**	**5**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	1	1	3	0	1	0	1	0	0	0	0
Senior Adult Attached		0	0	1	2	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**76**	**2**	**5**	**0**	**1**	**0**	**42**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	1.3	100.0	100.0	0.0	100.0	0.0	2.4	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Access 3

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 3			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Access 3			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	742	0	0	0	0	0	371	0
Seasonal Adjustment Factor	1.000	0	0	0	0	742	0	0	0	0	0	371	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**742**	**0**	**0**	**0**	**0**	**0**	**371**	**0**
Background Growth	5.34 %	0	0	0	0	40	0	0	0	0	0	20	0
EXISTING W/ BACKGROUND		0	0	0	0	782	0	0	0	0	0	391	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**782**	**0**	**0**	**0**	**0**	**0**	**391**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**5**	**1**	**3**	**0**	**9**	**3**	**2**	**0**
Single-Family Detached		0	0	0	0	4	1	2	0	6	2	1	0
Senior Adult Attached		0	0	0	0	1	0	1	0	3	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**787**	**1**	**3**	**0**	**9**	**3**	**393**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.6	100.0	100.0	0.0	100.0	100.0	0.5	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	390	24	68	0	24	16	648	0
Seasonal Adjustment Factor	1.000	0	0	0	0	390	24	68	0	24	16	648	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**390**	**24**	**68**	**0**	**24**	**16**	**648**	**0**
Background Growth	5.34 %	0	0	0	0	21	1	4	0	1	1	35	0
EXISTING W/ BACKGROUND		0	0	0	0	411	25	72	0	25	17	683	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**411**	**25**	**72**	**0**	**25**	**17**	**683**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**3**	**11**	**8**	**0**	**3**	**4**	**2**	**0**
Single-Family Detached		0	0	0	0	2	8	5	0	2	3	1	0
Senior Adult Attached		0	0	0	0	1	3	3	0	1	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**414**	**36**	**80**	**0**	**28**	**21**	**685**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.7	30.6	10.0	0.0	10.7	19.0	0.3	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	2	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	42	0	0	0	0	0	97	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**42**	**0**	**0**	**0**	**0**	**0**	**97**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**10**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**8**
Single-Family Detached		7	3	0	0	0	0	0	2	1	0	0	5
Senior Adult Attached		3	2	0	0	0	0	0	1	0	0	0	3
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**10**	**47**	**0**	**0**	**0**	**0**	**0**	**100**	**1**	**0**	**0**	**8**
"New" Site Traffic % of Total	####	100.0	10.6	0.0	0.0	0.0	0.0	0.0	3.0	100.0	0.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	2	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	42	0	0	0	0	0	97	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**42**	**0**	**0**	**0**	**0**	**0**	**97**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**5**	**3**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	0	3	2	0	1	1	1	0	0	0	0
Senior Adult Attached		0	0	2	1	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**42**	**5**	**3**	**0**	**1**	**1**	**98**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	100.0	100.0	0.0	100.0	100.0	1.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Access 3

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 1

Traffic Component		EASTBOUND Access 3			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Access 3			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	414	0	0	0	0	0	664	0
Seasonal Adjustment Factor	1.000	0	0	0	0	414	0	0	0	0	0	664	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**414**	**0**	**0**	**0**	**0**	**0**	**664**	**0**
Background Growth	5.34 %	0	0	0	0	22	0	0	0	0	0	35	0
EXISTING W/ BACKGROUND		0	0	0	0	436	0	0	0	0	0	699	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**436**	**0**	**0**	**0**	**0**	**0**	**699**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**3**	**3**	**2**	**0**	**6**	**9**	**4**	**0**
Single-Family Detached		0	0	0	0	2	2	1	0	4	6	3	0
Senior Adult Attached		0	0	0	0	1	1	1	0	2	3	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**439**	**3**	**2**	**0**	**6**	**9**	**703**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.7	100.0	100.0	0.0	100.0	100.0	0.6	0.0

APPENDIX I

2018 Volume Spreadsheets
(Scenario 2)

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	727	51	24	0	15	20	351	0
Seasonal Adjustment Factor	1.000	0	0	0	0	727	51	24	0	15	20	351	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**727**	**51**	**24**	**0**	**15**	**20**	**351**	**0**
Background Growth	5.34 %	0	0	0	0	39	3	1	0	1	1	19	0
EXISTING W/ BACKGROUND		0	0	0	0	766	54	25	0	16	21	370	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**766**	**54**	**25**	**0**	**16**	**21**	**370**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**5**	**15**	**0**	**14**	**5**	**0**	**0**
Single-Family Detached		0	0	0	0	0	3	11	0	10	3	0	0
Senior Adult Attached		0	0	0	0	0	2	4	0	4	2	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	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
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**766**	**59**	**40**	**0**	**30**	**26**	**370**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	8.5	37.5	0.0	46.7	19.2	0.0	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	4	0	0	0	0	0	2	0	0	0	0
EXISTING W/ BACKGROUND		0	75	0	0	0	0	0	41	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**75**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**8**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**1**	**0**	**24**
Single-Family Detached		5	1	0	0	0	0	0	3	1	1	0	17
Senior Adult Attached		3	1	0	0	0	0	0	2	0	0	0	7
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**8**	**77**	**0**	**0**	**0**	**0**	**0**	**46**	**1**	**1**	**0**	**24**
"New" Site Traffic % of Total	####	100.0	2.6	0.0	0.0	0.0	0.0	0.0	10.9	100.0	100.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	4	0	0	0	0	0	2	0	0	0	0
EXISTING W/ BACKGROUND		0	75	0	0	0	0	0	41	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**75**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**1**	**2**	**5**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	1	1	3	0	1	0	1	0	0	0	0
Senior Adult Attached		0	0	1	2	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**76**	**2**	**5**	**0**	**1**	**0**	**42**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	1.3	100.0	100.0	0.0	100.0	0.0	2.4	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	390	24	68	0	24	16	648	0
Seasonal Adjustment Factor	1.000	0	0	0	0	390	24	68	0	24	16	648	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**390**	**24**	**68**	**0**	**24**	**16**	**648**	**0**
Background Growth	5.34 %	0	0	0	0	21	1	4	0	1	1	35	0
EXISTING W/ BACKGROUND		0	0	0	0	411	25	72	0	25	17	683	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**411**	**25**	**72**	**0**	**25**	**17**	**683**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**14**	**10**	**0**	**9**	**13**	**0**	**0**
Single-Family Detached		0	0	0	0	0	10	6	0	5	9	0	0
Senior Adult Attached		0	0	0	0	0	4	4	0	4	4	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	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
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**411**	**39**	**82**	**0**	**34**	**30**	**683**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	35.9	12.2	0.0	26.5	43.3	0.0	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	2	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	42	0	0	0	0	0	97	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**42**	**0**	**0**	**0**	**0**	**0**	**97**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**22**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**16**
Single-Family Detached		15	3	0	0	0	0	0	2	1	0	0	10
Senior Adult Attached		7	2	0	0	0	0	0	1	0	0	0	6
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**22**	**47**	**0**	**0**	**0**	**0**	**0**	**100**	**1**	**0**	**0**	**16**
"New" Site Traffic % of Total	####	100.0	10.6	0.0	0.0	0.0	0.0	0.0	3.0	100.0	0.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Build-Out Year (2018) Scenario 2

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	5.34 %	0	2	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	42	0	0	0	0	0	97	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**42**	**0**	**0**	**0**	**0**	**0**	**97**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**5**	**3**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	0	3	2	0	1	1	1	0	0	0	0
Senior Adult Attached		0	0	2	1	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**42**	**5**	**3**	**0**	**1**	**1**	**98**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	100.0	100.0	0.0	100.0	100.0	1.0	0.0	0.0	0.0	0.0

APPENDIX J

2018 Future without Development Capacity/Level-of-Service Analysis Worksheets

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	25	16	766	54	21	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.949		0.991			
Flt Protected	0.970					0.997
Satd. Flow (prot)	1493	0	1762	0	0	1728
Flt Permitted	0.970					0.997
Satd. Flow (perm)	1493	0	1762	0	0	1728
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	26	16	790	56	22	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	846	0	0	403
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	16	766	54	21	370
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	26	16	790	56	22	381

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1243	818	0	0	845	0
Stage 1	818	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	220	393	-	-	609	-
Stage 1	499	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	210	393	-	-	609	-
Mov Cap-2 Maneuver	210	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	729	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	257	609	-
HCM Lane V/C Ratio	-	-	0.164	0.036	-
HCM Control Delay (s)	-	-	21.7	11.1	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	72	25	411	25	17	683
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.966		0.992			
Flt Protected	0.964					0.999
Satd. Flow (prot)	1660	0	1750	0	0	1844
Flt Permitted	0.964					0.999
Satd. Flow (perm)	1660	0	1750	0	0	1844
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	79	27	452	27	19	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	479	0	0	770
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	72	25	411	25	17	683
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	79	27	452	27	19	751

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1253	465	0	0	479	0
Stage 1	465	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	223	641	-	-	821	-
Stage 1	739	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	214	641	-	-	821	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.4	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	258	821	-
HCM Lane V/C Ratio	-	-	0.413	0.023	-
HCM Control Delay (s)	-	-	28.4	9.5	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.1	-

APPENDIX K

2018 Future with Development Capacity/Level-of-Service Analysis Worksheets (Scenario 1)

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	37	21	767	58	23	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950		0.990			
Flt Protected	0.969					0.997
Satd. Flow (prot)	1494	0	1760	0	0	1728
Flt Permitted	0.969					0.997
Satd. Flow (perm)	1494	0	1760	0	0	1728
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	38	22	791	60	24	385
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	851	0	0	409
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	37	21	767	58	23	373
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	38	22	791	60	24	385

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1253	821	0	0	851	0
Stage 1	821	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	217	391	-	-	606	-
Stage 1	497	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	206	391	-	-	606	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	497	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	249	606	-
HCM Lane V/C Ratio	-	-	0.24	0.039	-
HCM Control Delay (s)	-	-	24	11.2	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	4	77	46	1	1	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.875	
Flt Protected		0.998			0.996	
Satd. Flow (prot)	0	1692	1699	0	1623	0
Flt Permitted		0.998			0.996	
Satd. Flow (perm)	0	1692	1699	0	1623	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	86	51	1	1	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	90	52	0	14	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	77	46	1	1	12
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	86	51	1	1	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	52	0	-	0	146	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	94	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1152	-	-	-	982	1085
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1083	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	978	1085
Mov Cap-2 Maneuver	-	-	-	-	978	-
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1079	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1152	-	-	-	1076
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	8.1	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	76	2	0	42	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.981	
Flt Protected					0.959	
Satd. Flow (prot)	1768	0	0	1704	1752	0
Flt Permitted					0.959	
Satd. Flow (perm)	1768	0	0	1704	1752	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	84	2	0	47	6	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	0	47	7	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	76	2	0	42	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	2	0	47	6	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	133	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	47	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1121	-	1000	1038
Stage 1	-	-	-	-	1092	-
Stage 2	-	-	-	-	1140	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1121	-	1000	1038
Mov Cap-2 Maneuver	-	-	-	-	1000	-
Stage 1	-	-	-	-	1092	-
Stage 2	-	-	-	-	1140	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1006	-	-	1121	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	3	0	9	0	787	1	3	393	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	11	11	11	11	11	11
Grade (%)		4%			0%			4%			1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.896							
Flt Protected					0.989							
Satd. Flow (prot)	0	2069	0	0	1651	0	0	1765	0	0	1792	0
Flt Permitted					0.989							
Satd. Flow (perm)	0	2069	0	0	1651	0	0	1765	0	0	1792	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		274			296			353			639	
Travel Time (s)		7.5			8.1			5.3			9.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	3	0	10	0	874	1	3	437	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	13	0	0	875	0	0	440	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	3	0	9	0	787	1	3	393	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	-	-	0	-
Grade, %	-	4	-	-	0	-	-	4	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	10	0	874	1	3	437	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1323	1319	437	1318	1318	875	437	0	0	876	0	0
Stage 1	443	443	-	875	875	-	-	-	-	-	-	-
Stage 2	880	876	-	443	443	-	-	-	-	-	-	-
Critical Hdwy	7.92	7.32	6.62	7.12	6.52	6.22	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	108	117	624	146	157	365	850	-	-	594	-	-
Stage 1	612	522	-	382	367	-	-	-	-	-	-	-
Stage 2	312	302	-	676	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	104	116	624	145	156	365	850	-	-	594	-	-
Mov Cap-2 Maneuver	104	116	-	145	156	-	-	-	-	-	-	-
Stage 1	612	518	-	382	367	-	-	-	-	-	-	-
Stage 2	303	302	-	671	572	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	19.3	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	850	-	-	-	265	594	-	-
HCM Lane V/C Ratio	-	-	-	-	0.05	0.006	-	-
HCM Control Delay (s)	0	-	-	0	19.3	11.1	0	-
HCM Lane LOS	A	-	-	A	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	80	28	414	36	21	685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.965		0.989			
Flt Protected	0.964					0.999
Satd. Flow (prot)	1658	0	1745	0	0	1844
Flt Permitted	0.964					0.999
Satd. Flow (perm)	1658	0	1745	0	0	1844
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	88	31	455	40	23	753
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	0	495	0	0	776
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	80	28	414	36	21	685
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	88	31	455	40	23	753

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1274	475	0	0	495	0
Stage 1	475	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	217	633	-	-	811	-
Stage 1	732	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	206	633	-	-	811	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.8	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	250	811	-
HCM Lane V/C Ratio	-	-	0.475	0.028	-
HCM Control Delay (s)	-	-	31.8	9.6	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.4	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	10	47	100	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.865	
Flt Protected		0.991				
Satd. Flow (prot)	0	1680	1702	0	1611	0
Flt Permitted		0.991				
Satd. Flow (perm)	0	1680	1702	0	1611	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	11	52	111	1	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	63	112	0	9	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	47	100	1	0	8
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	52	111	1	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	186	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	74	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1099	-	-	-	930	1004
Stage 1	-	-	-	-	1062	-
Stage 2	-	-	-	-	1107	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	921	1004
Mov Cap-2 Maneuver	-	-	-	-	921	-
Stage 1	-	-	-	-	1062	-
Stage 2	-	-	-	-	1096	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1099	-	-	-	1004
HCM Lane V/C Ratio	0.01	-	-	-	0.009
HCM Control Delay (s)	8.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	42	5	1	98	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985				0.966	
Flt Protected					0.964	
Satd. Flow (prot)	1747	0	0	1704	1735	0
Flt Permitted					0.964	
Satd. Flow (perm)	1747	0	0	1704	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	47	6	1	109	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	110	4	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	42	5	1	98	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	6	1	109	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	160	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1152	-	964	1090
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1063	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1152	-	963	1090
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1062	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	992	-	-	1152	-
HCM Lane V/C Ratio	0.004	-	-	0.001	-
HCM Control Delay (s)	8.6	-	-	8.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	2	0	6	0	439	3	9	703	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	11	11	11	11	11	11
Grade (%)		4%			0%			4%			1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.895			0.999				
Flt Protected					0.989						0.999	
Satd. Flow (prot)	0	2069	0	0	1649	0	0	1763	0	0	1790	0
Flt Permitted					0.989						0.999	
Satd. Flow (perm)	0	2069	0	0	1649	0	0	1763	0	0	1790	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		274			296			353			639	
Travel Time (s)		7.5			8.1			5.3			9.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	2	0	7	0	488	3	10	781	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	9	0	0	491	0	0	791	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	2	0	6	0	439	3	9	703	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	-	-	0	-
Grade, %	-	4	-	-	0	-	-	4	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	0	7	0	488	3	10	781	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1294	1292	781	1290	1290	489	781	0	0	491	0	0
Stage 1	801	801	-	489	489	-	-	-	-	-	-	-
Stage 2	493	491	-	801	801	-	-	-	-	-	-	-
Critical Hdwy	7.92	7.32	6.62	7.12	6.52	6.22	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	114	122	379	153	163	611	642	-	-	813	-	-
Stage 1	353	332	-	636	549	-	-	-	-	-	-	-
Stage 2	567	491	-	421	397	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	111	119	379	150	159	611	642	-	-	813	-	-
Mov Cap-2 Maneuver	111	119	-	150	159	-	-	-	-	-	-	-
Stage 1	353	325	-	636	549	-	-	-	-	-	-	-
Stage 2	561	491	-	412	388	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.7	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	642	-	-	-	346	813	-	-
HCM Lane V/C Ratio	-	-	-	-	0.026	0.012	-	-
HCM Control Delay (s)	0	-	-	0	15.7	9.5	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

APPENDIX L

2018 Future with Development Capacity/Level-of-Service Analysis Worksheets (Scenario 2)

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	40	30	766	59	26	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.942		0.990			
Flt Protected	0.972					0.997
Satd. Flow (prot)	1481	0	1760	0	0	1729
Flt Permitted	0.972					0.997
Satd. Flow (perm)	1481	0	1760	0	0	1729
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	41	31	790	61	27	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	851	0	0	408
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	30	766	59	26	370
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	41	31	790	61	27	381

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1255	820	0	0	851	0
Stage 1	820	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	217	392	-	-	606	-
Stage 1	498	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	205	392	-	-	606	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.3	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	258	606	-
HCM Lane V/C Ratio	-	-	0.28	0.044	-
HCM Control Delay (s)	-	-	24.3	11.2	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	8	77	46	1	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.997		0.870	
Flt Protected		0.995			0.998	
Satd. Flow (prot)	0	1687	1699	0	1617	0
Flt Permitted		0.995			0.998	
Satd. Flow (perm)	0	1687	1699	0	1617	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	9	86	51	1	1	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	95	52	0	28	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	8	77	46	1	1	24
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	86	51	1	1	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	52	0	-	0	155	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	103	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1152	-	-	-	970	1085
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1072	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	962	1085
Mov Cap-2 Maneuver	-	-	-	-	962	-
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1063	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1152	-	-	-	1079
HCM Lane V/C Ratio	0.008	-	-	-	0.026
HCM Control Delay (s)	8.1	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	76	2	0	42	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.981	
Flt Protected					0.959	
Satd. Flow (prot)	1768	0	0	1704	1752	0
Flt Permitted					0.959	
Satd. Flow (perm)	1768	0	0	1704	1752	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	84	2	0	47	6	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	0	47	7	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	76	2	0	42	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	2	0	47	6	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	133	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	47	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1121	-	1000	1038
Stage 1	-	-	-	-	1092	-
Stage 2	-	-	-	-	1140	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1121	-	1000	1038
Mov Cap-2 Maneuver	-	-	-	-	1000	-
Stage 1	-	-	-	-	1092	-
Stage 2	-	-	-	-	1140	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1006	-	-	1121	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.6	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	82	34	411	39	30	683
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.961		0.988			
Flt Protected	0.966					0.998
Satd. Flow (prot)	1654	0	1743	0	0	1843
Flt Permitted	0.966					0.998
Satd. Flow (perm)	1654	0	1743	0	0	1843
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	90	37	452	43	33	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	0	495	0	0	784
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	82	34	411	39	30	683
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	90	37	452	43	33	751

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1289	473	0	0	495	0
Stage 1	473	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	213	634	-	-	811	-
Stage 1	733	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	198	634	-	-	811	-
Mov Cap-2 Maneuver	198	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	473	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.9	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	248	811	-
HCM Lane V/C Ratio	-	-	0.514	0.041	-
HCM Control Delay (s)	-	-	33.9	9.6	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.7	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	22	47	100	1	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.865	
Flt Protected		0.984				
Satd. Flow (prot)	0	1668	1702	0	1611	0
Flt Permitted		0.984				
Satd. Flow (perm)	0	1668	1702	0	1611	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	24	52	111	1	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	112	0	18	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	22	47	100	1	0	16
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	52	111	1	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	112	0	-	0	213	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	101	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1099	-	-	-	896	1004
Stage 1	-	-	-	-	1062	-
Stage 2	-	-	-	-	1075	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	876	1004
Mov Cap-2 Maneuver	-	-	-	-	876	-
Stage 1	-	-	-	-	1062	-
Stage 2	-	-	-	-	1051	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1099	-	-	-	1004
HCM Lane V/C Ratio	0.022	-	-	-	0.018
HCM Control Delay (s)	8.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	42	5	1	98	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985				0.966	
Flt Protected					0.964	
Satd. Flow (prot)	1747	0	0	1704	1735	0
Flt Permitted					0.964	
Satd. Flow (perm)	1747	0	0	1704	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	47	6	1	109	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	110	4	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	42	5	1	98	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	6	1	109	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	160	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1152	-	964	1090
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1063	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1152	-	963	1090
Mov Cap-2 Maneuver	-	-	-	-	963	-
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1062	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	992	-	-	1152	-
HCM Lane V/C Ratio	0.004	-	-	0.001	-
HCM Control Delay (s)	8.6	-	-	8.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX M

2023 Volume Spreadsheets
(Scenario 1)

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 7-9 AM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	727	51	24	0	15	20	351	0
Seasonal Adjustment Factor	1.000	0	0	0	0	727	51	24	0	15	20	351	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**727**	**51**	**24**	**0**	**15**	**20**	**351**	**0**
Background Growth	14.89 %	0	0	0	0	108	8	4	0	2	3	52	0
EXISTING W/ BACKGROUND		0	0	0	0	835	59	28	0	17	23	403	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**835**	**59**	**28**	**0**	**17**	**23**	**403**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**1**	**4**	**12**	**0**	**5**	**2**	**3**	**0**
Single-Family Detached		0	0	0	0	1	2	9	0	4	1	2	0
Senior Adult Attached		0	0	0	0	0	2	3	0	1	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**836**	**63**	**40**	**0**	**22**	**25**	**406**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.1	6.3	30.0	0.0	22.7	8.0	0.7	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	11	0	0	0	0	0	6	0	0	0	0
EXISTING W/ BACKGROUND		0	82	0	0	0	0	0	45	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**82**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**4**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**1**	**0**	**12**
Single-Family Detached		3	1	0	0	0	0	0	3	1	1	0	9
Senior Adult Attached		1	1	0	0	0	0	0	2	0	0	0	3
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**4**	**84**	**0**	**0**	**0**	**0**	**0**	**50**	**1**	**1**	**0**	**12**
"New" Site Traffic % of Total	####	100.0	2.4	0.0	0.0	0.0	0.0	0.0	10.0	100.0	100.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	11	0	0	0	0	0	6	0	0	0	0
EXISTING W/ BACKGROUND		0	82	0	0	0	0	0	45	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**82**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**1**	**2**	**5**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	1	1	3	0	1	0	1	0	0	0	0
Senior Adult Attached		0	0	1	2	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**83**	**2**	**5**	**0**	**1**	**0**	**46**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	1.2	100.0	100.0	0.0	100.0	0.0	2.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Access 3

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 3			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Access 3			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	742	0	0	0	0	0	371	0
Seasonal Adjustment Factor	1.000	0	0	0	0	742	0	0	0	0	0	371	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**742**	**0**	**0**	**0**	**0**	**0**	**371**	**0**
Background Growth	14.89 %	0	0	0	0	110	0	0	0	0	0	55	0
EXISTING W/ BACKGROUND		0	0	0	0	852	0	0	0	0	0	426	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**852**	**0**	**0**	**0**	**0**	**0**	**426**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**5**	**1**	**3**	**0**	**9**	**3**	**2**	**0**
Single-Family Detached		0	0	0	0	4	1	2	0	6	2	1	0
Senior Adult Attached		0	0	0	0	1	0	1	0	3	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**857**	**1**	**3**	**0**	**9**	**3**	**428**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.6	100.0	100.0	0.0	100.0	100.0	0.5	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 4-6 PM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	390	24	68	0	24	16	648	0
Seasonal Adjustment Factor	1.000	0	0	0	0	390	24	68	0	24	16	648	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**390**	**24**	**68**	**0**	**24**	**16**	**648**	**0**
Background Growth	14.89 %	0	0	0	0	58	4	10	0	4	2	96	0
EXISTING W/ BACKGROUND		0	0	0	0	448	28	78	0	28	18	744	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**448**	**28**	**78**	**0**	**28**	**18**	**744**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**3**	**11**	**8**	**0**	**3**	**4**	**2**	**0**
Single-Family Detached		0	0	0	0	2	8	5	0	2	3	1	0
Senior Adult Attached		0	0	0	0	1	3	3	0	1	1	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**451**	**39**	**86**	**0**	**31**	**22**	**746**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.7	28.2	9.3	0.0	9.7	18.2	0.3	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	6	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	46	0	0	0	0	0	106	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**46**	**0**	**0**	**0**	**0**	**0**	**106**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**10**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**8**
Single-Family Detached		7	3	0	0	0	0	0	2	1	0	0	5
Senior Adult Attached		3	2	0	0	0	0	0	1	0	0	0	3
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**10**	**51**	**0**	**0**	**0**	**0**	**0**	**109**	**1**	**0**	**0**	**8**
"New" Site Traffic % of Total	####	100.0	9.8	0.0	0.0	0.0	0.0	0.0	2.8	100.0	0.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	6	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	46	0	0	0	0	0	106	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**46**	**0**	**0**	**0**	**0**	**0**	**106**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**5**	**3**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	0	3	2	0	1	1	1	0	0	0	0
Senior Adult Attached		0	0	2	1	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**46**	**5**	**3**	**0**	**1**	**1**	**107**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	100.0	100.0	0.0	100.0	100.0	0.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Access 3

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Design Year (2023) Scenario 1

Traffic Component		EASTBOUND Access 3			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Access 3			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	414	0	0	0	0	0	664	0
Seasonal Adjustment Factor	1.000	0	0	0	0	414	0	0	0	0	0	664	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**414**	**0**	**0**	**0**	**0**	**0**	**664**	**0**
Background Growth	14.89 %	0	0	0	0	62	0	0	0	0	0	99	0
EXISTING W/ BACKGROUND		0	0	0	0	476	0	0	0	0	0	763	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**476**	**0**	**0**	**0**	**0**	**0**	**763**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**3**	**3**	**2**	**0**	**6**	**9**	**4**	**0**
Single-Family Detached		0	0	0	0	2	2	1	0	4	6	3	0
Senior Adult Attached		0	0	0	0	1	1	1	0	2	3	1	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
		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	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**479**	**3**	**2**	**0**	**6**	**9**	**767**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.6	100.0	100.0	0.0	100.0	100.0	0.5	0.0

APPENDIX N

2023 Volume Spreadsheets
(Scenario 2)

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 7-9 AM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	727	51	24	0	15	20	351	0
Seasonal Adjustment Factor	1.000	0	0	0	0	727	51	24	0	15	20	351	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**727**	**51**	**24**	**0**	**15**	**20**	**351**	**0**
Background Growth	14.89 %	0	0	0	0	108	8	4	0	2	3	52	0
EXISTING W/ BACKGROUND		0	0	0	0	835	59	28	0	17	23	403	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**835**	**59**	**28**	**0**	**17**	**23**	**403**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**5**	**15**	**0**	**14**	**5**	**0**	**0**
Single-Family Detached		0	0	0	0	0	3	11	0	10	3	0	0
Senior Adult Attached		0	0	0	0	0	2	4	0	4	2	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	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
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**835**	**64**	**43**	**0**	**31**	**28**	**403**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	7.8	34.9	0.0	45.2	17.9	0.0	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	11	0	0	0	0	0	6	0	0	0	0
EXISTING W/ BACKGROUND		0	82	0	0	0	0	0	45	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**82**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**8**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**1**	**0**	**24**
Single-Family Detached		5	1	0	0	0	0	0	3	1	1	0	17
Senior Adult Attached		3	1	0	0	0	0	0	2	0	0	0	7
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**8**	**84**	**0**	**0**	**0**	**0**	**0**	**50**	**1**	**1**	**0**	**24**
"New" Site Traffic % of Total	####	100.0	2.4	0.0	0.0	0.0	0.0	0.0	10.0	100.0	100.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 7-9 AM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	71	0	0	0	0	0	39	0	0	0	0
Seasonal Adjustment Factor	1.000	0	71	0	0	0	0	0	39	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	11	0	0	0	0	0	6	0	0	0	0
EXISTING W/ BACKGROUND		0	82	0	0	0	0	0	45	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**82**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**1**	**2**	**5**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	1	1	3	0	1	0	1	0	0	0	0
Senior Adult Attached		0	0	1	2	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**83**	**2**	**5**	**0**	**1**	**0**	**46**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	1.2	100.0	100.0	0.0	100.0	0.0	2.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Lenape Road (S.R. 0052)/Tigue Road

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\November **Weekday 4-6 PM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Tigue Road			NORTHBOUND Lenape Road (S.R. 0052)			WESTBOUND Tigue Road			SOUTHBOUND Lenape Road (S.R. 0052)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	390	24	68	0	24	16	648	0
Seasonal Adjustment Factor	1.000	0	0	0	0	390	24	68	0	24	16	648	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**390**	**24**	**68**	**0**	**24**	**16**	**648**	**0**
Background Growth	14.89 %	0	0	0	0	58	4	10	0	4	2	96	0
EXISTING W/ BACKGROUND		0	0	0	0	448	28	78	0	28	18	744	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**448**	**28**	**78**	**0**	**28**	**18**	**744**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**14**	**10**	**0**	**9**	**13**	**0**	**0**
Single-Family Detached		0	0	0	0	0	10	6	0	5	9	0	0
Senior Adult Attached		0	0	0	0	0	4	4	0	4	4	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	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
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**448**	**42**	**88**	**0**	**37**	**31**	**744**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	33.3	11.4	0.0	24.3	41.9	0.0	0.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 1

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Access 1			NORTHBOUND Tigue Road			WESTBOUND Access 1			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	6	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	46	0	0	0	0	0	106	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**46**	**0**	**0**	**0**	**0**	**0**	**106**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**22**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**16**
Single-Family Detached		15	3	0	0	0	0	0	2	1	0	0	10
Senior Adult Attached		7	2	0	0	0	0	0	1	0	0	0	6
		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	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	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**22**	**51**	**0**	**0**	**0**	**0**	**0**	**109**	**1**	**0**	**0**	**16**
"New" Site Traffic % of Total	####	100.0	9.8	0.0	0.0	0.0	0.0	0.0	2.8	100.0	0.0	0.0	100.0

INTERSECTION VOLUME SUMMARY
Tigue Road /Access 2

Tigue Property Residential Development
I:\eng\815336 - Tigue Property Residential Development\Traffic\Analysis\Novembe **Weekday 4-6 PM**
Design Year (2023) Scenario 2

Traffic Component		EASTBOUND Access 2			NORTHBOUND Tigue Road			WESTBOUND Access 2			SOUTHBOUND Tigue Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	40	0	0	0	0	0	92	0	0	0	0
Seasonal Adjustment Factor	1.000	0	40	0	0	0	0	0	92	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**40**	**0**	**0**	**0**	**0**	**0**	**92**	**0**	**0**	**0**	**0**
Background Growth	14.89 %	0	6	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	46	0	0	0	0	0	106	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**46**	**0**	**0**	**0**	**0**	**0**	**106**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**5**	**3**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
Single-Family Detached		0	0	3	2	0	1	1	1	0	0	0	0
Senior Adult Attached		0	0	2	1	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	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	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	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**46**	**5**	**3**	**0**	**1**	**1**	**107**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	100.0	100.0	0.0	100.0	100.0	0.9	0.0	0.0	0.0	0.0

APPENDIX O

2023 Future without Development Capacity/Level-of-Service Analysis Worksheets

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	28	17	835	59	23	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.948		0.991			
Flt Protected	0.970					0.997
Satd. Flow (prot)	1491	0	1762	0	0	1728
Flt Permitted	0.970					0.997
Satd. Flow (perm)	1491	0	1762	0	0	1728
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	29	18	861	61	24	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	922	0	0	439
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	28	17	835	59	23	403
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	29	18	861	61	24	415

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1354	891	0	0	922	0
Stage 1	891	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	189	356	-	-	572	-
Stage 1	460	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	179	356	-	-	572	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.7	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	220	572	-
HCM Lane V/C Ratio	-	-	0.211	0.041	-
HCM Control Delay (s)	-	-	25.7	11.6	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	78	28	448	28	18	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.964		0.992			
Flt Protected	0.965					0.999
Satd. Flow (prot)	1658	0	1750	0	0	1844
Flt Permitted	0.965					0.999
Satd. Flow (perm)	1658	0	1750	0	0	1844
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	86	31	492	31	20	818
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	523	0	0	838
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	78	28	448	28	18	744
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	86	31	492	31	20	818

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1365	508	0	0	523	0
Stage 1	508	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	191	606	-	-	793	-
Stage 1	707	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	606	-	-	793	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.5	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	223	793	-
HCM Lane V/C Ratio	-	-	0.522	0.025	-
HCM Control Delay (s)	-	-	37.5	9.7	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2.7	0.1	-

APPENDIX P

2023 Future with Development Capacity/Level-of-Service Analysis Worksheets (Scenario 1)

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	40	22	836	63	25	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.951		0.991			
Flt Protected	0.969					0.997
Satd. Flow (prot)	1496	0	1762	0	0	1728
Flt Permitted	0.969					0.997
Satd. Flow (perm)	1496	0	1762	0	0	1728
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	41	23	862	65	26	419
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	927	0	0	445
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	22	836	63	25	406
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	41	23	862	65	26	419

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1364	894	0	0	927	0
Stage 1	894	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	186	354	-	-	569	-
Stage 1	459	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	175	354	-	-	569	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	213	569	-
HCM Lane V/C Ratio	-	-	0.3	0.045	-
HCM Control Delay (s)	-	-	29	11.6	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	4	84	50	1	1	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.875	
Flt Protected		0.998			0.996	
Satd. Flow (prot)	0	1692	1700	0	1623	0
Flt Permitted		0.998			0.996	
Satd. Flow (perm)	0	1692	1700	0	1623	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	4	93	56	1	1	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	97	57	0	14	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	84	50	1	1	12
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	93	56	1	1	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	57	0	-	0	158	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	102	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1148	-	-	-	966	1080
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	1074	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1148	-	-	-	962	1080
Mov Cap-2 Maneuver	-	-	-	-	962	-
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	1070	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1148	-	-	-	1070
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	8.1	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	83	2	0	46	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.981	
Flt Protected					0.959	
Satd. Flow (prot)	1768	0	0	1704	1752	0
Flt Permitted					0.959	
Satd. Flow (perm)	1768	0	0	1704	1752	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	92	2	0	51	6	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	0	0	51	7	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	83	2	0	46	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	2	0	51	6	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	94	0	144	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1115	-	985	1029
Stage 1	-	-	-	-	1084	-
Stage 2	-	-	-	-	1135	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1115	-	985	1029
Mov Cap-2 Maneuver	-	-	-	-	985	-
Stage 1	-	-	-	-	1084	-
Stage 2	-	-	-	-	1135	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	992	-	-	1115	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	3	0	9	0	857	1	3	428	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	11	11	11	11	11	11
Grade (%)		4%			0%			4%			1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.896							
Flt Protected					0.989							
Satd. Flow (prot)	0	2069	0	0	1651	0	0	1765	0	0	1792	0
Flt Permitted					0.989							
Satd. Flow (perm)	0	2069	0	0	1651	0	0	1765	0	0	1792	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		274			296			353			639	
Travel Time (s)		7.5			8.1			5.3			9.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	3	0	10	0	952	1	3	476	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	13	0	0	953	0	0	479	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	3	0	9	0	857	1	3	428	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	-	-	0	-
Grade, %	-	4	-	-	0	-	-	4	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	10	0	952	1	3	476	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1440	1435	476	1435	1435	953	476	0	0	953	0	0
Stage 1	482	482	-	953	953	-	-	-	-	-	-	-
Stage 2	958	953	-	482	482	-	-	-	-	-	-	-
Critical Hdwy	7.92	7.32	6.62	7.12	6.52	6.22	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	87	97	590	120	134	328	823	-	-	557	-	-
Stage 1	577	497	-	344	338	-	-	-	-	-	-	-
Stage 2	276	273	-	642	553	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	84	96	590	119	133	328	823	-	-	557	-	-
Mov Cap-2 Maneuver	84	96	-	119	133	-	-	-	-	-	-	-
Stage 1	577	494	-	344	338	-	-	-	-	-	-	-
Stage 2	268	273	-	638	549	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	21.8	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	823	-	-	-	228	557	-	-
HCM Lane V/C Ratio	-	-	-	-	0.058	0.006	-	-
HCM Control Delay (s)	0	-	-	0	21.8	11.5	0	-
HCM Lane LOS	A	-	-	A	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	86	31	451	39	22	746
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.964		0.989			
Flt Protected	0.964					0.999
Satd. Flow (prot)	1656	0	1745	0	0	1844
Flt Permitted	0.964					0.999
Satd. Flow (perm)	1656	0	1745	0	0	1844
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	95	34	496	43	24	820
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	0	539	0	0	844
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	86	31	451	39	22	746
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	95	34	496	43	24	820

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1385	517	0	0	538	0
Stage 1	517	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	186	599	-	-	783	-
Stage 1	700	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	176	599	-	-	783	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.2	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	217	783	-
HCM Lane V/C Ratio	-	-	0.592	0.031	-
HCM Control Delay (s)	-	-	43.2	9.7	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	3.3	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	10	51	109	1	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.865	
Flt Protected		0.992				
Satd. Flow (prot)	0	1682	1702	0	1611	0
Flt Permitted		0.992				
Satd. Flow (perm)	0	1682	1702	0	1611	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	11	57	121	1	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	68	122	0	9	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	51	109	1	0	8
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	57	121	1	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	122	0	-	0	201	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1091	-	-	-	911	991
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1101	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1091	-	-	-	902	991
Mov Cap-2 Maneuver	-	-	-	-	902	-
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1090	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1091	-	-	-	991
HCM Lane V/C Ratio	0.01	-	-	-	0.009
HCM Control Delay (s)	8.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	46	5	1	107	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.966	
Flt Protected					0.964	
Satd. Flow (prot)	1749	0	0	1704	1735	0
Flt Permitted					0.964	
Satd. Flow (perm)	1749	0	0	1704	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	51	6	1	119	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	120	4	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	46	5	1	107	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	6	1	119	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	175	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1148	-	944	1083
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1051	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	943	1083
Mov Cap-2 Maneuver	-	-	-	-	943	-
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1050	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	974	-	-	1148	-
HCM Lane V/C Ratio	0.005	-	-	0.001	-
HCM Control Delay (s)	8.7	-	-	8.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	2	0	6	0	479	3	9	767	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	12	12	12	11	11	11	11	11	11
Grade (%)		4%			0%			4%			1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.895			0.999				
Flt Protected					0.989						0.999	
Satd. Flow (prot)	0	2069	0	0	1649	0	0	1763	0	0	1790	0
Flt Permitted					0.989						0.999	
Satd. Flow (perm)	0	2069	0	0	1649	0	0	1763	0	0	1790	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		274			296			353			639	
Travel Time (s)		7.5			8.1			5.3			9.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	2	0	7	0	532	3	10	852	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	9	0	0	535	0	0	862	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	2	0	6	0	479	3	9	767	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	-	-	0	-
Grade, %	-	4	-	-	0	-	-	4	-	-	1	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	0	7	0	532	3	10	852	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1409	1408	852	1406	1406	534	852	0	0	536	0	0
Stage 1	872	872	-	534	534	-	-	-	-	-	-	-
Stage 2	537	536	-	872	872	-	-	-	-	-	-	-
Critical Hdwy	7.92	7.32	6.62	7.12	6.52	6.22	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.92	6.32	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	92	101	342	126	139	576	606	-	-	784	-	-
Stage 1	316	303	-	600	524	-	-	-	-	-	-	-
Stage 2	530	465	-	383	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	89	99	342	124	136	576	606	-	-	784	-	-
Mov Cap-2 Maneuver	89	99	-	124	136	-	-	-	-	-	-	-
Stage 1	316	296	-	600	524	-	-	-	-	-	-	-
Stage 2	524	465	-	374	359	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	17.3	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	606	-	-	-	301	784	-	-
HCM Lane V/C Ratio	-	-	-	-	0.03	0.013	-	-
HCM Control Delay (s)	0	-	-	0	17.3	9.7	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

APPENDIX Q

2023 Future with Development Capacity/Level-of-Service Analysis Worksheets (Scenario 2)

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	43	31	835	64	28	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.943		0.990			
Flt Protected	0.972					0.997
Satd. Flow (prot)	1484	0	1760	0	0	1729
Flt Permitted	0.972					0.997
Satd. Flow (perm)	1484	0	1760	0	0	1729
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	13%	2%	6%	0%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	44	32	861	66	29	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	927	0	0	444
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	43	31	835	64	28	403
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, %	-1	-	2	-	-	-3
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	8	13	2	6	0	8
Mvmt Flow	44	32	861	66	29	415

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1367	894	0	0	927	0
Stage 1	894	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.28	6.23	-	-	4.3	-
Critical Hdwy Stg 1	5.28	-	-	-	-	-
Critical Hdwy Stg 2	5.28	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	185	354	-	-	569	-
Stage 1	459	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	173	354	-	-	569	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	678	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.8	0	0.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	220	569	-
HCM Lane V/C Ratio	-	-	0.347	0.051	-
HCM Control Delay (s)	-	-	29.8	11.7	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	8	84	50	1	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.870	
Flt Protected		0.996			0.998	
Satd. Flow (prot)	0	1688	1700	0	1617	0
Flt Permitted		0.996			0.998	
Satd. Flow (perm)	0	1688	1700	0	1617	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	9	93	56	1	1	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	102	57	0	28	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	8	84	50	1	1	24
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	93	56	1	1	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	57	0	-	0	167	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1148	-	-	-	954	1080
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	1063	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1148	-	-	-	946	1080
Mov Cap-2 Maneuver	-	-	-	-	946	-
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	1054	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1148	-	-	-	1074
HCM Lane V/C Ratio	0.008	-	-	-	0.026
HCM Control Delay (s)	8.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	83	2	0	46	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.981	
Flt Protected					0.959	
Satd. Flow (prot)	1768	0	0	1704	1752	0
Flt Permitted					0.959	
Satd. Flow (perm)	1768	0	0	1704	1752	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	92	2	0	51	6	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	0	0	51	7	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	83	2	0	46	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	2	0	51	6	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	94	0	144	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1115	-	985	1029
Stage 1	-	-	-	-	1084	-
Stage 2	-	-	-	-	1135	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1115	-	985	1029
Mov Cap-2 Maneuver	-	-	-	-	985	-
Stage 1	-	-	-	-	1084	-
Stage 2	-	-	-	-	1135	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	992	-	-	1115	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	88	37	448	42	31	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	-1%		2%			-3%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.960		0.988			
Flt Protected	0.966					0.998
Satd. Flow (prot)	1653	0	1743	0	0	1843
Flt Permitted	0.966					0.998
Satd. Flow (perm)	1653	0	1743	0	0	1843
Link Speed (mph)	25		45			45
Link Distance (ft)	339		872			644
Travel Time (s)	9.2		13.2			9.8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	4%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	97	41	492	46	34	818
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	538	0	0	852
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	88	37	448	42	31	744
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, %	-1	-	2	-	-	-3
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	3	4	0	1
Mvmt Flow	97	41	492	46	34	818

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1401	515	0	0	538	0
Stage 1	515	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Critical Hdwy	6.2	6.1	-	-	4.3	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	182	601	-	-	783	-
Stage 1	701	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	601	-	-	783	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	434	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	48.7	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	212	783	-
HCM Lane V/C Ratio	-	-	0.648	0.044	-
HCM Control Delay (s)	-	-	48.7	9.8	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	3.9	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	22	51	109	1	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		5%	4%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.865	
Flt Protected		0.985				
Satd. Flow (prot)	0	1670	1702	0	1611	0
Flt Permitted		0.985				
Satd. Flow (perm)	0	1670	1702	0	1611	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		641	396		233	
Travel Time (s)		17.5	10.8		6.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	24	57	121	1	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	81	122	0	18	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	22	51	109	1	0	16
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, %	-	5	4	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	57	121	1	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	122	0	-	0	228	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	106	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1091	-	-	-	877	991
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1069	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1091	-	-	-	857	991
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1044	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1091	-	-	-	991
HCM Lane V/C Ratio	0.022	-	-	-	0.018
HCM Control Delay (s)	8.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	46	5	1	107	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)	-4%			4%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.966	
Flt Protected					0.964	
Satd. Flow (prot)	1749	0	0	1704	1735	0
Flt Permitted					0.964	
Satd. Flow (perm)	1749	0	0	1704	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	396			377	230	
Travel Time (s)	10.8			10.3	6.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	51	6	1	119	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	120	4	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	46	5	1	107	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	4	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	6	1	119	3	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	175	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1148	-	944	1083
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1051	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	943	1083
Mov Cap-2 Maneuver	-	-	-	-	943	-
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1050	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	974	-	-	1148	-
HCM Lane V/C Ratio	0.005	-	-	0.001	-
HCM Control Delay (s)	8.7	-	-	8.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX R

Traffic Signal Warrants

2015 Existing Conditions
Lenape Road and Tigue Road

Signal Warrants - Summary

Major Street Approaches

Northbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,192**

Southbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,035**

Minor Street Approaches

Westbound: **Tigue Road**
Number of Lanes: **1**

Total Approach Volume: **131**

Warrant Summary **(Rural values apply.)**

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Evaluated**

Warrant 1A - Minimum Vehicular Volume ..... **Not Evaluated**

Warrant 1B - Interruption of Continuous Traffic ..... **Not Evaluated**

Warrant 1 A&B - Combination of Warrants ..... **Not Evaluated**

Warrant 2 - Four Hour Volumes ..... **Not Evaluated**

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Evaluated**

Warrant 5 - School Crossing ..... **Not Evaluated**

Warrant 6 - Coordinated Signal System ..... **Not Evaluated**

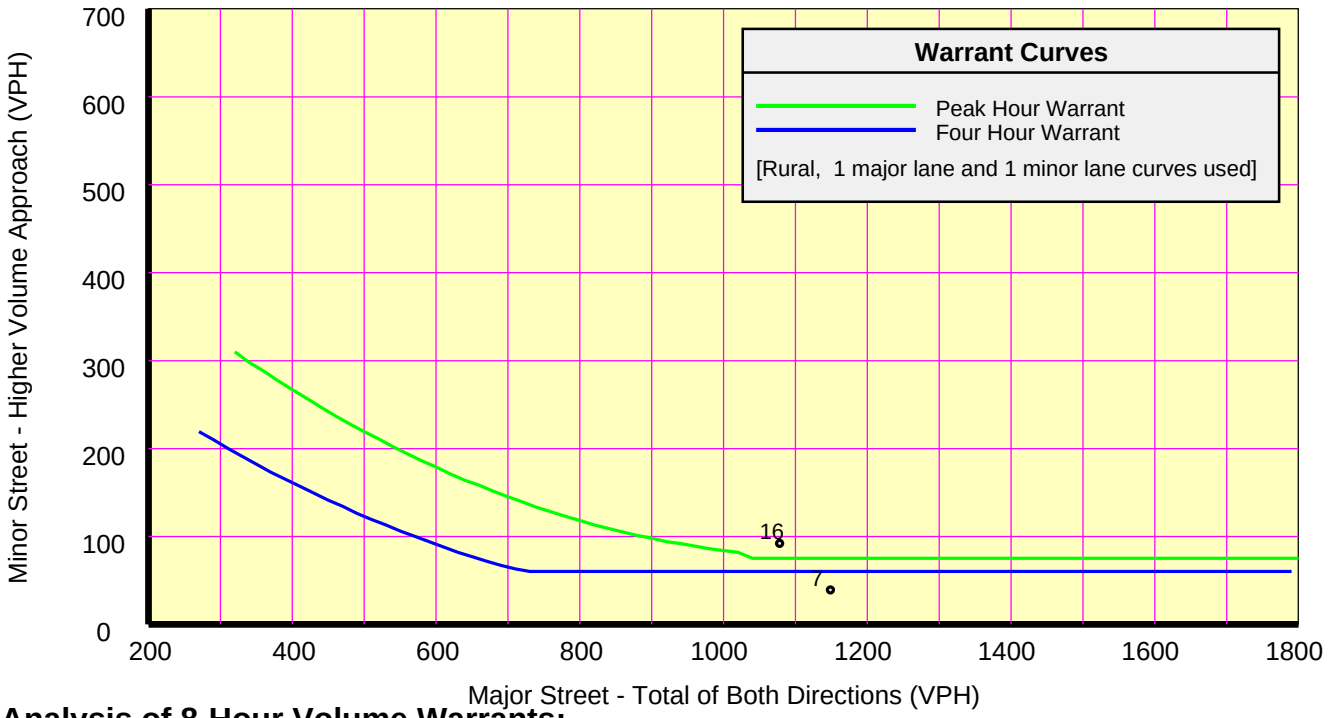
Warrant 7 - Crash Experience ..... **Not Evaluated**

Warrant 8 - Roadway Network ..... **Not Evaluated**

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

2015 Existing Conditions
Lenape Road and Tigue Road

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,149	39	W	Yes	Yes
16:00	1,078	92	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,149	39	W	Yes	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,149	39	W	Yes	Yes
16:00	1,078	92	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,149	39	W	Yes	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,149	39	W	Yes	Yes
16:00	1,078	92	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,149	39	W	Yes	Yes

2023 Future without Development Conditions
Lenape Road and Tigue Road

Signal Warrants - Summary

Major Street Approaches

Northbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,370**

Southbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,188**

Minor Street Approaches

Westbound: **Tigue Road**
Number of Lanes: **1**

Total Approach Volume: **151**

Warrant Summary **(Rural values apply.)**

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Evaluated**

Warrant 1A - Minimum Vehicular Volume ..... **Not Evaluated**

Warrant 1B - Interruption of Continuous Traffic ..... **Not Evaluated**

Warrant 1 A&B - Combination of Warrants ..... **Not Evaluated**

Warrant 2 - Four Hour Volumes ..... **Not Evaluated**

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Evaluated**

Warrant 5 - School Crossing ..... **Not Evaluated**

Warrant 6 - Coordinated Signal System ..... **Not Evaluated**

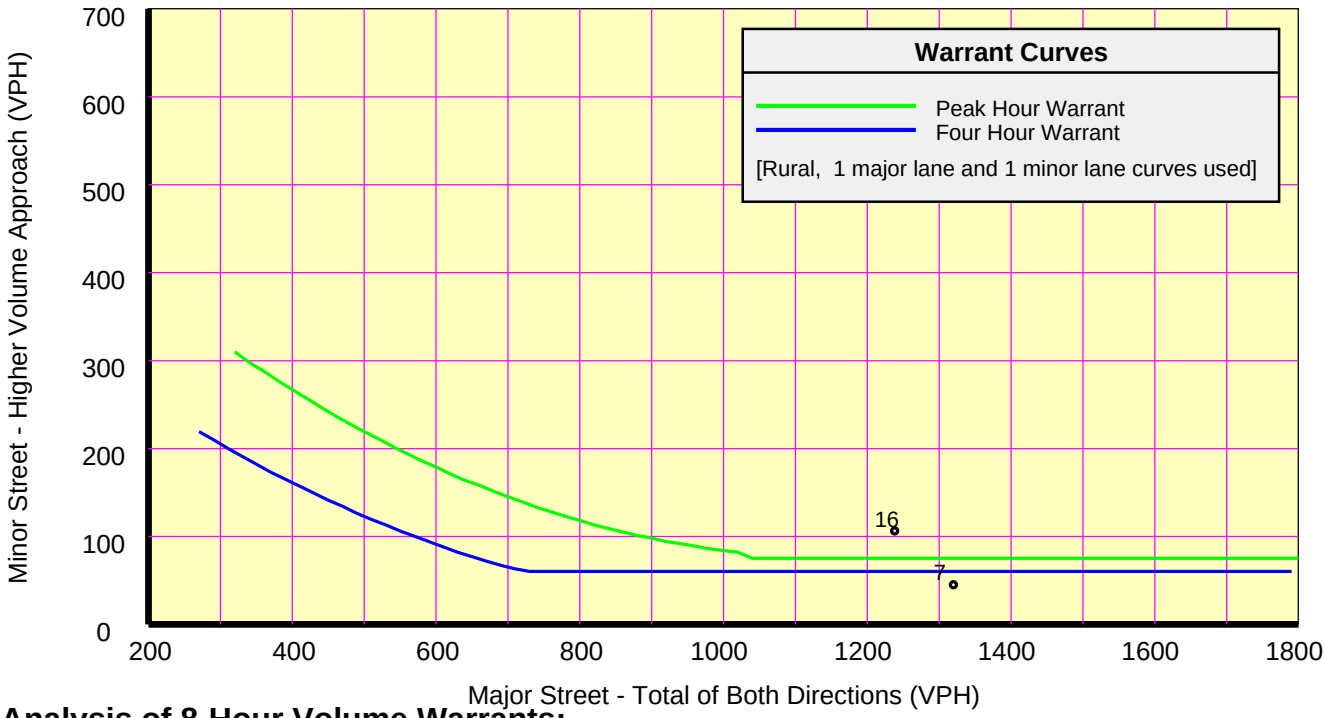
Warrant 7 - Crash Experience ..... **Not Evaluated**

Warrant 8 - Roadway Network ..... **Not Evaluated**

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

2023 Future without Development Conditions
Lenape Road and Tigue Road

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,320	45	W	Yes	Yes
16:00	1,238	106	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,320	45	W	Yes	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,320	45	W	Yes	Yes
16:00	1,238	106	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,320	45	W	Yes	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,320	45	W	Yes	Yes
16:00	1,238	106	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,320	45	W	Yes	Yes

2023 Future with Development Conditions
Lenape Road and Tigue Road
Scenario 1

Signal Warrants - Summary

Major Street Approaches

Northbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,389**

Southbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,199**

Minor Street Approaches

Westbound: **Tigue Road**
Number of Lanes: **1**

Total Approach Volume: **179**

Warrant Summary **(Rural values apply.)**

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Evaluated**

Warrant 1A - Minimum Vehicular Volume ..... **Not Evaluated**

Warrant 1B - Interruption of Continuous Traffic ..... **Not Evaluated**

Warrant 1 A&B - Combination of Warrants ..... **Not Evaluated**

Warrant 2 - Four Hour Volumes ..... **Not Evaluated**

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Evaluated**

Warrant 5 - School Crossing ..... **Not Evaluated**

Warrant 6 - Coordinated Signal System ..... **Not Evaluated**

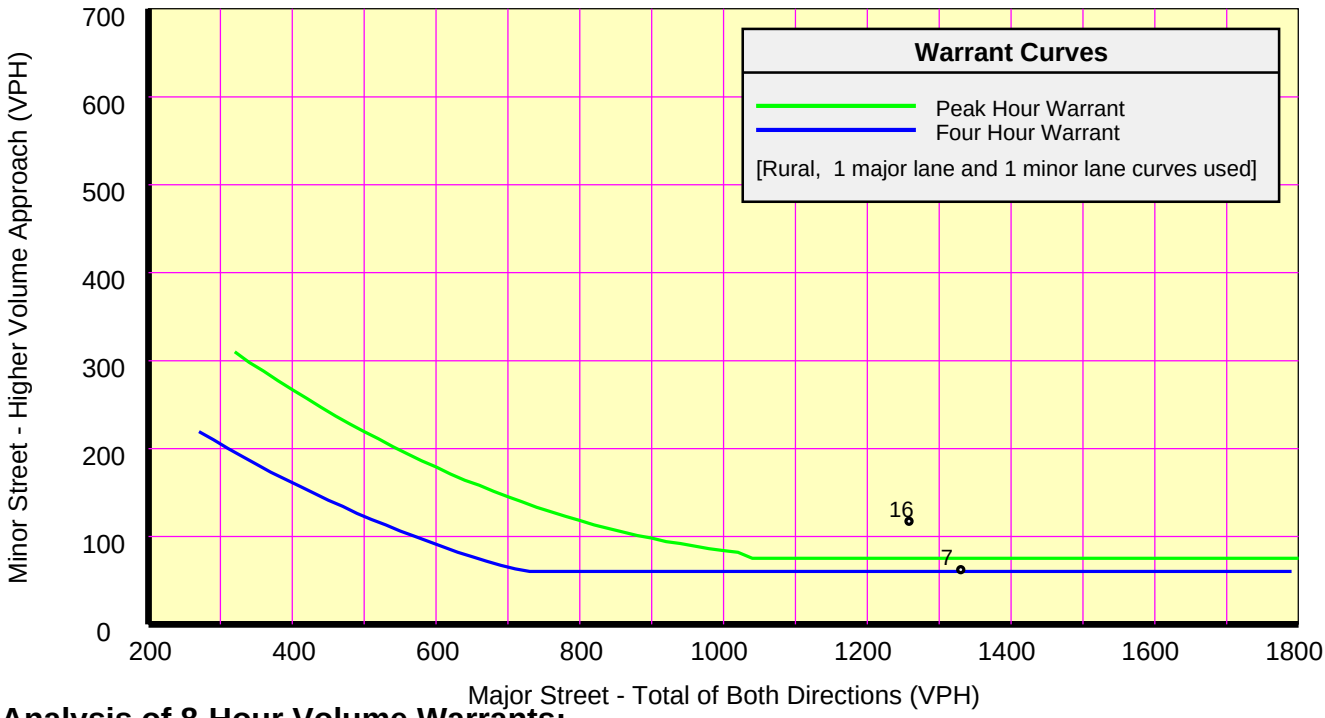
Warrant 7 - Crash Experience ..... **Not Evaluated**

Warrant 8 - Roadway Network ..... **Not Evaluated**

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

2023 Future with Development Conditions
Lenape Road and Tigue Road
Scenario 1

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	62	W	Yes	Yes
16:00	1,258	117	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	62	W	Yes	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	62	W	Yes	Yes
16:00	1,258	117	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	62	W	Yes	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	62	W	Yes	Yes
16:00	1,258	117	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	62	W	Yes	Yes

2023 Future with Development Conditions
Lenape Road and Tigue Road
Scenario 2

Signal Warrants - Summary

Major Street Approaches

Northbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,389**

Southbound: **Lenape Road**
Number of Lanes: **1**
85% Speed > 40 MPH.
Total Approach Volume: **1,206**

Minor Street Approaches

Westbound: **Tigue Road**
Number of Lanes: **1**

Total Approach Volume: **199**

Warrant Summary **(Rural values apply.)**

Warrant 1 - Eight Hour Vehicular Volumes ..... **Not Evaluated**

Warrant 1A - Minimum Vehicular Volume ..... **Not Evaluated**

Warrant 1B - Interruption of Continuous Traffic ..... **Not Evaluated**

Warrant 1 A&B - Combination of Warrants ..... **Not Evaluated**

Warrant 2 - Four Hour Volumes ..... **Not Evaluated**

Warrant 3 - Peak Hour ..... **Satisfied**

Warrant 3A - Peak Hour Delay ..... **Not Satisfied**
Total approach volumes and delays on minor street do not exceed minimums for any hour.

Warrant 3B - Peak Hour Volumes ..... **Satisfied**
Volumes exceed minimums for at least one hour.

Warrant 4 - Pedestrian Volumes ..... **Not Evaluated**

Warrant 5 - School Crossing ..... **Not Evaluated**

Warrant 6 - Coordinated Signal System ..... **Not Evaluated**

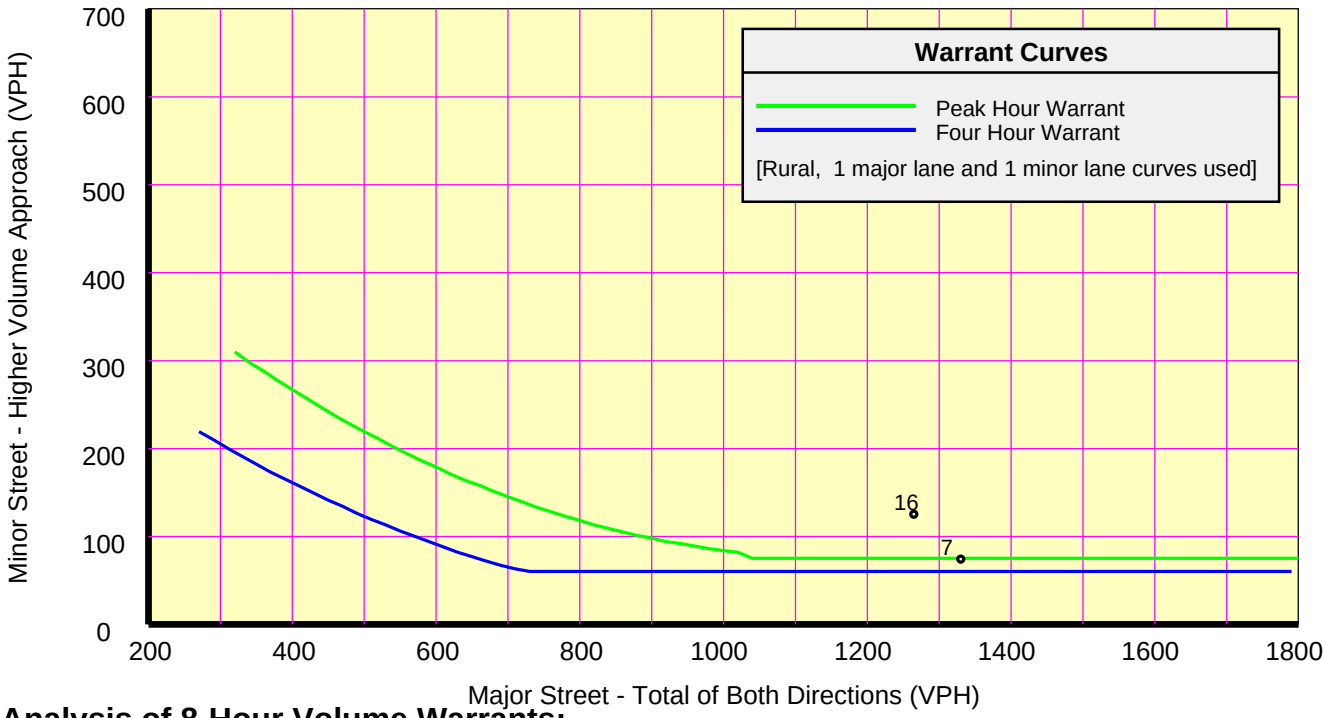
Warrant 7 - Crash Experience ..... **Not Evaluated**

Warrant 8 - Roadway Network ..... **Not Evaluated**

Warrant 9 - Intersection Near a Grade Crossing ..... **Not Evaluated**

2023 Future with Development Conditions
Lenape Road and Tigue Road
Scenario 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	74	W	Yes	Yes
16:00	1,265	125	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	74	W	Yes	Yes

War 1B-Interruption of Traffic

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	74	W	Yes	Yes
16:00	1,265	125	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	74	W	Yes	Yes

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Minor Dir	Maj 0	Min 0
07:00	1,330	74	W	Yes	Yes
16:00	1,265	125	W	Yes	Yes
22:00	0	0	W	Yes	Yes
21:00	0	0	W	Yes	Yes
20:00	0	0	W	Yes	Yes
19:00	0	0	W	Yes	Yes
18:00	0	0	W	Yes	Yes
17:00	0	0	W	Yes	Yes
15:00	0	0	W	Yes	Yes
14:00	0	0	W	Yes	Yes
13:00	0	0	W	Yes	Yes
12:00	0	0	W	Yes	Yes
11:00	0	0	W	Yes	Yes
10:00	0	0	W	Yes	Yes
09:00	0	0	W	Yes	Yes
08:00	0	0	W	Yes	Yes
06:00	0	0	W	Yes	Yes
05:00	0	0	W	Yes	Yes
04:00	0	0	W	Yes	Yes
03:00	0	0	W	Yes	Yes
02:00	0	0	W	Yes	Yes
01:00	0	0	W	Yes	Yes
00:00	0	0	W	Yes	Yes
06:45	1,330	74	W	Yes	Yes